BCA - Third Semester

### **OBJECT ORIENTED PROGRAMMING USING C++** (BCA-302A (CB) / (BCA-DS-301)

Time: 3 hrs.

Max Marks: **100** 

- No. of pages: 1
- Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question.
- Q.1 Answer the following in brief:
  - a) List two distinguished features of object oriented programming languages.
  - b) Data types available in C++ can be \_\_\_\_\_ and \_\_\_\_\_.
  - c) Inpassing parameters by reference, the \_\_\_\_\_ of variable is passed.
  - d) \_\_\_\_\_ conditional statement has exit condition mentioned in itself.
  - e) Constructors are special type of
  - f) \_\_\_\_\_ and \_\_\_\_\_ operators help in dynamic memory management.
  - g) Exception handling deals with errors which occur during \_\_\_\_\_.
  - h) Give syntax of While statement in C++.
  - i) operator is used as exponent operator in C++.
  - j) The purpose of operator overloading is \_\_\_\_\_. [CO1, 2, 4, 5] [L2] **2×10**

#### CO-5 L1 2×10

### PART-A

- a) "Data Security is the main objective of object oriented programming languages". Do Q.2 you agree with this statement? Justify your answer with the help of an example.
  - [CO2] [L4] **10**
  - b) Explain the following concepts by taking C++ as a programming language:
    - i) Dynamic memory management.
    - ii) Array of objects.
- Q.3 a) Differentiate between:
  - i) Default arguments.
  - ii) Constant arguments.
  - b) "Passing parameters by reference may result in change in original values of the calling function". Justify the statement using suitable examples. [CO3] [L5] **10**
- Demonstrate the implementation the following in C++ language: Q.4
  - a) Access specifier.
  - b) Passing object as an argument.
  - c) Inline function.
  - d) Array within a class.

### PART-B

- a) List the advantages of using multiple constructors in class with the help of examples. Q.5
  - [CO3] [L3] **10** b) "The need of destructor arises when there is a usage of dynamic memory management in a class". Do you agree with this statement? Give reasons in support of your answer. [CO3] [L4] 10
- a) Explain the use of pure virtual function in C++. Q.6 [CO5] [L2] **10** 
  - b) Differentiate between single and multiple inheritances.

[CO3] [L3] **10** 

1

[CO2] [L4] **5×2** 

[CO1] [L2] **5×2** 

[CO3] [L2| **5×4** 

Q.7 "Avoiding the use of exception handing may lead to abrupt exit from the execution of the code". Justify the statement with the help of an example. [CO4] [L5] **20** 

### End Semester Examination, May 2023 **BCA** – First Semester ELEMENTS OF MATHEMATICS ((BCA-DS-101) / (BCA 102A(CB)) / (BCA-102(CB)))

Time: 3 hrs.

Max Marks: 100 No. of pages: 2

- Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question.
- Q.1 a) Which of the following matrix having only one row and multiple columns?
  - i) Diagonal Matrix ii) Row Matrix
  - iii) Column Matrix iv) None of the above
  - b) XY = YX is a true or false statement if the order of A matrix and B matrix is the same.
    - i) False

- ii) True
- c) The value of sin  $\,^{\theta}$  and  $\,^{\cos\left(\,90^{\mathrm{o}}-\theta\right)}$ 
  - i) Are same
  - iii) No relation

- ii) Are different
- iv) Information insufficient

d)  $1 - \cos 2x =$ i)  $\sin x$ 

iii)  $\sin 2x$ 

i) 1/6

iii) 1/3

- ii)  $\cos x$
- iv)  $\cos 2x$
- e) The necessary condition for the maclaurin expansion to be true for function f(x) is
  - i) f(x) should be continuous
  - ii) f(x) should be differentiable
  - iii) f(x) should exists at every point
  - iv) f(x) should be continuous and differentiable
- f) An event in the probability that will never be happened is called as
  - i) Unsure event ii) Sure event
  - iii) Possible event iv) Impossible event720
- g) The probability of getting two tails when two coins are tossed is
  - ii) 1/2
  - iv) 1/4
- h) What is the middle term of  $(x^2 + x)^3$ ? ii)  $6x^4$ i)  $3x^4$ 
  - iv)  $3x^{6}$ iii)  $4x^4$
- i) If set  $X = \{2, 3, 5, 7\}$ , then n[P(X)] is \_\_\_\_\_
  - ii) 16 i) 8 iv) None of above
    - iii) 32
- j) Find the derivative of  $e^{x^2}$ . i)  $e^{x^2}$ 
  - ii) 2xiii)  $2e^{x^2}$ iv)  $2xe^{x^2}$ [CO2, 3, 4, 5] [L1, 2, 3] **2×10**

### PART-A

Q.2 a) Using Cramer's rule solve the following system of linear equations X + y + z + 1 = 0

	X + 2y + 3z + 4 = 0	
	X + 3y + 4z + 6 = 0	[CO2] [L4] <b>10</b>
	b) Compute 3A + 4B if $A = \begin{pmatrix} 1 & -2 & 3 \\ -4 & 2 & 5 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & -2 & 3 \\ -1 & 0 & 2 \end{pmatrix}$	[CO2] [L4] <b>10</b>
Q.3	<ul> <li>a) Out of 6 boys and 4 Girls, a committee of 6 is to be formed .In how this be done if the committee contains.</li> <li>i) Exactly 2 girls</li> <li>ii) At least 2 Girls</li> <li>iii) Not more than two Girls</li> <li>iv) No Girls</li> </ul>	many ways can
	v) 3 boys 3 Girls	[CO3] [L4] <b>10</b>
Q.4	b) Find the two middle terms in the expansion of $\left(2x - \frac{x^2}{4}\right)^9$ a) If $3^{4m+1} = 3^{7m-5}$ , solve for m.	[CO4] [L5] <b>10</b> [CO4] [L5] <b>10</b>
	b) If $x = 3 - \sqrt{7}$ , then find the value of $x + 1/x$ .	[CO4] [L5] <b>10</b>
	<u>PART-B</u>	
Q.5	Prove that a) $\tan^4 \theta + \tan^2 \theta = \sec^4 \theta - \sec^2 \theta$ b) $\cos \theta / (1 - \tan \theta) + \sin \theta / (1 - \cot \theta) = \sin \theta + \cos \theta$	[CO3] [L5] <b>10</b> [CO4] [L5] <b>10</b>
Q.6	a) If $y = \sqrt{x} - \frac{1}{\sqrt{x}}$ , show that $2x \frac{dy}{dx} + y = 2\sqrt{x}$ $x \frac{2x+3}{x}$	[CO5] [L6] <b>10</b>

- b) Differentiate w.r.t.  $\frac{x}{x^2-5}$  [CO5] [L5] **10**
- Q.7 Expand  $e^x$  in power of x by maclarin's theorem. [CO5] [L6] **20**

BCA – First Semester

ELEMENTS OF MATHEMATICS

#### (BCA-DS-101)/(BCA-102 (CB)/(BCA-102A (CB))

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each auestion.

#### Choose the correct option: Q.1

- a) Which of the following matrix having only one row and multiple columns?
  - i) Diagonal Matrix ii) Row Matrix
  - iii) Column Matrix iv) None of the above
- b) XY = YX is a true or false statement if the order of A matrix and B matrix is the same.
  - i) False

- ii) True
- c) The value of sin  $\,^{\theta}$  and  $\,^{\cos\left(\,90^{\mathrm{o}}-\theta\right)}$ 
  - i) Are same

iii)  $\sin 2x$ 

iii) No relation

iv) Information insufficient

ii) Are different

- d)  $1 \cos 2x =$ i)  $\sin x$
- ii)  $\cos x$
- iv)  $\cos 2x$
- e) The necessary condition for the Maclaurin expansion to be true for function f(x) is

i) f(x) should be continuous

- ii) f(x) should be differentiable
- iii) f(x) should exists at every point
- iv) f(x) should be continuous and differentiable
- f) An event in the probability that will never be happened is called as:
  - i) Unsure event ii) Sure event
  - iii) Possible event iv) Impossible event
- q) The probability of getting two tails when two coins are tossed is:
  - i) 1/6 ii) 1/2
  - iii) 1/3 iv) 1/4
- h) What is the middle term of  $(x^2 + x)^3$ ? i)  $3x^4$ ii)  $6x^4$ 
  - iii)  $4x^4$ iv)  $3x^{6}$
- i) If set  $X = \{2, 3, 5, 7\}$ , then n[P(X)] is \_\_\_\_\_
  - ii) 16 i) 8 iv) None of the above
  - iii) 32
- i) Find the derivative of  $e^{x^2}$ . i)  $e^{x^2}$ 
  - ii) 2xiii)  $2e^{x^2}$ iv)  $2xe^{x^2}$ [CO2, 3, 4, 5] [L1, 2, 3] **2×10**

### PART-A

Q.2 a) Using Cramer's rule solve the following system of linear equations: X + y + z + 1 = 0X + 2y + 3z + 4 = 0

	X + 3y + 4z + 6 = 0	[CO2] [L4] <b>10</b>
	b) Compute 3A + 4B if $A = \begin{pmatrix} 1 & -2 & 3 \\ -4 & 2 & 5 \end{pmatrix} = \begin{bmatrix} 1 & -2 & 3 \\ -1 & 0 & 2 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & -2 & 3 \\ -1 & 0 & 2 \end{pmatrix}$	[CO2] [L4] <b>10</b>
Q.3	<ul> <li>a) Out of 6 boys and 4 Girls, a committee of 6 is to be formed. In how this be done if the committee contains:</li> <li>i) Exactly 2 girls</li> <li>ii) At least 2 Girls</li> <li>iii) Not more than two Girls</li> <li>iv) No Girls</li> <li>v) 2 hour 2 Girls</li> </ul>	
	v) 3 boys 3 Girls $\left(2x - \frac{x^2}{4}\right)^9$	[CO3] [L4] <b>10</b>
	b) Find the two middle terms in the expansion of $\begin{pmatrix} 4 \end{pmatrix}$	[CO4] [L5] <b>10</b>
Q.4	a) If $3^{4m+1} = 3^{7m-5}$ , solve for m.	[CO4] [L5] <b>10</b>
	b) If $x = 3 - \sqrt{7}$ , then find the value of $x + 1/x$ .	[CO4] [L5] <b>10</b>
	<u>PART-B</u>	
Q.5	Prove that a) $\tan^4 \theta + \tan^2 \theta = \sec^4 \theta - \sec^2 \theta$ b) $\cos \theta / (1 - \tan \theta) + \sin \theta / (1 - \cot \theta) = \sin \theta + \cos \theta$	[CO3] [L5] <b>10</b> [CO4] [L5] <b>10</b>
Q.6	a) If $y = \sqrt{x} - \frac{1}{\sqrt{x}}$ , show that $2x \frac{dy}{dx} + y = 2\sqrt{x}$	[CO5] [L6] <b>10</b>

b) Differentiate w.r.t. 
$$\frac{x}{x^2-5}$$
 [CO5] [L5] **10**

Q.7 Expand 
$$e^x$$
 in power of x by Maclarin's theorem. [CO5] [L6] **20**

BCA – First Semester

### HARDWARE INTERFACES (BCA-DS-102) / (BCA-103A (CB))

Time:	3 h	nrs.				Max Marks: <b>100</b>
Note:	Att <b>PA</b> qu	tempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>col</b> <b>ART-A</b> and <b>TWO</b> questions from <b>P</b> vestion.	mj Al	<b>pulsory</b> . Attempt any <b>RT-B.</b> Marks are inc	<b>TW</b> licat	<i>O questions from</i> <i>ed against each</i>
Q.1	M	ultiple choice questions:				
	a)	In PIV processor, P stands for		·		
	<b>հ</b> )	I) Penta	1)	Pentium	III)	Perfect
	D)	i) Direct Matter Printing	 	Dot Matrix printor	;;;)	Data Matrix printor
	c)	ISA supports bits.	1)	Dot Matrix printer	<i>)</i>	
		CO-1 L1				
		i) 48 bits	i)	32 bits	iii)	8 bits
	d)	A computer needs volt CO-5 L1	s i	for smooth working.	,	
		i) 5 volts i	i)	240 volts	iii)	30 volts
	e)	No beep indicates				
		i) RAM issue	i)	Power supply issue	iii)	HDD issue
	f)	A computer needs pov	ve	r supply.		
		i) AC i	i)	DC	iii)	AC and DC both
	g)	In a laptop, the task of voltage regula	tic	on is done by		·
		i) Motherboard i	i)	Processor	iii)	Adaptor
	h)	Which among the following is not system?	а	peripheral hardware	dev	ice in a computer
		i) Keyboard i	i)	Printer	iii)	HDD
	i)	Which of the flowing is the latest oper	at	ing system?		
		i) Windows 10 i	i)	Windows 11	iii)	Windows 8
	j)	What process does a ransomware had	:ke	er perform on a user's	syst	tem?
		i) Encrypting important files				
		ii) Moving operating system data				
		iii) Deleting key system data			ΓCC	
		iv) copying a user's personal data			lcc	J1,2,3][L1] <b>2×10</b>
						CO-5 L1

#### 2×10

### PART-A

- Q.2 "The i-series processors have taken the computation to a new level. The speed and computation capability offered by Pentium series has been increased manifold." Justify your answer with examples. [CO1] [L5] **20**
- Q.3 a) Compare the working of Laserjet and Deskjet printer? Why Laserjet is preferred over deskjet? [CO1] [L4] **10**

**P.T.O.** 

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b) What do you mean by super controller, keyboard controller and serial controller? [CO3] [L1] **10** 

Q.4 Explain the different types of memories available in computer. Give the internal architecture of hard disk drive and explain the working of different components of Hard disk drive. [CO4] [L2] **20** 

### <u>PART-B</u>

- Q.5a) Explain the POST sequence and also give list of different beeps and meaning of beeps<br/>during POST sequence.[CO2] [L2] 15
  - b) What do you mean by an expansion card? [CO1] [L1] 5
- Q.6a) Why there is a need for Accelerated Graphics Port (AGP) in computers? How it helps<br/>in improving the performance of the computer?[CO1] [L4] 10
  - b) Explain the usefulness of Plug and Play and how it works? [CO1] [L2] **10**
- Q.7 What are the different types of malwares? Why Ransomware malware has become a prominent threat these days? Explain the working of Ransomware malware in detail along with examples. [CO5] [L1] **20**

### End Semester Examination, May 2023 BCA – First Semester

### INTRODUCTION TO IT AND PROGRAMMING IN C ((BCA-DS-104) / (BCA-106(CB)))

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.

Q.1	Μι	Iltiple choice questions:								
	a)	C language is available for which of	the following operating sys	tems.						
		i) DOS	ii) Windows							
		iii) Unix	iv) All of these							
	b)	Binary equivalent of the decimal nur	mber 25 is							
		i) 11001	ii) 10011							
		iii) 1001	iv) None of these.							
	c)	Find the odd one:								
		i) Keyboard	ii) Mouse							
		iii) Scanner	iv) Printer							
	d)	Which of the following is an impact printer?								
		i) Dot matrix printer	ii) Laser Printer,							
		iii) Inkjet printer	iv) None of these.							
	e)	Flash memory is a type of	chip.							
		i) ROM	ii) PROM							
		iii) EEPROM	iv) EPROM							
	f)	The software used to translate	assembly language progr	am into a machine						
		language program is called								
		i) Assembler	ii) Compiler							
		iii) Interpreter	iv) Linker							
	g)	Who is the father of computer?								
		i) Allen Turing	ii) Charles Babbage							
		ii) Simur Cray	iv) Augusta Adaming							
	h)	What is a light pen?								
		i) A Mechanical Input device	ii) Electronic input device	2						
		iii) Optical input device	iv) Optical output device							
	i)	Which of the following is a part of the	ne central processing unit?							
		i) Printer	ii) Keyboard							
		iii) Mouse	iv) Arithmetic and Logic u	nit						
	j)	What type of computers are client	computers (most of the til	me) in a client-server						
		system?		-						
		i) Mainframe	ii) Mini-computer							
		iii) Microcomputer	iv) PDA	[CO1, 2] [L1] <b>2×10</b>						

**P.T.O.** 

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### <u>PART-A</u>

Q.2	a) b)	Explain the concept of digital computer. Draw block diagram of digital explain each component. Differentiate between an impact printer and a non-impact printer. capable of higher speed?	computer and [CO2] [L3] <b>10</b> Which one is [CO2] [L3] <b>10</b>
Q.3	a) b)	Explain different data types in C with examples. Discuss assignment, arithmetic and logical operators in C.	[CO3] [L2] <b>10</b> [CO3] [L2] <b>10</b>
Q.4	a)	Give the syntax for: i) If else. ii) While. iii) Do while iv) For. v) Break	245
	b)	Write an algorithm and draw the flowchart for determining the number.	factorial of a [CO4] [L5] <b>10</b>

### <u>PART-B</u>

Q.5	<ul><li>a) Differentiate between arrays and pointers.</li><li>b) Analyze the string manipulation functions with examples.</li></ul>	[CO5] [L5] <b>10</b> [CO5] [L5] <b>10</b>
Q.6	a) Write a program to copy the contents of one array into another in	the reverse order.
	b) Differentiate between structure and union. Explain the initialization example.	on of structure with [CO5] [L4] <b>10</b>
Q.7	a) Describe dynamic memory allocation. How does it help in building	complex programs?
	b) Write a program in C for addition of two matrices.	[CO6] [L5] <b>10</b> [CO6] [L5] <b>10</b>

### End Semester Examination, May 2023 BCA – First / Second Semester DATABASE MANAGEMENT SYSTEM (BCA-DS-105) / (BCA-204A (CB)) / (BCA-204(CB)

Time: 3 hrs.

Max Marks: **100** 

No. of pages: 2

[CO3] [L2]

[CO3] [L2]

[CO6] [L2] **2×10** 

- Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 Answer the following in brief:

a) Define the entity, attributes, table and tuple in	relational model with examples.
	[CO1] [L1]
b) Write down the difference between primary key a	nd foreign key. [CO4] [L1]
c) Explain the following SQL clauses constructs with	example:
i) Select ii) Create	[CO4] [L2]
d) Write the SQL statements used to insert, delete data	a from the database. [CO4] [L6]
<ul><li>e) Write the full form of DDL and DML.</li></ul>	[CO4] [L3]
f) Define the role of DBA.	[CO2] [L2]
g) What is BCNF? This form is an extended version of	which other normal form? [CO5]

- [Ĺ2]
- h) Define the different types of locks.

i) Give different risks to the database security.

j) Define distributed database.

### PART-A

- Q.2 a) Explain DBMS. What are its advantages and disadvantages of a DBMS? [CO1][L2] 10
   b) Explain three level architecture of a DBMS How this level of architecture is different from first and second level of architecture of DBMS? [CO2][L2] 10
- Q.3 Define 'data models' and also explain data models in detail. [CO5] [L3] 20
- Q.4 Create a table named emp with the given specifications and execute the queries:

S. No	Column Name	Data type and size	Constraint
1	Empno	Number (4, 0)	Primary Key
2	ename	Varchar2(10)	
3	Job	Varchar2(9)	
4	Hiredate	Date	
5	Sal	Number(7, 2)	
6	Commission	Number (2, 0)	
7	deptno	Number(2, 0)	

Run the following queries:

- a) Display the structure of the table emp.
- b) Insert 5 records in the created table.
- c) Display all records of the table emp.
- d) Display the records of the table in the ascending order of employee name.
- e) Give the count of rows created in the table.
- f) Display the names of the employees whose names start with 'A' or 'S'.
- g) Display the job names.
- h) Display the names of the employees whose salary is between 20000 and 30000.
- i) Display the commission of the employees if provided.

j) Display the empno, ename of the employees where dept no =10. [CO5] [L3] 20

### <u>PART-B</u>

- Q.5 Explain normalization and its types in detail along with suitable examples. [CO5] [L3] 20
- Q.6 a) Define 'ACID'. Also explain different transaction states. [CO3] [L3] **10** 
  - b) Which algorithms can be used to control the concurrency? [CO3] [L3] **10**
- Q.7 Describe database recovery. Explain different methods used to recover the data.

[CO3] [L3] **20** 

### End Semester Examination, May 2023 BCA / B.Sc. (Information Technology) — First Semester BUSINESS COMMUNICATION (BCA-DS-106) / (BSCIT-DS-104)

Time: 1 hrs.

Max Marks: **50** *No. of pages: 4* 

### Please read the instructions carefully

Note: All questions are **compulsory.** Each question has **FOUR** options with **ONE** correct answer. Select the correct answer. All questions are of **ONE** mark each. There is no **NEGATIVE** marking. Mention the correct option for each question in the blank answer key given herein below. Calculator is not permitted. Use only black or blue pen.

1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	
11)	12)	13)	14)	15)	16)	17)	18)	19)	20)	
21)	22)	23)	24)	25)	26)	27)	28)	29)	30)	
31)	32)	33)	34)	35)	36)	37)	38)	39)	40)	
41)	42)	43)	44)	45)	46)	47)	48)	49)	50)	
Q.1 Which option helps you to save an unfinished email without sending it?										
	a) Trash				b) Inbox					
	c) Sent ite	ms			d) Save	as a draft			[CO4] [L1]	
Q.2	E-mail is a	method of	fexchang	ing messa	ages betwe	een peopl	e using _		·	
	a) Letters				b) Telep	hones				
~ ~	c) Electron	nic device		<i>c</i>	d) None	of the abo	ove		[CO4] [L1]	
Q.3	Which of th	nese do no	ot provide	free ema	II?					
	a) Hotmail				b) Gmail				[CO 4] [1 4]	
0.4	C) BSNL	. fallaudia			d) whats	sapp			[CO4][L1]	
Q.4	Which of tr		g icon is i	used to a	b) CIE io	nent to an	email?			
	a) Stationa	lin icon			d) Emoji	icon				
05	Deleted em	nip icon Naile are et	orod in:		u) Linoji					
Q.J	a) Inhox				h) Trash					
	c) Sent ite	ms			d) Snam				[[]]	
0.6	Which one	is a barrie	r to speal	kina?	u) opum				[00]][1]	
۹.0	a) Poor list	tenina			b) Lack (					
	c) Relucta	nt to read			d) Nervo	[CO2] [L1]				
Q.7	Which one	of these is	s a good o	communic	ation proc	ess?				
-	a) Message	e is clear a	and direct		b) Messa	age is amb	oiguous			
	c) Sender	attacks re	ceiver		d) Receiv	[CO2] [L1]				
Q.8	What is the	e signal fo	OK?							
	a) Pointed	finger			b) Thum	bs up				
	c) Touch t	humb and	index fin	ger	d) Thum	bs down			[CO2] [L1]	
Q.9	Crossed arr	ms are an	example	of	<u> </u>					
	a) Closed I	body lang	Jage		b) Aggre	ssion			[CO2] [14]	
0 10	c) Open bo	ody langua	age a lava av a	مسممهما ط	a) Appro	iene IEV	r			
Q.10	vvomen typ	hor	e larger p	ersonal d	b) Male	iui	?			
	a) Each ou	ner			d) Males	friends				
0 11		sneaker	looks into	the ever	of the au	dience				
Q.11	a) confider	_ speaker		the eyes	h) imnat	ient				
	c) rude				d) impat	ite			[CO2] [I 1]	

Q.12	The tone of the speaker should be		:	
	a) loud	b)	clear	
	c) low	d)	soft	[CO2][L1]
Q.13	Which of the following is NOT an elem	ent	of communication within the co	mmunication
	process cycle?			
	a) Channel	b)	Receiver	
	c) Sender	d)	Time	[CO3] [L1]
Q.14	Communication is a skills.			
	a) Soft	b)	Hard	[000] [14]
0.45	c) Rough	_d)	Short	[CO3][L1]
Q.15	BCC is most important part of a profess	lona	al Email.	
	a) Irue	D)	False	
0.10	C) Can't Say	(D	a) and b)	
Q.16	Dear Mr. Snarma Sir is an incorrect said	itati	on.	
	a) True	(D	False	
0 17	C) Call L Say	(D	a) and D)	
Q.17	what are the steps of effective presenta	out) הא	Dronara Dractica Drocant	
	a) Prantice Present-Practice	D)	Prepare-Practice-Present	
0 10	C) Produce-Present	(u	Plan-Prepare-Practice-Present	
Q.10	Age of audience	5 Dt 6\	Lovel of Knowledge	
	a) Age of dudience	D)	All of the above	
0 10	C) Their interests and beliefs	u) מר ר	All OI the above	
Q.19	a) Timing and pace	a pi ג		
	a) Find and boyoragos	(م ال	Audionco	
0.20	"Practice" comes under the following st	u) 200	of Procontations:	
Q.20	a) Planning	aye hì	Dreparation	
	c) Delivery	رم ارم	None of the above	
0.21	What is true about presentation skills fr	om	the following?	
Q.21	a) Grab the attention of your audience	h)	Smile incessantly	
	c) Read every point from the slides	d)	Dress informally	[[05] [  1]
0.22	Listening is the ability to	and	appropriately respond to the	meaning of
Q.22	another person's verbal and nonverbal	mes	sanes	meaning of
	a) Understand	h)	Analyze	
	c) Respect	d)	All of the above	[CO2] [L1]
0.23	Reports present conclusions based on:	.,		[]
۹	a) Belief	b)	Impression	
	c) Investigation	d)	Intuition	[CO2] [L1]
0.24	The terms of reference for producing a	spe	cific report are given by the:	
C	a) Writer	b)	Organization	
	c) Reader	d)	Expert	[CO2] [L1]
Q.25	The index forms a part of the:			
-	a) Main body	b)	Glossary	
	c) End matter	d)	Front matter	[CO2] [L1]
Q.26	How many basic parts of a formal repor	t ar	e there?	
	a) Five	b)	Six	
	c) Three	d)	Four	[CO2] [L1]
Q.27	Which of the following is not a subsidiar	ry p	art of a formal report?	
	a) Table of contents	b)	Appendix	
	c) References	d)	Glossary	[CO1] [L1]

a) Onderstand       b) Analyze         c) Respect       (D) All of the above       [C01] [L1]         (2) How many types of memories are there?       a) One       b) Two         a) One       (D) Four       [C01] [L1]         (2) Three       (D) Four       [C01] [L1]         (2) Three       (D) Four       [C01] [L1]         (2) Three       (D) None of the above       (D) Hourds per minute         (2) Stort Term Memory       (D) Words per minute       (D) 300+ words per minute         (2) 400+ words per minute       (D) 300+ words per minute       (C01] [L1]         (2) What is the average number of words people think in a minute?       (D) 400+ words per minute       (C01] [L1]         (2) What of these is not a step in the listening process?       (D) To stop talking       (D) [C01] [L1]         (2) What are the total number of listening levels?       (D) Two       (C) [C01] [L1]         (2) Steners       (D) Two       (C01] [L1]         (2) Address       (D) Two       (C01] [L1]         (2) Address       (D) Two       (C01] [L1]         (3) Mata are the total number of listening levels?       (D) Two       (C01] [L1]         (3) Throwerts       (D) Two       (C01] [L1]         (3) Introverts       (D) Extroverts       (C01] [L1]	Q.28	Listening is the ability to a another person's spoken and nonverbal	and me	appropriately respond to the issages.	meaning of
C) A respect       (CO11 [L1]         Q.2       How many types of memories are there?       a) One       (CO11 [L1]         Q.30       Types of memory       b) Two       (CO11 [L1]         Q.30       Types of memory       b) Working Term Memory       c) None of the above         Q.31       What is the average number of words people think in a minute?       a) 200+ words per minute       d) Sout- words per minute         c) 400+ words per minute       d) 500+ words per minute       (CO11 [L1]         Q.32       Which of these is not a step in the listening process?       a) To stop talking       (CO11 [L1]         Q.33       What are the total number of listening levels?       a) One       (D04) words per minute       D) Two         c) Four       d) Responding       [CO1] [L1]         Q.33       What are the total number of listening levels?       a) One       (D11 [L1]         Q.34       Mostiy       emotional barries are faced.       (D11 [L1]         Q.35       Fear of rejection is a type of:       a) Depression       b) Failure       (D21 [L1]         Q.35       Idon't know the reason of my sad mood"," is the:       a) Positive statement       b) Negative statement       c) Inaccurate statement       d) Neutral       (CO2] [L1]         Q.36       An elevtor pitch should be of:		a) Understand	D)	Analyze	
a) One       b) Two         c) Three       d) Four       [C01] [L1]         Q.30       Types of memory	0.29	How many types of memories are there	u) ?		
c) Three d) Four [C01] [L1] (30 Types of memory	Q.29	a) One	: 	Тмо	
Q.30       Types of memory		c) Three	d)	Four	
a) Short Term Memory       b) Working Term Memory         c) Both a) and b)       d) None of the above         Q.31       What is the average number of words people think in a minute?         a) 200+ words per minute       b) 300+ words per minute         c) 400+ words per minute       d) 500+ words per minute         (2) 400+ words per minute       d) 500+ words per minute         (2) 400+ words per minute       d) 500+ words per minute         (2) 400+ words per minute       d) 500+ words per minute         (2) 400+ words per minute       d) 500+ words per minute         (2) 400+ words per minute       d) 500+ words per minute         (2) 400+ words per minute       d) 700+ words per minute         (2) 400+ words per minute       d) 700+ words per minute         (2) 400+ words per minute       d) Responding         (2) 7       G) 700       f) 700         (2) 8       Nhat are the total number of listening levels?       f) 700         (2) 0       f) 700       f) 700       f) 700         (2) 1       G) 700       f) 700       f) 700         (2) 1       f) 700       f) 710       f) 700         (2) 1       f) 700       f) 710       f) 700         (2) 1       f) 700       f) 710       f) 700	0 30	Types of memory	u)	loui	
<ul> <li>c) Both a) and b)</li> <li>c) Both a) and b)</li> <li>c) None of the above</li> <li>(2) 31 What is the average number of words people think in a minute?</li> <li>a) 200+ words per minute</li> <li>b) 300+ words per minute</li> <li>c) 400+ words per minute</li> <li>d) 500+ words per minute</li> <li>f(C01] [L1]</li> <li>(2) Which of these is not a step in the listening process?</li> <li>a) To stop talking</li> <li>b) Receiving</li> <li>c) Misinterpreting</li> <li>d) Responding</li> <li>(C01] [L1]</li> <li>(C02] [L1</li></ul>	Q.30	a) Short Term Memory	h)	Working Term Memory	
Q.31       What is the average number of words people think in a minute?         a) 200+ words per minute       b) 300+ words per minute         c) 400+ words per minute       d) 500+ words per minute         Q.32       Which of these is not a step in the listening process?         a) To stop talking       b) Receiving         c) Mustar et the total number of listening levels?         a) One       b) Two         c) Four       d) Five         c) Listeners       d) Talkative persons         c) Listeners       d) Talkative persons         c) Sadness       d) Speech anxiety         c) Sadness       d) Speech anxiety         c) Depression       b) Failure         c) Sadness       d) Speech anxiety         c) Inaccurate statement       d) Neutral         c) Depressing       b) Elevator Pitch         c) Decessing       b) Elevator Pitch         c) Decessing       b) Sacconds         c) Decessing       b) Sole Coll         c) Decessing       b) Elevator Pitch         c) Decessing       b) Excitement         c) Decessing       b) Excitement         c) Decessing       c) Occoll         c) Anticipating tone can promote:       a) Fear         a) Fear       b) Communica		c) Both a) and b)	d)	None of the above	
Q.31       Which be burger minute       b) 300+ words per minute       CO1] [L1]         Q.32       Which of these is not a step in the listening process?       a) To stop talking       b) Receiving       CO1] [L1]         Q.32       Which of these is not a step in the listening process?       a) To stop talking       b) Receiving       CO1] [L1]         Q.33       What are the total number of listening levels?       a) One       CO1] [L1]         Q.34       Mostly	031	What is the average number of words n	u) 20n	le think in a minute?	
a) 200+ words per minute       b) 500+ words per minute       [C01] [L1]         Q.32       Which of these is not a step in the listening process?       a) To stop talking       b) Receiving       [C01] [L1]         Q.33       What are the total number of listening levels?       a) One       b) Two       [C01] [L1]         Q.33       What are the total number of listening levels?       a) One       b) Two       [C01] [L1]         Q.34       Mostly emotional barriers are faced.       a) Introverts       b) Extroverts       [C01] [L1]         Q.35       Fear of rejection is a type of:       a) Depression       b) Failure       [C02] [L1]         Q.35       Fear of rejection is a type of:       a) Depression       b) Failure       [C02] [L1]         Q.36       I don't know the reason of my sad mood", is the:       a) Positive statement       b) Negative statement       c) Co2] [L1]         Q.36       I don't know the reason of my sad mood", is the:       a) Processing       b) Elevator Pitch       c) Description       d) Accuracy       [C02] [L1]         Q.36       I don't know the reason of my sad mood", is the:       a) 10-15 seconds       b) 15-20 seconds       [C02] [L1]         Q.37       Giving the spark of your project is:       a) 10-15 seconds       d) 30-60 seconds       [C02] [L1]         Q.38	Q.51	$200\pm$ words per minute	eop ۲۵	$300 \pm$ words per minute	
Q.32       Which of these is not a step in the listening process?       a) To stop talking       b) Receiving         Q.33       Which of these is not a step in the listening process?       a) To stop talking       c) Receiving         Q.33       What are the total number of listening levels?       a) One       b) Two         C)       Four       d) Five       [C01] [L1]         Q.34       Mostly		c) $400\pm$ words per minute	d)	$500 \pm$ words per minute	
a) To stop talking       b) Receiving         c) Misinterpreting       d) Responding       [C01] [L1]         Q.33       What are the total number of listening levels?       a) One       b) Two         c) Four       d) Five       [C01] [L1]         Q.34       Mostlyemotional barriers are faced.       a) Introverts       b) Extroverts         c) Listeners       d) Talkative persons       [C01] [L1]         Q.35       Fear of rejection is a type of:       a) Depression       b) Failure         c) Sadness       d) Speech anxiety       [C02] [L1]         Q.36       I don't know the reason of my sad mood", is the:       a) Positive statement       d) Negative statement         c) I accurate statement       d) Neutral       [C02] [L1]         Q.37       Giving the spark of your project is:       a) Processing       b) Elevator Pitch         c) Description       d) Accuracy       [C02] [L1]         Q.38       An elevator pitch should be of:       a) 10-15 seconds       b) Excitement         c) Aggression       d) None of the above       [C02] [L1]         Q.39       Anticipating tone can promote:       a) Fear       b) Excitement         c) Aggression       d) None of the above       [C02] [L1]         Q.40       Communicat	032	Which of these is not a step in the lister	u) vina	process?	
a) To sub taiking       b) Receiving       [C01] [L1]         Q.33       What are the total number of listening levels?       a) One       b) Two         c) Four       d) Five       [C01] [L1]         Q.34       Mostly emotional barriers are faced.       a) Introverts       b) Extroverts         c) Listeners       d) Talkative persons       [C01] [L1]         Q.34       Mostly emotional barriers are faced.       a) Depression       b) Extroverts         c) Listeners       d) Talkative persons       [C01] [L1]         Q.35       Fear of rejection is a type of:       a) Depression       b) Failure         c) Sadness       d) Speech anxiety       [C02] [L1]         Q.36       Idon't know the reason of my sad mood", is the:       a) Processing       b) Negative statement         c) Inaccurate statement       d) Neutral       [C02] [L1]         Q.37       Giving the spark of your project is:       a) 10-15 seconds       b) 15-20 seconds         c) Description       d) Accuracy       [C02] [L1]         Q.38       An elevator pitch should be of:       a) 10-15 seconds       [C02] [L1]         Q.39       Anticipating tone can promote:       a) 10-15 seconds       [C02] [L1]         Q.40       Communication theory       b) Excitement </td <td>Q.52</td> <td>a) To stop talking</td> <td>шу ь\</td> <td>Process: Pocoiving</td> <td></td>	Q.52	a) To stop talking	шу ь\	Process: Pocoiving	
Q.33       What are the total number of listening levels?       a) One       b) Two         c)       Four       d) Five       [C01] [L1]         Q.34       Mostlyemotional barriers are faced.       a) Introverts       b) Extroverts         c)       Listeners       d) Talkative persons       [C01] [L1]         Q.35       Fear of rejection is a type of:       a) Depression       b) Extroverts         c)       Sadness       d) Speech anxiety       [C02] [L1]         Q.36       I don't know the reason of my sad mood", is the:       a) Positive statement       b) Negative statement         c)       Inaccurate statement       d) Neutral       [C02] [L1]         Q.37       Giving the spark of your project is:       a) Processing       b) Elevator Pitch         c)       Description       d) Accuracy       [C02] [L1]         Q.38       An elevator pitch should be of:       a) 10-15 seconds       b) 15-20 seconds       [C02] [L1]         Q.39       Anticipating tone can promote:       a) Fear       b) Excitement       c) Aggression       d) None of the above       [C02] [L1]         Q.40       Communication channels       d) Information broadcast       c) Communication channels       d) Information signal       [C04] [L1]         Q.41       How m		a) To stop taking	4) D)	Receiving	
Q.35       What are the ford instanting levels?         a) One       b) Two         c) Four       d) Five         Q.34       Mostly emotional barriers are faced.         a) Introverts       b) Extroverts         c) Listeners       d) Talkative persons         (Co1] [L1]         Q.35       Fear of rejection is a type of:         a) Depression       b) Failure         c) Sadness       d) Speech anxiety         (Co2] [L1]         Q.36       I don't know the reason of my sad mood", is the:         a) Positive statement       b) Negative statement         c) Jnaccurate statement       d) Neutral         (CO2] [L1]         Q.37       Giving the spark of your project is:         a) Processing       b) Elevator Pitch         c) Description       d) Accuracy         (CO2] [L1]         Q.38       An elevator pitch should be of:         a) 10-15 seconds       b) 15-20 seconds         c) 20-30 seconds       d) 30-60 seconds         c) 20-30 seconds       d) None of the above         c) Aggression       b) Excitement         c) Aggression       c) None of the above         d) Afformation theory       b) Communication broadcast	0 22	What are the total number of listening	u) aval		
a) One       b) Two         c) Four       d) Five       [C01] [L1]         Q.34       Mosty emotional barriers are faced.       a) Introverts       b) Extroverts         c) Listeners       d) Talkative persons       [C01] [L1]         Q.35       Fear of rejection is a type of:       a) Depression       b) Failure         c) Sadness       d) Speech anxiety       [C02] [L1]         Q.36       I don't know the reason of my sad mood", is the:       a) Positive statement       b) Negative statement         c) Inaccurate statement       d) Neutral       [C02] [L1]         Q.37       Giving the spark of your project is:       a) Processing       b) Elevator Pitch         c) Description       d) Accuracy       [C02] [L1]         Q.38       An elevator pitch should be of:       a) 10-15 seconds       b) 15-20 seconds         c) 20-30 seconds       d) 30-60 seconds       [C02] [L1]         Q.39       Anticipating tone can promote:       a) Fear       b) Excitement         c) Aggression       d) Information broadcast       c) Coll [L1]         Q.40       Communicating data from one location to another requires some form of pathway or mediaum. These pathways are called?         a) Information theory       b) Communication broadcast       c) Coll [L1]	Q.55		2761 רא		
C) Four       (CO1] [[11]         Q.34       Mostly			d)	Two	
Q.34       Mostryendotional barriers are faced.         a) Introverts       b) Extroverts         c) Listeners       d) Talkative persons       [CO1] [L1]         Q.35       Fear of rejection is a type of:       a) Depression       b) Failure         c) Sadness       d) Speech anxiety       [CO2] [L1]         Q.36       I don't know the reason of my sad mood", is the:       a) Positive statement       b) Negative statement         c) Inaccurate statement       d) Neutral       [CO2] [L1]         Q.37       Giving the spark of your project is:       a) Processing       b) Elevator Pitch         c) Description       d) Accuracy       [CO2] [L1]         Q.38       An elevator pitch should be of:       a) 10-15 seconds       b) 15-20 seconds         c) 20-30 seconds       d) 30-60 seconds       [CO2] [L1]         Q.39       Anticipating tone can promote:       a) Fear       b) Excitement         c) Aggression       d) None of the above       [CO2] [L1]         Q.40       Communicating data from one location to another requires some form of pathway or medium. These pathways are called?         a) Information theory       b) Communication broadcast       c) Communication channels       d) Information signal       [CO4] [L1]         Q.41       How many types of media used by communicat	0.24	C) FOUR	(u)	Five	
a) Introverts       b) Extroverts         c) Listeners       d) Talkative persons       [C01] [L1]         Q.35 Fear of rejection is a type of:       a) Depression       b) Failure       c)         c) Sadness       d) Speech anxiety       [C02] [L1]         Q.36 I don't know the reason of my sad mood", is the:       a) Positive statement       b) Negative statement       c) Inaccurate statement       d) Neutral       [C02] [L1]         Q.37 Giving the spark of your project is:       a) Processing       b) Elevator Pitch       c) Description       d) Accuracy       [C02] [L1]         Q.38 An elevator pitch should be of:       a) 10-15 seconds       b) 15-20 seconds       c) 20-30 seconds       d) 30-60 seconds       [C02] [L1]         Q.39 Anticipating tone can promote:       a) Fear       b) Excitement       c) Aggression       d) None of the above       [C02] [L1]         Q.40 Communicating data from one location to another requires some form of pathway or medium. These pathways are called?       a) Information theory       b) Communication broadcast         c) Communication channels       d) Information signal       [C04] [L1]         Q.41 How many types of media used by communication channels?       a) 1       d) 4       [C04] [L1]         Q.42 Communication is	Q.34	Mostly emotional barriers are		ed.	
C) Listeners       (CO1] [[1]         Q.35       Fear of rejection is a type of:       (CO2] [[1]         a) Depression       (D) Failure       (CO2] [[1]         Q.36       I don't know the reason of my sad mood", is the:       (CO2] [[1]         Q.36       I don't know the reason of my sad mood", is the:       (CO2] [[1]         Q.36       I don't know the reason of my sad mood", is the:       (CO2] [[1]         Q.36       I don't know the reason of my sad mood", is the:       (CO2] [[1]         Q.37       Giving the spark of your project is:       (D) Neutral       (CO2] [[1]         Q.37       Giving the spark of your project is:       (D) Accuracy       (CO2] [[1]         Q.38       An elevator pitch should be of:       (D) 15 seconds       (D) 15-20 seconds       (CO2] [[1]         Q.39       Anticipating tone can promote:       (D) 30-60 seconds       (CO2] [[1]         Q.39       Anticipating tone can promote:       (D) None of the above       (CO2] [[1]         Q.40       Communication data from one location to another requires some form of pathway or medium. These pathways are called?       (D) Information signal       (CO4] [[1]         Q.41       How many types of media used by communication channels?       (D) 4       (CO4] [[1]         Q.42       Communication is       skills.		a) Introverts	D)	Extroverts	[CO1] [L1]
Q.35       Fear of rejection is a type of:       a) Depression       b) Failure         c) Sadness       d) Speech anxiety       [C02] [L1]         Q.36       I don't know the reason of my sad mood", is the:       a) Positive statement       b) Negative statement       c) C02] [L1]         Q.37       Giving the spark of your project is:       a) Processing       b) Elevator Pitch       c) Description       d) Neutral       [C02] [L1]         Q.38       An elevator pitch should be of:       a) 10-15 seconds       b) 15-20 seconds       c) C02] [L1]         Q.39       Anticipating tone can promote:       a) Fear       b) Excitement       c) Aggression       d) None of the above       [C02] [L1]         Q.40       Communicating data from one location to another requires some form of pathway or medium. These pathways are called?       a) Information theory       b) Communication broadcast         c) Communication channels       d) Information signal       [C04] [L1]         Q.41       How many types of media used by communication channels?       a) 1       b) 2         c) 3       d) 4       [C04] [L1]         Q.42       Communication depends on          a) Soft       b) Verbal       c) C04] [L1]         Q.43       Success of communication depends on          a) Written	0.35	c) Listeners	a)	l'alkative persons	
a) Depression b) Failure c) Sadness d) Speech anxiety [CO2] [L1] Q.36 I don't know the reason of my sad mood", is the: a) Positive statement b) Negative statement c) Inaccurate statement d) Neutral [CO2] [L1] Q.37 Giving the spark of your project is: a) Processing b) Elevator Pitch c) Description d) Accuracy [CO2] [L1] Q.38 An elevator pitch should be of: a) 10-15 seconds b) 15-20 seconds c) 20-30 seconds d) 30-60 seconds [CO2] [L1] Q.39 Anticipating tone can promote: a) Fear b) Excitement c) Aggression d) None of the above [CO2] [L1] Q.40 Communicating data from one location to another requires some form of pathway or medium. These pathways are called? a) Information theory b) Communication broadcast c) Communication channels d) Information signal [CO4] [L1] Q.41 How many types of media used by communication channels? a) 1 b) 2 c) 3 d) 4 [CO4] [L1] Q.42 Communication is skills. a) Soft b) Hard c) Rough d) Short [CO4] [L1] Q.43 Success of communication depends on a) Written b) Verbal c) Both d) Feedback [CO4] [L1] Q.44 Barriers means: a) Trouble in communication b) Hurdle in communication c) Obstrated in communication b) Hurdle in communication c) Obstrated in communication b) Hurdle in communication c) Detrated in communication b) Hurdle in communication	Q.35	Fear of rejection is a type of:			
c) Sadness       d) Speech anxiety       [C02] [L1]         Q.36       I don't know the reason of my sad mood", is the:       a) Positive statement       b) Negative statement         a) Positive statement       b) Negative statement       c) Inaccurate statement       d) Neutral       [C02] [L1]         Q.37       Giving the spark of your project is:       a) Processing       b) Elevator Pitch       c) Description       d) Accuracy       [C02] [L1]         Q.38       An elevator pitch should be of:       a) 10-15 seconds       b) 15-20 seconds       c) 20-30 seconds       d) 30-60 seconds       [C02] [L1]         Q.39       Anticipating tone can promote:       a) Fear       b) Excitement       c) Aggression       d) None of the above       [C02] [L1]         Q.40       Communicating data from one location to another requires some form of pathway or medium. These pathways are called?       a) Information theory       b) Communication broadcast         c) Communication channels       d) Information signal       [C04] [L1]         Q.41       How many types of media used by communication channels?       a) 1       b) 2         c) 3       d) 4       [C04] [L1]         Q.42       Communication depends on		a) Depression	b)	Failure	
Q.36       I don't know the reason of my sad mood", is the:         a)       Positive statement       b)       Negative statement         c)       Inaccurate statement       d)       Neutral       [CO2] [L1]         Q.37       Giving the spark of your project is:       a)       Processing       b)       Elevator Pitch         c)       Description       d)       Accuracy       [CO2] [L1]         Q.38       An elevator pitch should be of:       a)       10-15 seconds       b)       15-20 seconds         c)       20-30 seconds       d)       30-60 seconds       [CO2] [L1]         Q.39       Anticipating tone can promote:       a)       Fear       b)       Excitement         c)       Aggression       d)       None of the above       [CO2] [L1]         Q.40       Communicating data from one location to another requires some form of pathway or medium. These pathways are called?       a)       Information theory       b)       Communication signal       [CO4] [L1]         Q.41       How many types of media used by communication channels?       a)       1       (CO4] [L1]         Q.42       Communication is		c) Sadness	d)	Speech anxiety	[CO2] [L1]
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c)       Inaccurate statement       d)       Neutral       [CO2] [L1]         Q.37       Giving the spark of your project is:       a)       Processing       b)       Elevator Pitch         c)       Description       d)       Accuracy       [CO2] [L1]         Q.38       An elevator pitch should be of:       a)       10-15 seconds       b)       15-20 seconds         a)       10-15 seconds       b)       15-20 seconds       [CO2] [L1]         Q.39       Anticipating tone can promote:       a)       Fear       b)       Excitement         c)       Aggression       d)       None of the above       [CO2] [L1]         Q.40       Communicating data from one location to another requires some form of pathway or medium. These pathways are called?       a)       Information theory       b)       Communication broadcast         c)       Communication channels       d)       Information signal       [CO4] [L1]         Q.41       How many types of media used by communication channels?       a)       1       [CO4] [L1]         Q.42       Communication is		a) Positive statement	b)	Negative statement	
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Q.38       An elevator pitch should be of:       a) 10-15 seconds       b) 15-20 seconds         (a) 10-15 seconds       (b) 30-60 seconds       [CO2] [L1]         Q.39       Anticipating tone can promote:       a) Fear       b) Excitement         (c) Aggression       (d) None of the above       [CO2] [L1]         Q.40       Communicating data from one location to another requires some form of pathway or medium. These pathways are called?         (a) Information theory       (c) Communication channels       (c) Communication channels       (c) Information signal       [CO4] [L1]         Q.41       How many types of media used by communication channels?       (c) 3       (c) 4       [CO4] [L1]         Q.42       Communication is		c) Description	d)	Accuracy	[CO2] [L1]
<ul> <li>a) 10-15 seconds</li> <li>b) 15-20 seconds</li> <li>c) 20-30 seconds</li> <li>d) 30-60 seconds</li> <li>[CO2] [L1]</li> <li>Q.39 Anticipating tone can promote: <ul> <li>a) Fear</li> <li>b) Excitement</li> <li>c) Aggression</li> <li>d) None of the above</li> <li>[CO2] [L1]</li> </ul> </li> <li>Q.40 Communicating data from one location to another requires some form of pathway or medium. These pathways are called? <ul> <li>a) Information theory</li> <li>b) Communication broadcast</li> <li>c) Communication channels</li> <li>d) Information signal</li> <li>[CO4] [L1]</li> </ul> </li> <li>Q.41 How many types of media used by communication channels? <ul> <li>a) 1</li> <li>b) 2</li> <li>c) 3</li> <li>d) 4</li> </ul> </li> <li>Q.42 Communication is skills. <ul> <li>a) Soft</li> <li>b) Hard</li> <li>c) Rough</li> <li>d) Short</li> <li>[CO4] [L1]</li> </ul> </li> <li>Q.43 Success of communication depends on <ul> <li>a) Written</li> <li>b) Verbal</li> <li>c) Both</li> <li>d) Feedback</li> <li>d) Feedback</li> <li>[CO4] [L1]</li> </ul> </li> </ul>	Q.38	An elevator pitch should be of:			
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Q.40       Communicating data from one location to another requires some form of pathway or medium. These pathways are called?         a) Information theory       b) Communication broadcast         c) Communication channels       d) Information signal       [CO4] [L1]         Q.41       How many types of media used by communication channels?       a) 1       b) 2         c) 3       d) 4       [CO4] [L1]         Q.42       Communication is		c) Aggression	d)	None of the above	[CO2] [L1]
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Q.41       How many types of media used by communication channels?         a) 1       b) 2         c) 3       d) 4         Q.42       Communication is skills.         a) Soft       b) Hard         c) Rough       d) Short         Q.43       Success of communication depends on         a) Written       b) Verbal         c) Both       d) Feedback         Q.44       Barriers means:         a) Trouble in communication       b) Hurdle in communication		c) Communication channels	d)	Information signal	[CO4] [L1]
<ul> <li>a) 1</li> <li>b) 2</li> <li>c) 3</li> <li>d) 4</li> <li>[CO4] [L1]</li> <li>Q.42 Communication is</li></ul>	Q.41	How many types of media used by com	mur	nication channels?	
c) 3d) 4[CO4] [L1]Q.42Communication is skills.a) Softb) Harda) Softb) Hard(CO4] [L1]Q.43Success of communication depends on[CO4] [L1]Q.43Success of communication depends onb) Verbalc) Bothd) Feedback[CO4] [L1]Q.44Barriers means:a) Trouble in communicationb) Hurdle in communicationc) Obstacle in communicationb) Hurdle in communicationc) All of the above		a) 1	b)	2	
Q.42       Communication is skills.         a) Soft       b) Hard         c) Rough       d) Short       [CO4] [L1]         Q.43       Success of communication depends on          a) Written       b) Verbal          c) Both       d) Feedback       [CO4] [L1]         Q.44       Barriers means:          a) Trouble in communication       b) Hurdle in communication         c) Obstacle in communication       b) Hurdle in communication		c) 3	d)	4	[CO4] [L1]
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Q.43       Success of communication depends on         a)       Written         b)       Verbal         c)       Both         Q.44       Barriers means:         a)       Trouble in communication         b)       Hurdle in communication         c)       Obstacle in communication		c) Rough	d)	Short	[CO4] [L1]
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Q.44 Barriers means: a) Trouble in communication b) Hurdle in communication c) Obstacle in communication d) All of the above		c) Both	d)	Feedback	[CO4] [L1]
a) Trouble in communication b) Hurdle in communication c) Obstacle in communication d) All of the above	Q.44	Barriers means:	,		
c) Obstacle in communication d) All of the above	-	a) Trouble in communication	b)	Hurdle in communication	
		c) Obstacle in communication	d)	All of the above	

Q.45	Communication	ו _	are	e ar	nything	that		prevents	s us	from	rece	iving	and
	understanding	the	messages	that	others	use	to	convey	their	informa	ation,	ideas	and
	thoughts.												
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	a) Language	b)	Barriers	
	c) Skills	d)	Messages	[CO4] [L1]
Q.46	In communication barriers good qualit	ty of o	conversation is always.	
	a) Noticed	b)	Lost	
	c) Neglected	d)	None of the above	
Q.47	The general problem with communica	tion is	5	
	a) Lost the need of conversation	b)	Don't time for conversation	
	c) Both a) and b)	d)	None of the above	[CO4] [L1]
Q.48	Geographic distance is ty	vpe of	communication barrier.	
	a) Verbal	b)	Psychological	
	c) Written	d)	Physical	[CO4] [L1]
Q.49	Communication barriers are of	typ	Des.	
	a) Seven	b)	Six	
	c) Five	d)	Four	[CO4] [L1]
Q.50	Communication barriers occurs when		is there.	
	a) Transferring of message	b)	Lack of feedback	
	c) Poor timing	d)	All of the above	[CO4][L1]

### End Semester Examination, May 2023 BCA – Second Semester DATA STRUCTURES USING C (BCA-DS-201/BCA-203A (CB))

Time:	3 h	rs	1ax Marks: <b>100</b>
Note:	Att <b>PA</b>	rempt <b>FIVE</b> questions in all; <b>Q.1 is compulsory</b> . Attempt any <b>TWO</b> IRT <b>A</b> and <b>TWO</b> questions from <b>PART B</b> . Marks are indicated against eac	no. of pages: 2 questions from ch question.
Q.1	An	swer the following multiple choice questions:	
•	a)	Minimum number of fields in each node of a doubly linked list is:	
	-	i) 2 ii) 3	
		iii) 4 iv) None of the above	
	b)	A graph in which all vertices have equal degree is known as:	
		i) Complete graph ii) Regular graph	
	_	iii) Multi graph iv) Simple graph	
	c)	Which of following data structure is works on LIFO	
		i) Dequeue ii) Queue	
	~1	III) Stack IV) Priority queue	
	a)	Finding the location of a given item in a collection of items is called _	•
		ii) Discovering II) Finding	
	$\sim$	Now podes are added to the	
	e)	i) Front ii) Back	
		iii) Middle iv) Both A and B	
	f)	The operation of processing each element in the list is known as	
	''	i) Sorting ii) raing	•
		iii) Inserting iv) traversal	
	q)	Which of the following data structure can't store the non-hom	ogeneous data
	57	elements?	
		i) Arrays ii) Records	
		iii) Pointers iv) Stacks	
	h)	Which of the following is non-liner data structure?	
		i) Stacks ii) List	
		iii) Strings iv) Trees	
	i)	Last node having pointer in the list.	
		i) Null ii) Back	
		iii) Middle iv) A and B	
	j)	The term push and pop is related to:	
		I) Array II) Lists	
		III) Stacks IV) Trees	10×2
		<u>PART-A</u>	
Q.2	a)	What is data structure? Explain types of data structures with suitable	example. [CO-1][I -4] <b>10</b>
	b)	Convert below given infix expression into postfix.	
	,	Infix Expression: $(A + B) * (CY + AY) / (BY * CX)$ .	[CO-2][L-4] <b>5</b>
	c)	What is linked list? Write an algorithm to insert a node in the beginning.	[CO-3][L-4] <b>5</b>
	-	-	<b>_</b>
Q.3	a)	Convert below given infix expression into polish notation.	
		Infix Expression: : $((A + (B * C)) / (D * E))$	[CO-2][L-4] <b>5</b>
	b)	Differentiate between primitive and non-primitive data structure.	[CO-1][L-4] <b>5</b>
	c)	What is doubly linked list? Explain with the help of block diagram	[CO-3][L-4] <b>10</b>

**P.T.O.** 17

- Q.4 a) Differentiate between stacks and queues. Mention the complexities of insertion and deletion operation for the same data structure. [CO-2][L-4] **10** 
  - b) What is searching? Explain with suitable example different types of searching techniques. [CO-1][L-4] 5
  - c) Explain the block diagram of singly, doubly and circular linked list with suitable example. [CO-3][L-4] 5

### <u>PART-B</u>

- Q.5 a) What is binary tree? Explain different types of trees with suitable example. [CO-4][L-4] 5
  - b) What is minimum cost spanning tree? Differentiate between prim's and Kruskal method with their algorithms. [CO-5][L-4] **10**
  - c) Explain selection sort algorithm with suitable example. [CO-6][L-4] **5**
- Q.6 a) What is graph? Explain different types of graphs with suitable example. [CO-5][L-4] **5** b) Traverse the below given graph with DFS and BFS.



[CO-6][L-4] **10** 

c) Write the inorder, preorder and post order of a given binary tree.



[CO-4][L-4] **5** 

[CO-6][L-4] **5** 

[CO-6][L-4] **5** 

- Q.7 a) Draw a directed graph, the adjancy list and adjancy matrix of a graph. [CO-4][L-4] **10** 
  - b) Explain collision resolution techniques.
  - c) Differentiate between binary and linear search techniques

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## End Semester Examination, May 2023 BCA – Second Semester

DATA STRUCTURES USING C (BCA-DS-201/BCA-203A (CB)/BCA-203(CB))

No. of pages: 2 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question. Q.1 Choose the correct option: a) A queue follows \_\_\_\_\_ ii) FIFO principle iii) Linear tree i) LIFO principle iv) Ordered array b) The time complexity used for inserting a node in a priority queue on the basis of key is: i) O(n) ii) O(n2) iii) O(nlogn) iv) O(logn) c) Which of these is a postfix expression? i) a + b - c ii) + ab iv) abc \* + de - + iv) a \* b (c + d)d) Which data structure do we use for testing a palindrome? iv) Priority queue iv) Stack i) Heap ii) Tree e) The tango tree is a type of: i) Binary Search Tree ii) K-ary Tree iii) Ternary Tree iv) AVL Tree f) In an AA-tree, we can remove a left horizontal link by: i) inserting a new element ii) deleting both the elements iii) performing left rotation iv) performing right rotation g) We can use a self-balancing binary search tree for implementing the: i) Hash table ii) Priority queue iii) Heap sort and priority queue iv) Heap sort h) A splay operation refers to: i) The removal of leaf node ii) The movement of root to leaf iii) The movement of a node to root iv) The movement of parent node to a child node's down i) Out of these, which one is NOT true about a 2-3 tree? i) It is perfectly balanced ii) The leaves are always at the same level iii) It refers to a B-tree of the order 3 iv) Post order traversal would yield the elements in a sorted order i) A recursive implementation would presumably fail in skew heaps because: i) lack of stack space ii) time complexity iii) these heaps are self adjusting iv) efficiency gets reduced 2x10 PART-A a) What is data structure? Explain types of data structures with suitable example. Q.2 [CO-1] [L-4] **10** b) Convert below given infix expression into postfix.

- Infix Expression: (A + B) \* (CY + AY) / (BY \* CX). [CO-2] [L-4] 5
- c) What is linked list? Write an algorithm to insert a node in the beginning.

[CO-3] [L-4] 5

P. T. O 19

Time: 3 hrs.

Max Marks: 100

Q.3 a) Convert below given infix expression into polish notation. Infix Expression: ((A + (B \* C)) / (D\* E))

[CO-2] [L-4] **5** 

- b) Differentiate between 'primitive' and 'non-primitive' data structure. [CO-1] [L-4] 5
- c) What is doubly linked list? Write an algorithm to insert a node in the beginning.

[CO-3] [L-4] **10** 

[CO-5] [L-4] 5

Q.4 a) Differentiate between 'stacks and queues'. Mention the complexities of insertion and

deletion operation for the same data structure. [CO-2] [L-4] **10** 

- b) What is searching? Explain with suitable example different types of searching techniques. [CO-1] [L-4] **5**
- c) Differentiate between singly and doubly linked list with suitable example. [CO-3][L-4] 5

### PART-B

- Q.5 a) What is Binary tree? Explain different types of trees with suitable example.
  - [CO-4] [L-4] **5** b) What is minimum cost spanning tree? Differentiate between Prim's and Kruskal method with their algorithms. [CO-5] [L-4] **10**
  - c) Differentiate between 'selection and insertion sorting'. [CO-6] [L-4] 5
- Q.6 a) What is Graph? Explain different types of graphs with suitable example.
  - b) Differentiate between merge sort and quick sort algorithm. [CO-6] [L-4] **10**
  - c) Write the in order, preorder and post order of a given binary tree. [CO-4] [L-4] 5



- Q.7 a) Draw a directed graph, the adjacency list and adjacency matrix of a graph.
  - b) Explain collision resolution techniques.
  - c) Differentiate between 'Binary and Linear' search techniques.

[CO-4] [L-4] **10** [CO-6] [L-4] **5** [CO-6] [L-4] **5** 

BCA – Second Semester

INTERNET TECHNOLOGIES

Time: 3 hrs.

(BCA-DS-202/BCA-205A (CB)/BCA-205(CB))

No. of pages: 2 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question. Q.1 Multiple choice questions: [CO-1,2] [L-2] a) Computer on internet is identified by i) Email address ii) Street address iii) IP address iv) Server Address b) Which of the following protocols is used for transmitting email messages over the Internet? i) HTTPii) SMTPiii) TCPiv) UDPAc) DHCP (dynamic host configuration protocol) provides \_\_\_\_\_\_ to the client. i) HTTP ii) SMTP iii) TCP iv) UDPA i) IP address ii) MAC address iii) URL iv) None of the above d) DNS client is called \_\_\_\_\_. i) DNS updater ii) DNS resolver iii) DNS handler iv) none of the above e) Which of the following layers is an addition to OSI model when compared with TCP IP model? i) Application layer ii) Presentation layer iii) Session layer iv) Session and Presentation layer f) Expansion of FTP is \_\_\_\_\_ i) Fine TRANSFER Protocol ii) File Transfer Protocol iii) First TRANSFER Protocol iv) Fast Transfer PROtocol g) HTTP is \_\_\_\_\_ protocol. i) application layer ii) transport layer iii) network layer iv) data link layer h) Which of the following is not a type of cybercrime? i) Data theft ii) Forgery iii) Damage to data and systems iv) Installing antivirus for protection i) What is the name of the IT law that India is having in the Indian legislature? i) India's Technology (IT) Act, 2000 ii) India's Digital Information Technology (DIT) Act, 2000 iii) India's Information Technology (IT) Act, 2000 iv) The Technology Act, 2008 j) Under which section of IT Act, stealing any digital asset or information is written a cyber-crime. i) 65 ii) 65-D iii) 67 iv) 70 2×10 PART-A Q.2 a) Explain the following term: [CO-1] [L-2] 10 i) Copyright laws. ii) Links, URLs and hyperspace. b) Explain the architecture of internet in detail. [CO-2] [L-2] 10 Q.3 a) What is DNS? How domain name is mapped to addresses? [CO-3] [L-2] **10** b) Is DHCP based on client server architecture? Explain. [CO-3] [L-3] 10

**P. T. O**<sup>21</sup>

Max Marks: 100

- a) Discuss the role of SMTP in the emailing process. Write five golden rules of email Q.4 etiquettes. [CO-4] [L-3] 10 [CO-3] [L-2] 10
  - b) Explain copyright laws by taking some real life example.

### PART-B

- Q.5 a) What is ethical hacking? What are the various ethical hacking techniques?
  - [CO-4] [L-2] 10 b) How can cross site scripting be fixed? State in brief. [CO-4] [L-3] 10
- Q.6 Justify the statement "cybercrimes are more vulnerable". How can we protect ourselves from cybercrime? [CO-5] [L-2] 20
- What do you understand by the term IoT? Explain the difference between device to Q.7 device (D2D) and machine to machine (M2M) integration. [CO-2] [L-2] 20

### End Semester Examination, May 2023 BCA – Second Semester SOFTWARE ENGINEERING (BCA-DS-203/BCA-405A (CB)/BCA-405(CB))

question. a) Software is defined as \_\_\_\_\_ i) Set of programs, documentation and configuration of data ii) Set of programs iii) Documentation and configuration of data iv) None of the mentioned b) Why do bugs and failures occur in software? i) Because of developers ii) Because of companies iii) Because of both companies and developers iv) None of the mentioned c) Who proposed the spiral model? i) Barry Boehm ii) Pressman iii) Royce iii) IBM d) Software patch is defined as i) Daily or routine fix ii) Required or critical fix iii) Emergency fix iv) None of the mentioned e) Who proposed function points? i) Albrecht ii) Jacobson iii) Boehm iv) Booch f) Agile software development is based on which of the following type? i) Iterative development ii) Incremental development iii) Both incremental and iterative development iv) Linear development g) What does SDLC stands for? i) System design life cycle ii) Software design life cycle iii) Software development life cycle iv) System development life cycle \_\_\_\_\_\_ suits the Manifesto for Agile software development. h) ii) Individuals and interactions i) Customer collaboration iv) All of the mentioned iii) Working software i) development team has less experience on similar projects. i) Iterative enhancement model ii) RAD iii) Spiral iv) Waterfall j) What is the full form of the "COCOMO" model? i) Cost constructive estimation model ii) Constructive cost estimation model iii) Constructive case estimation model iv) Constructive cost estimating model

2×10

### PART-A

- Q.2 a) Explain software life cycle model.
  - b) Compare waterfall, spiral, prototype and incremental model.
- [CO-2] [L-2] 10 [CO-2] [L-2] 10

Max Marks: 100

No. of pages: 2

- Time: 3 hrs. Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each
- Q.1

- \_\_\_\_\_ is a software development life cycle model that is chosen if the

Q.3	<ul><li>Write short notes on following terms:</li><li>a) SRS.</li><li>b) Software project scheduling with techniques.</li><li>c) Feasibility study.</li></ul>	[CO-3][L-2] <b>5</b> [CO-3][L-3] <b>10</b> [CO-3][L-3] <b>5</b>
Q.4	<ul><li>a) Explain error, fault and failure.</li><li>b) Explain ER model. Explain entity, entity type, entity set, er diagrar notations with example.</li><li>c) Discuss the characteristics of a good SRS document.</li></ul>	[CO-3] [L-1] <b>5</b> ns symbols and [CO-4] [L-6] <b>10</b> [CO-2] [L-1] <b>5</b>
	<u>PART-B</u>	
Q.5	<ul><li>a) Explain in detail what are software testing and its types.</li><li>b) Difference between black box and white box testing.</li></ul>	[CO-5] [L-5] <b>10</b> [CO-5] [L-5] <b>10</b>
Q.6	<ul><li>Write short notes on:</li><li>a) Risk management.</li><li>b) Quality management.</li><li>c) Cyclomatic complexity.</li></ul>	[CO-3] [L-5] <b>5</b> [CO-5] [L-4] <b>5</b> [CO-3] [L-5] <b>10</b>
Q.7	Difference between: a) Cohesion and coupling. b) User documentation and system documentation.	[CO-3] [L-5] <b>10</b> [CO-3] [L-5] <b>10</b>

BCA – Third Semester

#### INTRODUCTION TO OPERATING SYSTEM ((BCA-DS-302) / (BCA-303A(CB)))

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from

PART-A and TWO questions from PART-B. Marks are indicated against each question. Q.1 Multiple choice questions: a) In operating systems, which of the following is/are CPU scheduling algorithms? i) Priority ii) Round Robin iii) Shortest job first iv) All of the above [CO2] [L1] b) In real time operating system \_\_\_\_\_. i) Process scheduling can be done only once. ii) All processes have the same priority. iii) Kernel is not required. iv) A task must be serviced by its deadline period. [CO2] [L1] c) Operating system is a collection of: i) Software routines ii) Input-output devices iii) Hardware components iv) All of the above [CO1] [L1] FIFO scheduling is.
i) Fair-share scheduling ii) Deadline scheduling iv) Preemptive scheduling iv) Preemptive scheduling have the next times. d) FIFO scheduling is: [CO2] [L1] e) Which of the following decides which task can have the next time slot? i) Single task operating system ii) Applications iii) Kernel iv) Software [CO2] [L1] f) Which of the following options is correct about the windows operating system? i) Windows is a CUI operating system. ii) Windows is based on CUI. iii) Windows is a GUI operating system. iv) None of the above [CO1] [L1] g) Which of the following operating system runs on the server? i) Batch OS ii) Distributed OS iii) Real-time OS iv) Network OS [CO2] [L1] h) In paging the user provides only \_\_\_\_\_\_ which is partitioned by the hardware into \_\_\_\_\_\_ and \_\_\_\_\_. i) One address, page number, offset. ii) One offset, page number, address. iii) Page number, offset, address. iv) None of the above [CO4] [L1] i) A FIFO replacement algorithm associates with each page the i) Time it was brought into memory ii) Size of the page in memory iv) All of the above iii) Page after and before it [CO2] [L1] To create a file i) Allocate the space in file system. ii) Make an entry for new file in directory.

iii) Allocate the space in file system and make an entry for new file in directory.

Max Marks: 100

No. of pages: 2

Time: 3 hrs.

[CO4] [L3] **15** 

#### CO-5 L1 2×10

### PART-A

- a) What is operating system? Discuss the service provided by an operating system. Q.2
  - [CO1] [L1] **10** b) Differentiate between multitasking, multi-programming and multi-threading. [CO1] [L2] **10**
- Q.3 What is process scheduling? Explain different level of schedulers. Also describe the different schedule algorithms. [CO2] [L1] **20**
- Q.4 What do you mean by page replacement? Explain the page replacement algorithms. [CO4] [L2] **20**

### PART-B

- Q.5 a) Discuss logical and physical address space. [CO4] [L1] **5** b) Consider swapping system in which memory of the following hole sizes in memory order. 10K, 4K, 20K, 18K, 7K, 9K, 12K and 15K. Which hole is taken for successive request of:
  - i) 12K
  - ii) 10K
  - iii) 9K for first-fit, best-fit and worst-fit
- Q.6 What do you understand by the file system structure? Describe the various types of allocation methods. [CO5] [L2] 20
- Q.7 a) What are semaphores? Explain two primitive semaphore operations. What are its advantages? [CO3] [L2] **15** [CO3] [L1] **5** 
  - b) What is deadlock? How it is handled?

BCA – Third / Fourth Semester

### MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE (BCA-DS-303) / (BCA-401A(CB)

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.

Q.1	a)	Which of the following are well-defin	ed sets?		
		i) All the colors in the rainbow.			
		ii) All the points that lie on a straigh	t line.		
		iii) All the honest members in the fa	nily.		
		iv) All the efficient doctors of the ho	spital.		
		v) All the hardworking teachers in a	school.		
		vi) All the prime numbers less than :	.00.		[CO2] [L1]
	b)	The set $A = \{x, x \in N \text{ and } x^2 - 3x + 2\}$	= 0 } is		
		i) Null set	ii) Finite set	t	
		iii) Infinite set	iv) None of	the above	[CO2] [L2]
	c)	Let $X = \{1, 2, 3\}$ then the relation R	$= \{(1, 1), (2)\}$	2, 2), (3, 1)} on 〉	< is
		i) Reflexive	ii) Symmetr	ric	
		iii) Transitive	iv) None of	the above	[CO2] [L2]
	d)	A graphs is a collection of			
		i) Row and column	ii) Vertices	and edges	
		iii) Equations	iv) None of	the above	[CO4] [L2]
	e)	The relation $\leq$ is a partial order if it	S	·	
		i) Reflexive, ant symmetric and trai	nsitive.		
		ii) Reflexive, symmetric.			
		iii) Asymmetric, transitive.			
		iv) Irreflexive and transitive.			[CO2] [L2]
	f)	A Poset in which every pair of el	ements has	both a least up	per bound and a
	-	greatest lower bound is termed as _	·		
		i) Sublattice	ii) Lattice		
		iii) Trail	iv) Walk		[CO2] [L3]
	g)	The points (-5, 1), (1, p) and (4, -2	) are collinea	r if the value of p	is:
		i) 3	ii) 2	-	
		iii) 1	iv) –1		[CO5] [L3]
	h)	If the points $P(1, 2)$ , $B(0, 0)$ and $C(a)$	, b) are collir	near, then:	
		i) 2a = b	ii) a = - b		
		iii) $a = 2b$	iv) a = b		[CO5] [ L2]
	i)	A graph is a set of points, called:	,		
		i) Nodes	ii) Edge		
		iii) Fields	iv) lines		[CO4] [L1]
	j)	and are	the two bina	ry operations def	ined for lattices.
	.,	i) Union intersection	ii) Multiplica	ation, modulo div	ision.
		iii) Join, meet	iv) Addition,	subtraction	[CO3] [L2] <b>2×10</b>

### PART-A

- Q.2 a) In a class of 35 students, 15 study Maths, 22 study Biology and 14 study Physics. If 11 study both Maths and Biology, 8 study Biology and Physics, 5 study Maths and Physics and if 3 study all the three subjects, find how many students of the class are not taking any of these subjects.
  - b) Consider the relation R whose directed graph is given below:



Determine its inverse  $R^{-1}$  and R'.

[CO2] [L4] **10** 

#### [CO2][L4] (10 marks)

- Q.3 a) By using PMI show that  $n^3 + 2n$  is divisible by 3 for all  $n \ge 1$ . [CO2] [L4] **10** 
  - b) Use the Euclidean algorithm to compute gcd(168, 180) and then use back substitution to find integers x and y such that gcd(168, 180) = 168x + 180y. [CO3] [L4] **10**
- Q.4 a) Draw the hasse diagram of  $D_{30}$  and prove that it also forms a lattice. [CO3] [L5] **10** b) Let  $D_{50} = \{1, 2, 5, 10, 25, 50\}$  and let the relation  $\leq$  be the relation (divides) be a
  - partial ordering on  $D_{50}$ .
    - i) Draw the hasse diagram of the lattices  $D_{50}$ .
    - ii) Determine all the upper bounds of 5 and 10.
    - iii) Determine the lower bounds of 5 and 10.
    - iv) Determine the GLB of 5 and 10.
    - v) Determine the LUB of 5 and 10.

#### <u>PART-B</u>

- Q.5 a) Find the solution to the recurrence relation  $2a_r 5a_{r-1} + 2a_{r-2} = 0$  with initial terms  $a_0 = 0$  and  $a_1 = 1$ . [CO4] [L4] **10** 
  - b) Define the following terms:
    - i) Order and degree of recurrence relation.
    - ii) Characteristic roots
- Q.6 a) Find the equation of the line which passes through (1, 3) and whose y intercept is three times it intercept on x-axis. [CO5] [L6] **10** 
  - b) Prove that the line joining (6, -4) and (-3, 2) is parallel to the line joining (1, 3) and (-2, 5).
     [CO5] [L5] 10
- Q.7 What is spanning tree? Explain steps of kruskal's algorithm. Find the minimum spanning tree of the following graph.



[CO4] [L4] **5×2** 

[CO3] [L5] **10** 

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[CO5] [L6] **20** 

BCA – Third Semester

### WEB APPLICATIONS DEVELOPMENT (BCA-DS-304) / (BCA-304A (CB)

Time:	3 h	rs.		Max Marks: <b>100</b>		
Note:	Att <b>PA</b> qu	tempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>co</b> <b>IRT-A</b> and <b>TWO</b> questions from a estion.	<b>ompulsory</b> . Attempt any <b>TWO</b> <b>PART-B.</b> Marks are indicated	<i>questions from</i> <i>against</i> each		
Q.1	М	ultiple choice questions:				
	a)	Find the name of the first web brows	ser?			
		i) IBM browser	II) Google Chrome			
	b)	Moving from one website to another	is called:			
		i) Downloading	ii) Browsing			
		iii) Uploading	iv) Attachment	[CO2] [L1]		
	c) Which of the following is used to read HTML code and to render webpage?					
		i) Web Browser	ii) Web Server			
	٦٢.	III) Web Matrix	iv) Web search Engine	[CO2][L1]		
	a)	i) Forum	us to access our e-mail from ar	nywnere?		
		I) FOIUIII iii) Mossago board	ii) Weblog			
	e)	Fill in the blank with a suitable onti	on in order to number items of	of an ordered list		
	с)	with small roman numbers.				
		html <html><body></body></html>	> <ol><li>Phy</li></ol>	/sics <li></li>		
	Ch	emistry		,		
		<li>Mathematics </li>	/body>	[CO2] [L1]		
	f)	Which of the following sets the color	of a link before it has been clic	ked on?		
		i) ALINK	ii) LINK			
		iii) VLINK	iv) ULINK	[CO2] [L1]		
	g)	The attribute lets you turn off	scrolling in a frame.			
		i) OFFSCROLL	ii) SCROLLING			
	L.)	III) SCROLLBAR	IV) None of these	[CO2][L1]		
	n)	In CSS, what does "color:blue" can b	ii) Declaration			
		i) Selector	ii) Declaration			
	i)	The attribute turns frame bord	iv) value			
	ŋ					
		iii) FRAMFBORDER	iv) BORDERCOLOR	[CO2] [I 1]		
	j)	Which is the correct CSS syntax?				
	"	i) {body:color=black(body}	<pre>ii) body {color:black}</pre>			
		<pre>iii) {body;color:black}</pre>	iv) body:color=black	[CO2] [L2] <b>2×10</b>		
		<b>Δ</b> Δ	RT-A	#		

#### 

- a) A web browser is a software application for accessing information on the World Q.2 Wide Web. Give five examples and functions of web browsers. What are the major characteristics of the web browsers? [CO2] [L1] **10** 
  - b) How does a search engine help us in searching content on Internet? Name the components of a search engine and explain the working of the same. [CO2] [L2] 10

#### Q.3 Write code to generate the following web page:



Note: The following points while generating the web page:

- a) Title of the page is "Indian Food".
- b) Link color is blue, vlink color is brown and alink color is pink.
- c) Font face of heading is "arial".
- d) The color of the heading of the page is green.
- e) Image used as foodl.jpg.
- f) Table border is 4px and border color is maroon.
- g) Use link as:

For Available Food as Fl.html

For Dishes Price as F2.html

- For Get Recipes as F3.html
- h) E-mail id for bottom message "To get order click here" as inquiry@abc.com.

[CO2] [L1] **20** 

# Q.4 Write code in HTML to create a table with the structure mentioned below: COLLEGE TIME TABLE

	8:30-9:30	9:30-10:30	10:30-11:30	11:30-12:30	12:30-2:00	2:00-3:00	3:00-4:00	4:00-5:00
MONDAY		SUB1	SUB2	SUB3		SUB4	SUB5	COUNSELLING CLASS
TUESDAY	SUB1	SUB2	SUB3			SUB2	SUB2	LIBRARY
WEDNESDAY	SUB1	SUB2	SWA			LAB		LAB
THURSDAY	SUB1	SUB2	SUB3		C H	SUB2	SUB2	LIBRARY
FRIDAY	SUB1	SUB2	SUB3			SUB4	SUB5	LIBRARY
SATURDAY	SUB1		SEMINAR			SUB4	SUB5	LIBRARY

[CO2] [L2] **20** 

### <u>PART-B</u>

Q.5 Write HTML code to create the frame structure given below:

[CO2] [L1] **20** 



- Q.6 Cascading style-sheet is a style-sheet language used to describe the presentation of a document. Explain the various ways in which CSS is included in the web page. [CO5] [L2] **20**
- Q.7 JavaScript is a collection of various scripts. What do you mean by the term scripts? How are they useful in programming with JavaScript? Write down the basic characteristics of JavaScript. Also enumerate various data types available in JavaScript. [CO4] [L3] **20**

### BCA / B. Sc. (Information Technology) — Third Semester SOFT SKILLS AND APTITUDE DEVELOPMENT-I (BCA-DS-309/BSCIT-DS-304)

Time: 2 hrs.

Max Marks: **50** *No. of pages: 5* 

#### Please read the instructions carefully

Note: All questions are **compulsory.** Each question has **FOUR** options with **ONE** correct answer. Select the correct answer. All questions are of **ONE** mark each. There is no **NEGATIVE** marking. Mention the correct option for each question in the blank answer key given herein below. Calculator is not permitted. Use only black or blue pen.

1)	2)	3)	4)	5)	6)	7)	8)	9)	10)
11)	12)	13)	14)	15)	16)	17)	18)	19)	20)
21)	22)	23)	24)	25)	26)	27)	28)	29)	30)
31)	32)	33)	34)	35)	36)	37)	38)	39)	40)
41)	42)	43)	44)	45)	46)	47)	48)	49)	50)
Q.1	A is thrice work togeth a) 15	as efficier ner, in hov	nt as B. A v many da b) 9	takes 24 ays, will th	days less work be	than B t complete	co completed? d) 12	te a work	. If they
Q.2	Working to same work complete th a) 12	gether A, in 24 days ne same w	B and C of s and B co ork? b) 18	can comp ompletes i	lete a piec t in 6 days	ce of worl 5. How ma	k in 3 day any days v d) 6	rs. A comp vill C alone	olete the e take to
Q.3	P and Q to and R wher a) 43	gether ea n working	rn Rs. 188 together ( b) 56	8 per day earn Rs. 3	. Q and R 00 per dat c) 45	together y. How m	earn Rs. uch does ( d) 40	152 per c Q earn da	ay. P, Q ily?
Q.4	Q.4 Parthiv was appointed for a 100 days job. The condition was that he will be paid Rs. 24 for every working day. But he will also be fined Rs.12 for every day he is absent. At the end he got Rs.420. For how many days, he was absent?								
Q.5	Q.5 Two pipes A and B can fill a cistern in 60 min and 75 min respectively. There is a third pipe in the bottom of the cistern to empty it. If all three pipes are opened simultaneously then the cistern is full in 50 min. In how much time the third alone can empty the cistern?								
Q.6	<ul> <li>a) 110</li> <li>b) 80</li> <li>c) 90</li> <li>d) 100</li> <lid>100 <li>d) 100</li> <li>d) 100</li> <lid>100 <li>d) 100</li> <li>d) 100</li> <lid>100 <li>d) 100</li> <lid>100 <li>d) 100</li> <lid>100 <li>d) 100</li> <li>d) 100</li> <lid>100 <li>d) 100</li> <lid>100 <li>d) 100</li> <li>d) 100</li> <li>d) 100</li> <lid>100 <li>d) 100</li> <lid>100 <li>d) 100</li> <li>d) 100</li> <lid>100 <li>d) 100</li> <lid>100 <li>d) 100</li> <lid>100 <lid>100 <li>d) 100</li> <lid>100</lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></lid></ul>								
Q.7	7 There are four numbers. Average of the first three is 15 and of last three is 16. If the last number is 19, find the first number.								
Q.8	<ul> <li>a) 16</li> <li>b) 20</li> <li>c) 19</li> <li>d) None of these</li> <li>8 Five men agree with a sixth men to subscribe a sum of money for a chit fund. The first five are to subscribe ₹15 each and sixth ₹5 less than the average of all the six. The sixth man subscribe</li> </ul>								
Q.9	a) ₹9 A batsman by 3. Find ł a) 36	makes a s nis average	b) ₹10 score of 8 e after 17 b) 37	7 runs in th match.	c) ₹9.50 the 17th r c) 38	match and	d) ₹10 I thus incr d) 39	.50 reases his	average

Q.10	A boat can	travel with a speed of 13	3 km/hr in still v	vater. If the speed	of the stream is 4
	km/hr, find	I the time taken by the b	oat to go 68 km	downstream.	
	a) 10	b) 12	c) 14	d) 16	

- Q.11 A boat covers a certain distance downstream in 1 hour, while it comes back in 1.5 hours. If the speed of the stream be 3 kmph, what is the speed of the boat in still water?
  a) 10
  b) 15
  c) 22
  d) 25
- Q.12 At what approximate time between 4 and 5 am will the hands of a clock be at right angle? a) 4:35 AM b) 4:39 AM c) 4:40 AM d) 4:38 AM
- Q.13 The angle between the minute hand and the hour hand of a clock when the time is 8.30, is: a) 80° b) 75° c) 60° d) 105°

**Directions (Q.14 to Q.18):** Study the following graph carefully to answer the questions that follow.



Q.18 The number of males from organization Vashundhra is approximately what percent of the total number of males from all the organizations together?
a) 23.42%
b) 21.42%
c) 25%
d) 26%

**Directions (Q.19 to Q.23):** Study the following pie-charts carefully and answer the questions given below. The entire fund that school gets from different sources in equal to ₹500 lakhs.



Q.19	What is the differen	ce between the f	unds	acquired by the	e sc	hool from NGO's and
	a) ₹50 lakh	b) ₹45 lakh	c) <sup>‡</sup>	₹75 lakh	d)	₹25 lakh
Q.20	If the school manage then how much fund a) ₹120 lakh	ed school mainten from government a b) ₹150 lakh	ance agen c)	e from the govern icies would still lef ₹110 lakh	mer t foi d)	nt agencies fund only, r other use? ₹125 lakh
Q.21	If scholarship has to per cent of donation	be paid out of the fund used for his p	e do ourpo	nation fund, then se?	wh	nat is the approximate
	a) 43%	b) 53%	<b>c)</b>	37%	d)	45%
Q.22	What is the total amo	ount used by the so	chool	for payment?		
	a) ₹100 lakh	b) ₹110 lakh	c)	₹150 lakh	d)	₹140 lakh
Q.23	What amount of the	fund is acquired by	' the	school from gove	rnm	ent agencies?
	a) ₹220 lakh	b) ₹310 lakh	c) <sup>:</sup>	₹255 lakh	d)	₹235 lakh
Q.24	If BOMBAY is written	as MYMYMY, how	will T	TAMIL NADU be w	/ritte	en in that code?
	a) YMNYMNYMN	b) ABHABHABH	c) /	ABCDABCDA	d)	MNUMNUMNU
Q.25	In a certain code, 2i	s coded as P, 3 a	s N,	9 as Q, 5 as R,	4 a	s A and as B. How is
-	599423 coded in that	code?		-		
	a) QRQPAN	b) RQQAPN	c) /	AQPQRN	d)	QRANPA
Q.26	What will be the day	of the week 15th A	ugus	t, 2010?	,	-
	a) Sunday	b) Monday	c) .	, Tuesday	d)	Friday
0.27	How many times the	29th day of the Mo	ondav	, v does occur in 40	)0 c	, onsecutive years?
	a) 4500	b) 4498	c)	, 4497	d)	, 4495

**Directions (Q.28 to Q.30):** A cube is colored red on two opposite faces, blue on two adjacent faces and yellow on the two remaining faces. It is then cut into two halves along the plane parallel to the red faces. One piece is then cut into four equal cubes and the other one into 32 equal cubes.

Now answer the following questions based on the above information.

Q.28	How many cubes have each a yellow face with other faces blank?			
	a) 4 b) 14	c) 16	d) 18	
Q.29	How many cubes have at least or	ne blue face?		
	a) 4 b) 14	c) 16	d) 17	
Q.30	How many cubes do not have any	y colored face?		
	a) 0 b) 2	c) 4	d) 8	
Q.31	Which of the following is not the	part of a resume?		
	a) Religious affiliation	b) Employment H	listory	
	c) Contact Information	d) Education		
Q.32	Which of the following is the safe	st email address style to	use on your resume?	
	a) lovin_ladies123@emailprovide	r.com b) j_smith@emai	ilprovider.com	
	c) partyallthetime@emailprovider	r.com d) None of these		
Q.33	Select the location where the name	ne and address can be m	entioned in a skills profile?	
	a) Bottom left corner	<ul><li>b) Top right corn</li></ul>	er	
	c) Top left corner	d) Bottom right o	corner	
Q.34	Which is not compulsory to menti	ion in a CV?		
	a) Date b) Name	c) Nationality	d) Education	
Q.35	The resume and application letter	r performs which of the fo	ollowing tasks?	
	a) two different tasks	b) two same task	(S	
	c) overlapping tasks	d) the same task		

Q.36	6 The ideal way to apply for the vacancy of a job is to submit a resume that is:						
	a) Full of personal information	b) Suitable for any job					
0 27	c) Self-recommending d) Specially written for that specific job						
Q.37	when should you send a cover letter?	rc it					
	b) Every time you send out your resum						
	c) When you need to list your salary re	auirement					
	d) When you need to list references						
Q.38	The synonym for the word "WISE" is:						
	a) Momentous b) Pragmatic	c) Judicious	d) Delay				
Fill in	the blanks with appropriate answers:						
Q.39	The car broke down and we get	a cab.					
•	a) have to b) had to	c) must	d) had got to				
Q.40	Bread and milk my favourite break	kfast.					
	a) Is b) Are	c) Any of these	d) None of these				
Q.41	The correct meaning of the prefix "Neur	ro-" in "NEUROLOGY"	5:				
0 40	a) Brain b) Head	c) Nerves	d) None of these				
Q.42	which is not a pre requisite of a group (	uiscussion?					
	c) Interrupting	d) Changing Opinion					
0.43	"Accepting Criticism" in GD means:						
Q. 10	a) Get upset and react strongly.	b) Be polite and tell	the person				
	c) Just ignore and keep talking	d) Criticize the other	person who is criticizing				
Q.44	The answer to the question "Why shoul	d we hire you?" should	d be:				
	a) I am the best and would do the job	at my best.					
	b) I am the best among the people you	ı have just met.					
	c) All my teacher and friends like me.						
0 45	d) It will give me a platform to showca	se my skills.					
Q.FJ	a) To know whether my skills match wi	in. Ith the company's need	de				
	b) To increase your general Knowledge						
	c) To match your knowledge with the o	company profile					
	d) None of these						
Q.46	The question "Tell me something about	yourself" is to check:					
	a) How well you speak about yourself						
	b) Whatever you have written in your (	CV is true or not.					
	c) Your confidence about yourself and	your skill set.					
0 47	d) How well versed you are about talking	ng in English.					
Q.47	a) Get a job						
	<ul><li>a) Get a job</li><li>b) Take the experience of sitting in an</li></ul>	interview					
	c) Know the kind of jobs available in th	e market.					

d) See if your skills match with the job requirements.

**Directions (Q.48 – Q.50):** Read the passage below and answer the questions that follow: The sky was already full of rusting wings. But when Jean stepped into the still lusterless water, he seemed to be swimming in an indeterminate darkness until he saw the streaks of red and gold over the horizon. Then he suddenly swam back to land and climbed up the winding path to his house. After a great deal of panting he reached a little gate, pushed it open and climbed a stairway. The house above the world had its huge bay-windows through
which one could see the horizon from one edge to the other. Here, no one complained of exhaustion. Everyone had his joy to conquer, every day.

- Q.48 Which of the following is indicated by the description in the passage?
  - a) Time before sunrise
- b) Time after sunset

c) Clouds

- d) None of these
- Q.49 "The house above the world" in the passage means:
  - a) Jean's house was very beautiful
  - c) The house was very shabby
- b) His house was on top of a hill d) All of these
- Q.50 "Horizon" in the passage means:
  - a) Perception b) Skyline
- c) View
- d) None of these

### End Semester Examination, May 2023 BCA – Fourth Semester NUMERICAL ANALYSIS AND STATISTICAL TECHNIQUES (BCA-DS-401/BCA-301A (CB))

Time: 3 hrs. Max Marks: 100 No. of pages: 2 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question. Q.1 Answer the following questions: a) Numerical techniques more commonly involve \_\_\_\_\_ [CO-2] [L-1] i) Elimination method ii) Reduction method iii) Iterative method iv) Direct method b) We wish to solve  $x^2 - 2 = 0$  by Newton Raphson technique. If initial guess is x0 = 1.0, subsequent estimate of x (i.e. x1) will be \_\_\_\_\_ [CO-2] [L-1] i) 1.414 iii) 2.0 iv) None of these ii) 1.5 c) Truncate the given number 8.2467895 up to three decimal places. [CO-2] [L-1] d) Round off the numbers .004935 and 826.75 to three significant numbers. [CO1][L1] e) Construct a forward difference table: [CO-2] [L-2] Х 0 2 3 1 1 2 11 34 у f) In the regression equation Y = a + bX, the Y is called: [CO-5] [L-1] i) Independent variable ii) Dependent variable iii) Continuous variable iii) None of the above g) The deviation from assumed mean is represented as: [CO-5] [L-1] i) s ii) p iii) d iv) m h) Rank method is used to find: [CO-5] [L-1] i) Correlation ii) Deviation iii) Median iv) Mode i) If 'm' is the mean of a Binomial distribution, then the variance is given by \_\_\_\_\_ [CO-6] [L-1] i) m<sup>2</sup> ii) m<sup>1/2</sup> iii) mp iv) np j) The summary statistics which measure the middle or center of the data are called: [CO-6] [L-1] i) Logarithms ii) Measures of central tendency iii) Measures of dispersion iv) Proportions 2×10 PART-A a) Find a real root of the equation  $f(x) = x^2 - 4x - 9 = 0$ , using Bisection method. 0.2 [CO-2] [L-3] **10** b) If 0.8333 is taken to be an approximate value of 5/6. Find the percentage error. [CO-1] [L-3] 10 a) Given the following table find y(0.5) and y(2.5) by using suitable interpolation Q.3 formula:

X	0	1	2	3
Y	1	2	1	10

[CO-3] [L-4] 10

b) Find the missing term in the following table:

X	0	1	2	3	4	5	38
						P. T. C	)

Y	0	-	8	15	-	35

[CO-3] [L-4] **10** 

Q.4 a) Simplify:

$$\int_{0}^{b} \frac{1}{1+x^{2}}$$
i) Simpson's  $\left(\frac{1}{3}\right)^{rd}$  Rule
ii) Simpson's  $\left(\frac{3}{8}\right)^{th}$  Rule
[CO-3] [L-4] **10**

b) Use Euler method to find y(1.0) if dy/dx = x + y, y(0)=0. Choosing h=0.2. [CO-3] [L-4] **10** 

### <u>PART-B</u>

Q.5 a) Explain the conceptual similarities and differences between correlation and regression between two variables. Discuss regression lines as well. [CO-5] [L-4] 10
 b) Calculate the coefficient of correlation from the following data:

X	100	200	300	400	500	600	700
Y	30	50	60	80	100	110	130

[CO-6] [L-4] **10** 

- Q.6 a) Find the probability of getting at least 5 times head-on tossing an unbiased coin 6 times by using the Binomial distribution. [CO-6] [L-4] **10** 
  - b) A pharmaceutical company states that the average number of people that have serious medical issues with their medicine is only 3 people per year. The medicine is sold to millions of people. Apply Binomial distribution to find the number of people getting sick due to this medicine.
- Q.7 a) From a pack of 52 cards, two cards are drawn together at random. What is the probability of both cards being kings? [CO-6] [L-5] **10** 
  - b) What is normal distribution? What are the properties of Standard Normal Distribution? [CO-6] [L-3] **10**

BCA – Fourth Semester

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions

### PROGRAMMING IN JAVA (BCA-DS-402/BCA-403A (CB))

from PART-A and TWO questions from PART-B. Marks are indicated against each question. Q.1 Multiple choice questions: a) Automatic type conversion is possible in which of the possible cases. i) byte to int ii) int to long iii) long to int iv) short to int b) What are the variables declared in a class for the use of all methods of the class called? i) Object ii) a class object in which it is defined iv) none of the above iii) void c) What does the expression float a = 35/0 return? ii) not a number iii) Infinity iv) none of the above i) 0 d) Identify the incorrect Java feature. i) Object-oriented ii) Use of pointers iii) Dynamic iv) neutral e) Where is System class defined? i) GREATEST, LEAST and ABS ii) SUM, COUNT and AVERAGE iii) UPPER, LOWER and LENGTH iv) SQRT, POWER and MOD f) Identify the modifier which cannot be used for constructor. iii) Private i) Public ii) Protected iv) Static Answer the following: g) Explain try, Catch and throw keywords. h) Differentiate between 'final' and 'finally'. i) Define with suitable example for this keyword. j) Why we don't have pointers in java? Justify the reasons. [CO-1-6] [L-2] 2×10 PART-A Compare between Java and C++. Describe various types of constants available in Java. Q.2 Give an example of each. How Symbolic Constants are useful in programs? [CO-1] [L-5] **20** 

Q.3 a) Design a program to print the Factorial of a number. [CO-2] [L-6] **10** 

b) Give the syntax, purpose and flow chart of the following:

- i) While and Do While.
- ii) For Loop.

Time: 3 hrs.

Q.4 What is a package? How do we design a package? Discuss various levels of access protection available for packages and their implications in detail. [CO-3] [L-5] **20** 

# <u>PART-B</u>

- Q.5What is a thread? What is the difference between multiprocessing and multithreading?<br/>Describe the complete life cycle of a thread.[CO-4] [L-6] 20
- Q.6 Write short notes on the following:

[CO5][L1] 20

a) Multi-threading.

b) Applet life cycle.

[CO-5] [L-2] **10×2** 

[CO-3] [L-1] **5×2** 

Max Marks: **100** *No. of pages: 1* 

- a) Explain concept of interfaces with suitable examples. [CO-6] [L-1] 10
  b) Write a program for database connectivity with JDBC-ODBC connection string. [CO-6] [L-1] 10 Q.7

BCA – Fourth Semester

### ELEMENTS OF COMPUTER GRAPHICS (BCA-DS-403/BCA-DS-404A (CB)/BCA-404(CB))

Note:	Attempt <b>FIVE</b> questions in all; <b>Q.1 is compulsory</b> . Attempt any from <b>PART-A</b> and <b>TWO</b> questions from <b>PART-B</b> . Marks are indica question.	<b>TWO</b> questions ated against each
Q.1	<ul> <li>Answer the following in brief:</li> <li>a) What is VGA?</li> <li>b) What is difference between 2D and 3D?</li> <li>c) Define 'DDA'.</li> <li>d) What is the use of computer graphics in the real-world applications</li> <li>e) Explain flood fill algorithm.</li> <li>f) Define 'scaling'.</li> <li>g) Explain projection.</li> <li>h) Difference between 'zooming' and 'panning'.</li> <li>i) Differentiate between 'world coordinate system' and 'device coordinate s</li></ul>	[CO-1] [L-1] [CO-2] [L-1] [CO-3] [L-1] [CO-3] [L-1] [CO-3] [L-1] [CO-2] [L-1] [CO-3] [L-1] [CO-3] [L-1] [CO-4] [L-1] [CO-2] [L-1] <b>2×10</b>

# PART-A

Q.2 Explain different input and output devices.

Time: 3 hrs.

- Q.3 Differentiate between 'DDA algorithm and Bresenhem line algorithm'. Draw a line from (2,3) to (5,8) using DDA. [CO-5] [L-3] **20**
- Q.4 Draw a line using Bresenhem algorithm in which starting coordinates are (9,18) and ending coordinates are (14,22) [CO-5] [L-3] **20**

### <u>PART-B</u>

- Q.5 There is a square ABCD in which different coordinates are A (0,0), B (4,0) and C (4,4) and D(0,4). Scale the image with factor 0.5. Then, rotate it by 90 degree in clockwise direction and at last apply reflection transformation about origin. [CO-2] [L-1] **20**
- Q.6 Find normalization transformation that maps a window whose lower-left corner is at (1,1) and upper right corner is at (3,5) onto: a) viewport with lower-left corner (0,0) and upper right corner (1,1) b) viewport with lower left corner (0,0) and upper right corner  $(\frac{1}{2}, \frac{1}{2})$  [CO-3] [L-1] **20**
- Q.7 Explain different real time animation techniques in detail. [CO-4] [L-2] **20**

Max Marks: **100** *No. of pages: 1* 

[CO-1] [L-1] **20** 

BCA – Fourth Semester

### SYSTEM PROGRAMMING (BCA-DS-404)

Time: 3 hrs. Max Marks: 100 No. of pages: 2 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question. Q.1 Multiple choice questions: a) Select the system software that always resides in main memory. [CO-1] [L-1] i) Text editor ii) Loader iii) Linker iv) Assembler b) In assembly language each statement has two operands, the first operand is always a \_\_\_\_\_\_ which can be any one of the AREG, BREG, CREG and DREG. ii) Assemble iii) All of the above i) Register [CO-1] [L-1] c) MOT (Machine operation table) contains. [CO-1] [L-1] i) Name ii) Length iv) All of the above iii) Binary code and format d) Translator for low level programming language can be termed as: [CO-1] [L-1] i) Compiler ii) Assembler iii) Linker iv) Loader e) An assembler is: [CO-1] [L-1] i) Programming language dependent ii) Syntax dependant iii) Machine dependant iv) Data dependent f) An imperative statement: [CO-1] [L-1] i) Reserves areas of memory and associates names with them ii) Indicates an action to be performed during execution of assembled iii) Indicates an action to be performed during optimization iv) None of the above q) The bottom up parser create\_\_\_\_\_ [CO-2,4] [L-1] i) Right most derivation in reverse ii) Right most derivation iii) Left most derivation iv) Left most derivation in reverse h) The compiler is used to transfer \_\_\_\_\_\_ that the computer can understand. i) Source code into data ii) Algorithm into data iii) Computer language into data iv) None of the above [CO-2] [L-1] i) A lexical analyzer's output is: [CO-2] [L-1] i) Intermediate code ii) A parse tree iv) Machine code iii) A stream of tokens j) In the compilers, the keywords of any language can be recognized during the: ii) Program's parsing i) Code generation iii) Dataflow analysis iv) Program's lexical analysis 2×10 PART-A

- Q.2 What is system programming? Discuss the components of system programming. Explain general hardware organization of a computer system. [CO-1] [L-2] **20**
- Q.3 Explain the multi pass organization of language processor in detail. [CO-1,4] [L-2] 20

- a) Explain the role of mnemonic opcode table, symbol table, literal table and POOL Q.4 table in assembling process of assembly language program. [CO-2,3] [L-2] **10** 
  - b) Compare single pass assembler and two pass assembler. Explain two pass assembler in detail with suitable example. [CO-2,3] [L-2] **10**

### PART-B

- Q.5 a) Compare top-down and bottom-up parser.
  - [CO-2,5] **10** b) Explain classification of grammar in programming languages. Show that if G is the grammar S- $\rightarrow$ SbS|a show that G is ambiguous. [CO-3,4] [L-4] **10**
- Q.6 a) Explain lexical analysis and syntax analysis phase in compilation process.
  - [CO-2,4] [L-2] 10
  - b) Explain the machine dependent and independent compiler features. [CO2,4] [L2] 10
- Q.7 a) Comment on the statement "Dynamic debugging is easier to implement in interpreters than in compilers" [CO-4,5] [L-3] **10** [CO-4,5] [L-3] 10
  - b) Explain the various types of errors.

### End Semester Examination, May 2023 BCA – Fourth Semester FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE (BCA-DS-405)

Time: 3 hrs.

Note:	Att froi que	tempt <b>FIVE</b> questions in all; <b>Q.1 is</b> m <b>PART-A</b> and <b>TWO</b> questions from estion.	n <b>P</b>	<b>mpulsory</b> . Attempt any ART-B. Marks are indica	<b>TWO</b> questions ted against each
Q.1	Mi a)	u <b>ltiple choice questions:</b> Machines that try to imitate human i	ntu	ition while handling vague	e information lie in
	u)	the field of AI called?	ncu	tion while handling vaga	
		i) Functional Logic	ii)	Fuzzy Logic	
		iii) Boolean Logic	iv)	Human Logic	[CO3][L-3]
	b)	The component of an expert system	is_		
		i) Knowledge Base	ii)	Inference Engine	
		iii) User Interface	iv)	All of the above	[CO5][L-3]
	c)	Which of the following are valid Mac	hine	e Learning algorithms?	
		i) Linear Regression	ii)	K Means Clustering	
		iii) Naive Bayes	iv)	All of the above	[CO4][L-1]
	d)	Components of an expert system are	?		
		I) Knowledge base	II)	User interface	
	2	III) Inference engine	(VI سوان	All of the above	[CU5][L-1]
	e)	branchos that don't affect the final of	lidi utn	ut is known as	but removes the
		i) Depth-first search	սւբ հ)	Breadth-first search	·
		iii) Alpha-beta pruning	iv)	None of the above	[[[]]]
	f)	Which of the following option is us	sed	to build complex senter	nces in knowledge
	.,	representation?		•• •••••	
		i) Symbols	ii)	Connectives	
		iii) Quantifier	iv)	None of the above	[CO3][L-1]
	g)	The different types of machine learn	ing	are?	
		i) Supervised	ii)	Unsupervised	
		iii) Reinforcement	iv)	All of the above	[CO4][L-3]
	h)	Among the given options, which sear	rch	algorithm requires less me	emory?
		i) Optimal Search	ii)	Depth First Search	
		iii) Breadth-First Search	iv)	Linear Search	[CO2][L-2]
	i)	The available ways to solve a problem	m o	f state-space-search.	
		I) 1	II)	2	500435L 03
	-1	III) 3	IV)	4	[CO1][L-2]
	])	i) Dredicate Logic	as:	Dropositional Lasia	
		i) Fredicate Logic iii) Both i) and ii)	ーII) - トン	None of the above	[CO3][1_2] 2v10
			17)		
		<u>PAI</u>	7 <i>T</i> -	- <u>A</u>	

Q.2 What is AI? Explain the nature of AI. Describe the application areas of AI. [CO1][L-2] 20

Q.3 What are the objectives of knowledge representation in AI? What are the ways to represent knowledge in AI system? How AI is affecting on real life? [CO3][L-2] **20** 

Max Marks: **100** *No. of pages: 2* 

- Q.4 a) What is heuristic function? Differentiate between 'blind search' and 'heuristic search' strategies. Justify with the suitable examples. [CO2][L-2] **10** 
  - b) Explain about the Hill Climbing Algorithm with its drawback and how it can be overcome. [CO2][L-2,3] 10

## <u>PART-B</u>

- Q.5 What is rule based system? How many types of rules are there in rule-based system? Describe examples of rule-based expert systems. [CO3][L-2] **20**
- Q.6 What is machine learning? What is the difference between AI and machine learning? What is supervised versus unsupervised learning? [CO4][L-2] **20**
- Q.7 a) What is expert system? What are the major challenges of expert system? [CO5][L2] 10
   b) What is artificial neural network based on in AI? What are the two types of artificial neural networks? [CO5][L2] 10

BCA – Fourth Semester

### **COMPUTER SYSTEM ARCHITECTURE (BCA-DS-406)**



P. T. O 47

- b) Implement AND, OR, NOT and EX-OR gates using NOR gates only. [CO-2] [L-1] 10
- Q.4 a) Simplify the following Boolean expressions to a minimum number of literals and design the logic circuit using NAND gates.
  - i)  $\overline{x} y + xy + x \overline{z} + x \overline{y} \overline{z}$
  - ii)  $\overline{x y} + z + xy + wz$

[CO-2] [L-3] **10** 

b) Minimize the following four variable logic function using K-Map and implement the minimized expression using logic gates.

(*i*)  $f(a,b,c,d) = \sum m(5,6,7,9,10,11,13,14,15)$ 

 $(ii) f(x, y, w, z) = \Pi M(1, 4, 6, 9, 10, 11, 14, 15)$ 

[CO-3] [L-4] 10

### <u>PART-B</u>

- Q.5 a) Design a decimal to BCD encoder and discuss its operation using circuit and truth table. [CO-3] [L-3] **10** 
  - b) Construct a 16:1 multiplexer using two 8:1 multiplexers and one 2:1 multiplexer and

discuss its working operation.

[CO-3] [L-4] **10** 

Q.6 a) What is race around condition in JK flip flop? How is it resolved using a Master-Slave

flip-flip? Explain the working operation of JK Master-Slave flip-flop with the help of its circuit diagram. [CO-4] [L-2] **10** 

- b) Distinguish between synchronous and asynchronous counters and design an asynchronous decade counter and discuss its operation with the help of a circuit diagram and truth table. [CO-4] [L-4] **10**
- Q.7 a) Explain the difference between virtual memory, cache memory and associative memory. [CO-5] [L-1] **10** 
  - b) Draw and discuss the function of key components of a microprocessor. What is pipelining? [CO-5] [L-1] 10

### End Semester Examination, May 2023 BCA – Fifth Semester DATA COMMUNICATION AND NETWORKING (BCA-DS-501) / (BCA-501A (CB)

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

- Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 Multiple choice questions:
  - a) The information to be communicated in a data communications system is the

	i) Medium	ii)	Protocol	
	iii) Transmission	iv)	Message	
b)	A television broadcast is an example	of _	transmission.	
	i) Half-duplex	ii)	Full-duplex	
	iii) Simplex	iv)	Automatic	
c)	In modulo-2 arithmetic, we use the _		operation for	both addition and
sul	btraction.			
	i) XOR	ii)	OR	
	iii) AND	iv)	None of the above	
d)	The layer lies between the	e ne	twork layer and the application	ation layer.
	i) Data link	ii)	Physical	
	iii) Transport	iv)	None of the above	
e)	CRC stands for			
	i) Cyclic redundancy check	ii)	Code repeat check	
	iii) Code redundancy check	iv)	Cyclic repeat check	
f)	A switched WAN is network.			
	i) virtual-circuit	ii)	datagram	
	iii) circuit-switched	iv)	None of the above	
g)	The layer can used trailer	of t	he frame for error detection	on:
	i) Physical	ii)	Data link	
	iii) Transport	iv)	Presentation	
h)	Which of the following is an example	of	a bounded medium?	
	i) Coaxial cable	ii)	Wave guide	
_	iii) Fiber optic cable	iv)	All of the above	
i)	A switch in a datagram network use	s a	routing table that is based	I on the
	address:			
	i) Source	ii)	Destination	
	iii) Local	iv)	None of the above	
j)	An IPv6 address is:			
	i) 8 bits long	II)	16 bits long	
	III) 32 bits long	iv)	128 bits long	[CO1] [L2] <b>2×10</b>

# <u>PART-A</u>

- Q.2 a) Describe `Data Communication Network'. What are basic elements of<br/>communication?[CO2] [L2] 10
  - b) Write short notes on:
    - i) Multiplexing techniques.
    - ii) Cyclic redundancy check in error detection.
- Q.3 a) Explain OSI reference model and its various layers with the help of diagrams. [CO3][L3] **10** 
  - b) What is topology? Explain the advantages and disadvantages of each topology in detail. [CO4][L3] **10**
- Q.4 Write short notes on the following:
  - a) DNS.
  - b) IEEE802.1
  - c) IPv4 and IPv6 Addresses.
  - d) TCP/IP.

[CO5] [L3] 5×4

[CO6] [L3] **10×2** 

[CO2] [L2] **5×2** 

### <u>PART-B</u>

- Q.5 Explain 'unicast and multicast routing'. What are various types of linking? Explain with the help of examples. [CO6] [L3] **20**
- Q.6 Write short notes on the following:
  - a) Transport layer.
  - b) Routing protocols.
- Q.7 Discuss the architecture of Bluetooth technologies with suitable diagrams. [CO5] [L3] 20

BCA – Fifth Semester

### RDBMS USING ORACLE (BCA-DS-502) / (BCA-503A (CB)

No. of pages: 2 Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question. Answer the following questions: a) Which is not an aggregate function? i) Min. ii) Max. iii) Select, iv) Avg. b) In hierarchical model, data is organized into: i) Logical structure, ii) Physical structure, iii) Tree like structure, iv) None of the above. c) A transaction completes its execution is said to be: i) Saved ii) Loaded ii) Rolled iv) Committed. d) The execution sequences in concurrency control are termed as: i) Serials ii) Schedules iii) None of the above iv) All of the above. e) What do you mean by concurrent transaction? f) The VARCHAR2 data type is used to store: i) Variable length character, ii) Fixed length character, iii) None of the above iv) All of the above. g) Exception can be declared only in: i) Begin ii) Declarative iii) None of the above iv) All of the above h) What are the causes of failures? i) Describe group by clause. [CO2, 3] [L1] 2×10 j) Define all data types of SQL.

#### CO-5 L1 2×10

### PART-A

- Q.2 Discuss (*any five*) of the following with syntax, purpose and example:
  - a) Union operator.
  - b) Union all.
  - c) Group by.
  - d) Distinct.
  - e) Length.
  - f) Delete.
- a) Construct an E-R diagram for a hospital with a set of patients and a set of medical Q.3 doctors. Associate with each patient, a log of various tests and examinations conducted. Also, determine the entities, attributes and primary key in the table 15.

[CO2] [L1] **4×5** 

Max Marks: 100

0.1

Time: 3 hrs.

[CO2] [L4] **10** b) Differentiate between "Hierarchical", "Network" and "Relational" database models with their relative merits and demerits. [COI] [L2] **10** a) What do you mean by data independence? Differentiate between "Logical" and Q.4 "Physical" structure of a database. [CO1] [L2] 10 [CO1] [L2] **10** 

b) Explain "Oracle" memory structure in context to ORDBMS.

### <u>PART-B</u>

- Q.5 a) What are packages? Write the advantages of packages. What are components of an oracle packages? Explain the importance of each. [CO5] [L2] **10** 
  - b) What are different modes of arguments in subprograms? Compare each mode. [CO5] [L2] **10**
- Q.6 a) Differentiate between SQL and PL/SQL. [CO1] [L3] **5** b) Discuss various control structures available in PL/SQL. Give example of each. [CO2] [L3] **15**
- Q.7 Define various decision making statements with the help of suitable examples used in PL/SQL. [CO2] [L2] **20**

BCA – Fifth Semester

### PYTHON PROGRAMMING ((BCA-DS-503) / (BCA-506(CB)))

Time:	3 h	rs.		Max Marks: <b>100</b>
Note:	Att <b>PA</b> qu	tempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>c</b> I <b>RT-A</b> and <b>TWO</b> questions from estion.	ompulsory. Attempt any <b>TWO</b> PART-B. Marks are indicated	<i>questions from</i> <i>against</i> each
Q.1	Mu	Itiple choice questions:		
	a)	Which keyword is used to generate	an exception?	
		i) Throw	ii) Raise	
		iii) Generate	iv) Try	[CO4] [L1]
	b)	Which data structure allows you to r	eturn multiple values from a fu	nction?
		i) List	ii) Tuple	
		iii) Dictionary	iv) Set	[CO3] [L1]
	c)	Which method is used to read a sing	gle line from the file?	
		i) Read()	ii) readline()	
		iii) readlines()	iv) reads()	[CO4][L1]
	d)	Which of the following word can be	used to add something to the e	end of the string?
		I) Concatenate	II) Append	
	、		IV) Add	[CO3] [L1]
	e)	Arbitrary arguments have which	symbol in the function defin	lition before the
			::N #	
		I) &	II) #	
	£	III) %		
	1)		ii) Ealao	
	<b>a</b> )	I) True		
	g)		ers. ii) Ealco	
	<b>Ь</b> )	Bythen support OOR	II) Faise	
	11)		ii) Ealco	
	i)	Which knowed is used to start a fur	II) False	
	U,	i) Def	ii) Function	
		i) Del iii) Try	iv) Import	[CO4] [I 1]
	i)	Which function is used to open the f	The for reading in python?	
	J)	i) Fonen(filename mode)	ii) Openfile(filename mode)	
		iii) Open(filename mode)	iv) Open file(filename mode)	·····································
		PA	RT-A	

Differentiate between the following with the help of a suitable example: a) Counter controlled and conditioned controlled loop. Q.2

- b) List and dictionary.
- c) Break and continue.
- d) Keywords and variables.

[CO3] [L2] **5×4** 

- Q.3 Describe the different data types available in Python. Explain the use of each data type with the small program. [CO2] [L2] **20**
- Q.4 Write a program that has a dictionary of words in English language and their corresponding words in Hindi. Add another English word in the predefined dictionary; print all the items in the dictionary and try to print Hindi words for a English word that does not exist. [CO5] [L3] **20**

### <u>PART-B</u>

- Q.5 What are different access modes in which you can open a file? Differentiate between text and binary files. Explain the utility of open() function. [CO4] [L3] **20**
- Q.6 What will happen if an exception generated in try block is immediately followed by a finally block? Discuss both the cases (except block present and except block not present) [CO4] [L3] **20**
- Q.7 Explain the following with a suitable code:
  - a) Keyword arguments.
  - b) Default arguments.
  - c) Lambda functions.
  - d) String functions.

[CO3] [L2] **5×4** 

BCA – Fifth Semester

### **INTRODUCTION TO CLOUD COMPUTING (BCA-DS-505)**

Time:	3 hr	S.		Max Marks: <b>100</b> No. of pages: 2
Note:	Atte <b>PAI</b> que	empt <b>FIVE</b> questions in all; <b>(</b> RT-A and TWO questions stion.	<b>).1</b> is <b>compulsory</b> . Attempt an from <b>PART-B.</b> Marks are in	ny <b>TWO</b> questions from ndicated against each
Q.1	<i>Mu</i> a) <sup>V</sup> i b) <sup>V</sup>	Itiple choice questions: Which of the following is esse ) Reliability ii) Abstraction Which of the following is Clou ) Azure ii) Cloudora	ential concept related to Cloud? ii) Productivity iv) All of these id Platform by Amazon? ii) AWS iv) All of those	[CO1] [L1]
	c) \ i	Which of the following cloud ) Polymorphism	concept is related to pooling ar ii) Abstraction	nd sharing of resources?
	i _ (b i	<ul> <li>ii) Virtualization</li> <li> serves as a PaaS</li> <li>) Google</li> </ul>	iv) None of these vendor within Google App Engi ii) Amazon	[CO2] [L1] ne system.
	i e) <sup>v</sup> i i i	<ul> <li>ii) Microsoft</li> <li>Which of the following is not</li> <li>No worries about running</li> <li>i) Easier to maintain a cloud</li> <li>ii) Immediate access to com</li> <li>v) Paving only for what you</li> </ul>	iv) None of these an advantage of cloud? out of storage. network. puting resources. use.	[CO3] [L1] [CO1] [L1]
	f) V i i i	Which of the following allov support your Web sites? ) Amazon Elastic Compute i) Amazon Simple Queue Se ii) Amazon Relational Databa	vs you to create instances of Cloud. rvice. ase Service.	the MySQL database to
	i 	v) Amazon Simple Storage S	ystem.	[CO6] [L1]
	(j) ( (j) ())))))))))	<i>In the blanks:</i> Pods are managed by Any two examples of PaaS pl Onion encryption layers are _ <i>te TRUE or FALSE:</i> A Cloud environment can be	 atforms are and ,, an accessed from anywhere in t	[CO2] [L1] [CO2] [L1] d [CO5] [L1] he world as long as the
	I	user has access to the intern	et.	[CO1] [L1] <b>2×10</b>

### <u>PART-A</u>

Q.2 a) What are the fundamental components introduced in the cloud reference model?
 [CO1] [L1] 10
 b) How does cloud development differentiate from traditional Software development?

[CO1] [L2] **10** 

- Q.3 How can one say that the cloud computing visualizes the different cloud models with respect to services? How does it take into account that different types of services can be offered as cloud services? Explain in detail. [CO2] [L2] **20**
- Q.4 Define 'virtualization'. Why virtualization is important in cloud Computing? Also compare virtual machine with a physical machine. Write the steps to create a virtual machine in using VMware. [CO3] [L2] **20**

### <u>PART-B</u>

- Q.5 What are the different security challenges in cloud computing? Discuss each in brief. Also explain the security reference architecture of cloud with a neat diagram. [CO5] [L2] **20**
- Q.6 Compare AWS and Azure on the basis of following parameters:
  - a) Compute.
  - b) Storage.
  - c) Databases.
  - d) Pricing.
  - e) Uptime.
  - f) Troubleshooting and monitoring.

### [CO4] [L3] **20**

Q.7 What are the different terms involved in managing and administering the cloud? Also discuss different level of trusts in cloud computing. [CO6] [L2] **20** 

BCA – Sixth Semester

# PROGRAMMING IN .NET USING C# (BCA-DS-601)

Time:	3 hrs.	Max Marks: 100
Note:	Attempt <b>FIVE</b> questions in all; <b>Q.1 is co</b> from <b>PART-A</b> and <b>TWO</b> questions from <b>F</b> question.	<b>Compulsory</b> . Attempt any <b>TWO</b> questions <b>PART-B</b> . Marks are indicated against each
Q.1	<ul> <li>Choose the correct option:</li> <li>a) Why is Global.asax is used?</li> <li>i) Declare Global variables</li> <li>ii) Implement application and session le</li> <li>iii) No use</li> <li>iv) None of the above</li> </ul>	[CO-2] [L-2] evel events
	<ul> <li>b) Default session data is stored in ASP.Net</li> <li>i) State Server ii) Session Object</li> <li>c) Default scripting language in ASP.</li> <li>i) Ecma Script ii) VBScript</li> <li>d) Which object can bely you maintain data</li> </ul>	t. [CO-3] [L-2] iii) In Process iv) all of the above [CO-4] [L-2] iii) PERL iv) Java Script a across users? [CO-3] [L-2]
	<ul> <li>i) Application object</li> <li>iii) Response object</li> <li>e) Which of the following ASP.NET object e</li> </ul>	ii) Session object iv) Server object encapsulates the state of the client? [CO3]
	<ul> <li>i) Session object</li> <li>iii) Response object</li> <li>f) Which of the following control is used to</li> </ul>	<ul><li>ii) Application object</li><li>iv) Server object</li><li>validate that two fields are equal? [CO6]</li></ul>
	<ul> <li>[L2] <ul> <li>i) Regular expression validator</li> <li>iii) Equals () method</li> </ul> </li> <li>g) Mode of storing ASP.NET session. <ul> <li>i) In Proc</li> <li>ii) State Server</li> </ul> </li> <li>h) Which of the following is not the way to <ul> <li>i) View state</li> <li>ii) Cookies</li> </ul> </li> <li>i) What are the types of cookies? <ul> <li>i) Session cookies</li> <li>iii) Dummy cookies</li> </ul> </li> </ul>	<ul> <li>ii) Compare validator</li> <li>iv) Required field validator</li> <li>[CO-4] [L-2]</li> <li>iii) SQL Server iv) All of the above</li> <li>maintain state? [CO-3] [L-2]</li> <li>iii) Hidden fields iv) Request object</li> <li>[CO-4] [L-2]</li> <li>ii) Persistent cookies</li> <li>iv) Option i) and ii) are correct</li> </ul>
	<ul> <li>j) What are the advantages of AJAX?</li> <li>i) AJAX is a platform-independent technici) It provides partial-page updates</li> <li>iii) Improved performance</li> <li>iv) All of the above</li> </ul>	nology [CO-3] [L-3] <b>2×10</b>
Q.2	<ul> <li>a) How .NET framework provide a complete develop, run, and deploy the various appendix help of suitable diagrams.</li> <li>b) List out the three different ways throug class can be accessed from the derived</li> </ul>	ete environment that allows developers to oplications? Explain its architecture with the [CO-2] [L-2] <b>10</b> gh which the hidden member of the base class. Implement the concept with the help

[CO-3] [L-3] **10** 

- Q.3 Write short notes on:
  - a) Loop statements.

of suitable example.

b) Data types.

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- c) Array.
- d) Decision statements.

- Q.4 a) Discuss the requirement of Method Overloading. Write a program to show the concept of method overloading. [CO-5] [L-3] 10
  - b) Justify the statement that C# does not support multiple inheritances with an example. Provide a solution on how we can implement multiple inheritances in C#.

[CO-3] [L-5] 10

### PART-B

- Q.5 a) Write short notes on:
  - i) Message Box.
  - ii) Dialog Box.
  - [CO-3] [L-3] 5×2 b) Create a students registration form using the various windows form controls according to your requirement and also describe the usage of each controls.

[CO-4] [L-4] 10

- a) List out the main classes involved in ADO.NET. Describe the role of each class in Q.6 making a database transaction. [CO-4] [L-2] 10
  - b) Discuss the role of the data reader class in ADO.NET connections. Differentiate between a data reader and a data set. [CO-4] [L-4] 10
- Q.7 a) "The Microsoft ASP.NET framework includes several options to create web services and applications". Analyze the various features of ASP.Net that are used to create dynamic web pages. [CO-5] [L-4] 10
  - b) Create a program to perform the insert operation using ADO.NET in Employee table (Id, Name, age, salary) and display the confirmation message using a message box after performing the operation. [CO-4] [L-5] 10

BCA – Sixth Semester

### DATA WAREHOUSING (BCA-DS-602/BCA-605A (CB))

Time: 3 hrs.

Max Marks: 100

No. of pages: 1

2×10

[CO-3] [L-2] 10

- Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 *Answer the following in brief:* 
  - a) Give one difference between database and data warehouse.
  - b) Give one algorithm of classification technique.

#### Fill in the blanks:

- c) Noise is defined as \_\_\_\_
- d) Data cube can be defined as \_\_\_\_\_.
- e) MOLAP is\_\_\_\_\_.
- f) The first step of the process of extracting knowledge using data mining is \_\_\_\_\_.
- g) \_\_\_\_\_ tiers are present in data warehouse model.
- h) Data warehouse can be \_\_\_\_\_ and \_\_\_\_\_
- i) In Snowflake model of data warehouse the number of fact tables is always \_
- j) Full form HOLAP is \_\_\_\_\_.

### PART-A

Q.2 a) Explain all the essential features of data warehouse with suitable examples.

- [CO-1] [L-2] 10
   b) "Data warehouse is subject oriented". Do you agree with this statement? Give reasons in support of your answer.
   [CO-2] [L-4] 10
- Q.3 a) Explain the following terms:
  - i) Data mart.
  - ii) Data dictionary.
  - b) Compare and contrast the snowflake and fact constellation model of data warehouse. [CO-3] [L-4] **10**
- Q.4 a) What is Noise in data? Explain the methods through which noise can be removed from data. [CO-3] [L-2] **10** 
  - b) Differentiate the following:
    - i) ROLAP and MOLAP server.

ii) Distributed and virtual data warehouse. [CO-3] [L-4] **10** 

### <u>PART-B</u>

- Q.5 a) Explain the following terms related to data warehouse:
  - i) Extraction.
  - ii) Transformation.
  - iii) Loading.
  - iv) Pre processing.
  - b) Explain the following OLAP techniques:
    - i) Slicing.
  - ii) Roll up. [CO-5] [L-2] **10**
- Q.6 Explain the K-Means algorithm of Clustering technique with the help of an example.

[CO-6] [L-2] **20** 

[CO-4] [L-2] **10** 

Q.7 Analyze the need of data mining techniques in the following areas:a) Supermarkets.b) Healthcare.

BCA – Sixth Semester

### SECURITY OF INFORMATION SYSTEM (BCA-DS-603/BCA-606A (CB))

Time: 3 hrs Max Marks: 100 No. of pages: 2 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART A and TWO questions from PART B. Marks are indicated against each question. 0.1 Choose the correct option: 2X10 a) Compromising secret information comes under: ii) Vulnerabilitv i) Threat iv) Attack iii) Bug b) SSL is known as \_\_\_\_\_. i) Serial session layer ii) Secure socket layer iii) Session secure layer iv) Series socket layer c) When plain text is converted to unreadable format, it is termed as \_\_\_\_\_\_ i) rotten text ii) raw text iii) cipher-text iv) plain-text d) If the plain text is of 560 bit and the block size is of 32 bit then how many bits are required for padding? i) 26 bit ii) 24 bit iv) 18 bit iii) 16 bit e) By using rail fence of depth 2 encryption of the text "stay home stay safe" will be i) sasfsahmtyaetyoeiii) sthostsaaymeayfe ii) shsstotaamafyeye iv) none of these f) Data encryption standard is a \_\_\_\_\_ i) byte cipher ii) stream cipher. iv) block cipher iii) bit cipher g) Examples of hash functions are \_\_\_\_\_ ii) SHA-1 i) MD5 iii) Both i) and ii) iv) None of the above h) \_\_\_\_\_ designed the Advanced Encryption Standard (AES) algorithm. i) Intel ii) IBM iii) National Institute of Standards and Technology iv) HP i) A one-time secret session key for two parties can be generated using . ii) Diffie-Hellman i) RSA iii) DES iv) AES enables a hacker to open a piece of program or application and re-build j) it with further features & capabilities. i) Social engineering ii) Reverse engineering iii) Planting malware iv) Injecting code [CO-1,3,4][L-1,2] **2×10** 

- b) Explain the security software development life cycle with a suitable example. [C0-1][L-2] 10
- Q.3 "Information security threats can exploit vulnerabilities in information technology system". Explain the various threats to information security. [CO-1][L-2] **20**
- Q.4 a) What is the importance of risk management in information security? Explain the stages of information security risk management. [CO-4][L-2] **10** 
  - b) Every organization holds and processes confidential and personal information of private individuals, employees, partners, suppliers and information relating to its own operations. Illustrate through which framework organizations can protect their information assets.

### <u>PART-B</u>

Q.5 Why RSA algorithm is considered as a most secure way of communication? Suppose Ram wants to generate his encryption and decryption key with the help of RSA. Explain the step by step process for generation of keys in RSA Algorithm. Generate the keys by selecting two prime no as p=17 and q=11 and encode and decode the message "HI".

[CO-3][L-3,6] **20** 

- Q.6a) Explain how public key infrastructure ensure the security of public keys. Also,<br/>explain the components of public key infrastructure in detail.[CO-3][L-2] 10
  - b) Write short notes on the following:
    - i) IP and Web security protocols.
    - ii) Digital certificates.

[CO-2][L-2] **5×2** 

- Q.7 a) List out the firewall design principles which can ensure that you have a most secure defense system for your organisation. [CO-3][L-2] **8** 
  - b) How SET protocols provide security in credit card transactions? Illustrate it with the help of suitable diagrams. [CO-3][L-2] 12

# End Semester Examination, May 2023 BCA – Sixth Semester MULTIMEDIA AND ANIMATION

(BCA-DS-604/BCA-603A (CB)/BCA-603(CB))

Time: 3 hrs.

No. of pages: 2 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question. Q.1 Choose the correct option: a) \_\_\_\_\_\_\_ is basically a form of pictorial presentation. ii) Animations iii) Drawing iv) Creativity i) Photography b) The faster the frames are displayed, \_\_\_\_\_ . i) The rougher the video appears ii) The smoother the video appears iii) It gets blurry iv) None of the mentioned iii) It gets blurry c) A smaller version of an image is called a: i) Clipart ii) Bitmap iii) Portable network graphic iv) Thumbnail d) The characteristic of the eye to retain the image for a short time after it has been presented is known as \_\_\_\_\_. i) Persistence of vision iii) Memory mapped input ii) Learning power iv) None of the mentioned e) \_\_\_\_\_ audio/video refers to the use of the internet for interactive audio/video applications. iii) Streaming Stored ii) Streaming Live iv) none of the above f) All of the following are technologies used to gather information about you online except \_\_\_\_\_\_. i) spy ware ii) cookies i) spy ware III COUNCE
g) The "ROM" in "CD-ROM" stands for:
i) Random order memory
ii) Real-object Memory
iv) raster –output memory iii) gmail iv) anonymizers iv) raster –output memory h) A printed page might be presented in which of these orientations? i) newscape ii) portrait iii) flat-file iv) x-height i) A \_\_\_\_\_\_ is the set of planned activities designed to result in a profit in marketplace. i) Business model ii) Profit model iii) Revenue model j) Real time streaming is most useful for \_\_\_\_\_. i) Short video clips ii) Long video clips iii) Extremely short and low quality videos iv) None of the mentioned [CO-1,5] L-1,3] **2×10** PART-A

- Q.2 What do you understand by the term Multimedia? Explain the impact of Multimedia on the social networking sites of society. [CO-1] [L-2] **20**
- Q.3 a) Elaborate on Hypermedia and Hypertext applications. Give their advantages. 10
   b) Discuss various Font Editing and Design tools. [CO-2] [L-3] 10

Max Marks: 100

- a) How can we use images effectively in multimedia? Differentiate vector from raster Q.4 [CO-3] [L-4] 10 images. [CO-3] [L-4] 10
  - b) Differentiate between MIDI and Digital Audio.

### PART-B

- Q.5 a) Mention various principles of animation.
  - [CO-4] [L-1] **10** b) List the various softwares used for 2D animation and 3D animation. How is 2D different from 21/2 D animations? [CO-4] [L-4] 10

#### Write short notes on (any two): Q.6

- a) Working of a video and its display.
- b) Obtaining video clips.
- c) Shooting and editing video.

[CO-5] [L-5] **10×2** 

- a) How various stages of multimedia project collaborate to form a final product? Q.7 Explain the role of each stage. [CO-6] [L-5] 10
  - b) What are hardware and software requirements of multimedia projects? [CO6][L1] 10

### End Semester Examination, May 2023 BCA – Sixth Semester BASICS OF MIS AND ERP (BCA-DS-605/BCA604A (CB))

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

- Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question.
- Q.1 Answer the following in brief:
  - a) Why information is a quality product? Discuss its classification.
  - b) What is an ERP system?
  - c) Identify the correct statement:
    - i) The only problem with the package vendors is that they are very expensive.
    - ii) The only problem with the business consultants is that they are very expensive.
    - iii) The only problem with the employee training is that it is very expensive.
    - iv) The only problem with the planning of implementation is that it is very expensive.
  - d) What is the requirement for a system to qualify as a true ERP solution?
    - i) Be flexible
- ii) Be modular and closed
- iii) Extend within the company
- iv) All of the above
- e) Which of the following occurs when everyone involved in sourcing, producing, and delivering the company's product works with the same information?
  - i) Eliminates redundancies ii) Cuts down wasted time iii) Removes misinformation
    - iv) All of the above
- d) When a customer needs to check the performance of the company before he places an order, which department has to be in a position to provide the necessary information?
  - i) Production ii) Quality iii) Marketing iv) Finance
- e) Data mining is the process of identifying valid, new, potentially useful, and ultimately

clear \_\_\_\_\_ from databases.

- i) Decision ii) Strategies
- iii) Information iv) Account f) \_\_\_\_\_ module supports the entire sales and purchase processes from start to finish. ii) Sales management
  - i) Order management
  - iii) Purchase management
- q) What do you mean by error handling?
- h) What are the causes of failures?
- i) Describe Group by clause.
- j) Define all datatypes of SQL.
- 2×10

### PART-A

- a) Discuss several organizational sectors using MIS. Also, explain their various Q.2 functional models in detail. [CO-1] [L-2] 10
  - b) "ERP systems have been widely adopted in large organizations to store critical knowledge used to make the decisions that drive the organization's performance." Explain ERP with its benefits and limitations. [CO-2] [L-2] 10
- Q.3 What are the methods of data and information collection? Discuss general model of information processing. Also explain MIS software and MIS team in detail. [CO2][L1] 20
- Explain the following with examples: Q.4

**P.T.O** 64

- [CO-2,5] [L-1]
- iv) Master data management

a)	Staff	training	and	functional	manuals	of	MIS.	10	
----	-------	----------	-----	------------	---------	----	------	----	--

b) Scheduling of activities in MIS. 10

<u>PART-B</u>

- Q.5 a) What is decision support system? What are its roles and applications? [CO-4] [L-1] **10** 
  - b) Discuss various DSS models with their working.
- Q.6 What are the distinctive objectives of MIS in service sector? Why the service of MIS is distinctive? Also discuss various activities of service sector implemented in MIS.

[CO-6] [L-2] **20** 

[CO-5] [L-2] **10** 

- Q.7 Write short notes on:
  - a) Security of management of information systems.
  - b) Privacy issues.

[CO-4] [L-2] **10×2** 

# End Semester Examination, May 2023 OPEN ELECTIVE – COMMON FOR ALL BRANCHES PC HARDWARE AND TROUBLESHOOTING (BCA-OE-004)

Time:	3 hrs.		Max Marks: <b>100</b>
Note:	Attempt <b>FIVE</b> questions in all; <b>Q.1 is o</b> from <b>PART-A</b> and <b>TWO</b> questions from question.	<b>compulsory</b> . Attempt <b>PART-B</b> . Marks are i	t any <b>TWO</b> questions indicated against each
Q.1	<ul> <li>Multiple choice questions:</li> <li>a) Cold Booting refers to:</li> <li>i) Turning on a computer from off station ii) Restarting a computer</li> <li>iii) Troubleshooting a computer</li> <li>iv) Upgrading a computer</li> </ul>	te	[CO-1] [L-1]
	b) Which of the following is a system soft	ware?	[CO-1] [L-1]
	i) MS-Word ii) Windows	iii) Google Chrome	iv) Video player
	<ul> <li>c) Which of the following is an impact print</li> <li>i) Laser printer</li> <li>iii) Dot matrix printer</li> </ul>	nter? ii) Inkjet Printer iv) both a & b	[CO-2] [L-2]
	d) Which one is the fastest Intel processo	r?	[CO-1] [L-2]
	i) Celeron ii) Pentium IV	iii) i3	iv) Atom
	<ul> <li>e) USB drive is?</li> <li>i) Primary memory</li> <li>iii) Cache memory</li> </ul>	ii) Secondary memory	[CO-3] [L-2] pry
	<ul><li>f) A computer program that copies itsel called:</li></ul>	f to other computers	across the internet is [CO-5] [L-4]
	i) Virus ii) Trojan Horse	iii) Worm	iv) Antivirus
	g) BIOS IS: i) Software ii) Hardware	iii) Innut device	iv) Output device
	h) North Bridge is a:		[CO-3] [L-3]
	i) Memory ii) IC	iii) Bus	iv) Software
	i) Which of the following expansion bus is	s fastest?	[CO-4] [L-2]
	a) AGP b) PCI-X	c) ISA	
	a) Processor	h) RAM	[CO-5][L-4]
	c) Keyboard controller	d) Display memory	2×10
	PART	Г- <b>А</b>	
0.2	a) Explain different blocks of PC and d	 liscuss relationship be	etween hardware and
	software. What are peripheral devices?		[CO-1] [L-1] <b>10</b>
	b) Discuss in brief different types of compu	ters and processor gen	erations. [CO1][L1] 10
Q.3	a) Write short notes on the following:		
	<ul><li>ii) CRT controller.</li><li>b) Categorize printer types and discuss ke</li></ul>	y features of each sub	[CO-2] [L-2] <b>10</b> otype in brief.
	,	,	[CO-2] [L-2] <b>10</b>

Q.4 a) Differentiate between L1 and L2 types of cache memory. [CO-3] [L-2] **10** 

b) Explain the concept of logical and physical organization of memory. [CO-3] [L-3] **10** 

# <u>PART-B</u>

- Q.5 a) Write key difference between North and South Bridge on the motherboard. [CO-2] [L-3] 10
  b) Discuss with the help of suitable diagram or flowchart the process of booting in computer. What are POST and its significance? [CO-4] [L-4] 10
  Q.6 a) Explain the stepwise process of installing OS and service packs on the PC. [CO-4] [L-2] 10
  b) Discuss the key features of system buses: PCI and AGP. [CO-4] [L-2] 10
  Q.7 a) Describe various methods of troubleshooting and diagnosing the PC. List different
- Q.7 a) Describe various methods of troubleshooting and diagnosing the PC. List different beep codes errors during POST and associated problems. [CO-5] [L-4] **10** 
  - b) Discuss 7 ways how you can protect your PC from various threats? [CO-5] [L-4] 10

B.Sc. (Information Technology) – Sixth Semester

Time: 3 hrs

### DATA MINING (BSCA-DS-601)

Time.	5 11		No of pa	naes: 2		
Note:	Att frc qu	Attempt <b>FIVE</b> questions in all; <b>Q.1 is compulsory</b> . Attempt any <b>TWO</b> questions from <b>PART-A</b> and <b>TWO</b> questions from <b>PART-B</b> . Marks are indicated against each question.				
Q.1	a) b) c) d) e) f)	<ul> <li>Which of the following is applied on war</li> <li>i) write only ii) read only</li> <li>Data can be store, retrieve and updated</li> <li>i) SMTOP ii) OLTP</li> <li>Which of the following is a good alternation of the following is true for classifier of the following is true for cla</li></ul>	rehouse? iii) both i) and ii) iv) none of these in iii) FTP iv) OLAP tive to the star schema? ii) Star schema iv) Fact constellation given database are which type ii) Multiple type always iv) No specific type cation? ii) A measure of the accuracy iv) All of these of data wledge	2		
	g)	<ul> <li>i) None of these</li> <li>is not a data mining function</li> <li>i) Clustering and Analysis</li> <li>iii) Classification and regression</li> </ul>	onality? ii) Selection and interpretation iv) Characterization and Discrimination			
	h)	<ul> <li>ii) Classification and regression</li> <li>Which of the following can also applied</li> <li>i) Data streams and sequence data</li> <li>iii) Text and spatial data</li> </ul>	ii) Networked data	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	i)	<ul><li>Which of the following is general charac</li><li>i) Data selection</li><li>iii) Data classification</li></ul>	teristics or features of a target class o ii) Data discrimination iv) Data characterization	f data?		
	j)	is the output of KDD i) Query iii) Data	ii) Useful information iv) Information	2×10		
<u>PART-A</u>						
Q.2	a) b)	Differentiate between data 'warehousing What do you understand about a fact	g and data mining'. [CO-1] [I table in the context of a data wareh	1] <b>10</b> ouse?		

- a) Explain 'data mart' and how is it different from a data warehouse? Q.3 [CO-2] [L-1] 5 b) Draw data warehouse architecture and explain it in detail. [CO-1] [L1] **10** 
  - c) Draw the architecture of data mining and explain it in detail. [CO-3] [L-1] 5
- a) Explain schemas for data model: star, snowflake and fact constellation. [CO2][L1] 5 Q.4 b) Differentiate between 'OLTP' and 'OLAP'. [CO-1] [L-1] **5** 
  - c) Differentiate between 'ROLAP Vs. MOLAP'.

What are the different types of fact tables?

[CO-3] [L-1] 10

[CO-2] [L-1] **10** 

Max Marks: 100

### <u>PART-B</u>

Q.5	a)	Explain multi-level association rules with suitable examples.	[CO-4] [L-1] <b>5</b>	
	b)	Explain kNN (k Nearest Neighbors) algorithm with suitable example.	[CO-5] [L-1] <b>5</b>	
	c)	What is cluster analysis? Explain advantages and disadvantages of it.	[CO5][L1] <b>10</b>	
Q.6	a)	Explain Partitioning Methods: k-Means and k-Medoids with suitable e	ible examples.	
	b)	Differentiate between 'classification and prediction'.	[CO-5] [L-1] <b>10</b>	
	c)	Describe Apriori algorithm and its application.	[CO-4] [L-1] <b>5</b>	
Q.7	a)	What is correlation analysis? Explain with suitable examples.	[CO-4] [L-1] <b>10</b>	
	b)	Differentiate between 'fact table' and 'dimension table'.	[CO-5] [L-1] <b>5</b>	
	c)	Explain the Bayesian classification with suitable examples.	[CO-5] [L-1] <b>5</b>	

B.Sc. (Information Technology) – Sixth Semester SOFTWARE TESTING (BSCA-DS-602)

Time: 3 hrs.

#### Max Marks: 100

No. of pages: 1

[CO-2,5] [L-1] **2×10** 

- Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 Answer the following in brief:
  - a) What is validation?
  - b) How many levels are there in CMM model? Name them.
  - c) Describe any four attributes of software quality.
  - d) Give an overview for testing process of a software.
  - e) Distinguish between 'software quality control' and 'quality assurance'.
  - f) Discuss the environment where alpha and beta testing are conducted.
  - g) Software mistakes during coding is known as \_
  - h) For a function of a variables, robust-testing yields \_\_\_\_\_\_ test cases.
  - i) Mutation testing is one form of \_\_\_\_\_\_ testing.
  - j) Test suite is a \_\_\_\_\_.

# PART-A

- Q.2 Explain the following terms:
  - a) Quality assurance.
  - b) Test execution.
  - c) Test environment.
  - d) Test team organization.
- Q.3 a) There are too many possible paths through the progress to test. How can one calculate and ensure that all possible paths has been executed and tested with sufficient test cases?
  - b) Why does software testing needs extensive planning? [CO-3] [L-5] **10**
- Q.4 What is white Box Testing? Explain any one method of this testing with suitable testing example. [CO-3] [L-3] **20**

# <u>PART-B</u>

- Q.5 What is testing? Explain software testing life cycle process, with the help of a suitable diagram. [CO-1] [L-1] **20**
- Q.6 What is software quality attributes? Explain McCall model of software quality.

[CO-5] [L-2] **20** 

- Q.7 Differentiate between the following:
  - a) Regression testing and Re-test
  - b) Manual testing and automated testing
  - c) Software testing and quality assurance
  - d) Verification and validation

[CO-3] [L-3] **5×4** 

0

5×4

B. Sc. (Information Technology) – Sixth Semester MACHINE LEARNING (BSCA-DS-603)

Time: 3 hrs.

Max Marks: 100

No. of pages: 1

- Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 Answer the following in brief:
  - a) The following numbers represent the ages of people on a bus: 3, 6, 27, 13, 6, 8, 12,

20, 5, 10. Calculate the mean of their ages.

- b) List the areas where machine learning can be applied.
- c) In how many types does machine learning can be broadly classified?
- d) What is bias in machine learning?
- e) What is over fitting and under fitting in machine learning?
- f) What is the difference between a regression problem and classification problem?
- g) What are some common machine learning problems that unsupervised learning can help with?
- h) How do you choose between supervised and unsupervised learning?
- i) What do you understand by reinforcement learning?
- j) Which python library is used for handling text mining? [CO-1,2,3,4,5] [L-2] 2×10

# PART-A

Q.2 a) There's a game where you are asked to roll two fair six-sided dice. If the sum of the

values on the dice equals seven, then you win \$21. However, you must pay \$5 to play each time you roll both dice. Do you play this game? And in the follow-up: If you play it 6 times what is the probability of making money from this game?

[CO1][L3] **6** 

- b) What is 'training Set' and 'test Set' in a Machine Learning Model? How much Data will you allocate for your Training and Test Sets? [CO-2] [L-3] **8**
- c) What are the applications of machine learning in modern businesses? [CO-2] [L-3]  ${f 6}$
- Q.3 a) Discuss the KNN algorithm with the help of an example. [CO-3] [L-3] 10
  b) How will you evaluate the classifiers? Discuss at least two methods by taking suitable examples. [CO-5] [L-3] 10
- Q.4 a) Explain the concepts of clustering approaches. How it differs from classification?

[CO-3] [L-3] **10** 

b) Discuss the applications of clustering and identify advantages and disadvantages of clustering algorithm. [CO-4] [L-2] **10** 

# <u>PART-B</u>

- Q.5 What is the importance of cleaning text in machine learning? How will you prepare text data ready for applying the machine learning algorithm? Discuss. [CO- 4] [L-3] **20**
- Q.6 Write short notes on the following:
  - a) Use of ensemble method.
  - b) Bagging.
  - c) Boosting.
  - d) Stacking.

[CO-5] [L-3] **5×4** 

Q.7 What do you mean by reinforcement learning? What are the components of reinforcement learning? Also, discuss its applications in detail. [CO-6] [L-3] **20**
B. Sc. (Information Technology) – First Semester

## **PROGRAMMING AND PROBLEM-SOLVING USING C (BSCIT-DS-101)**

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question.

#### Q.1 Choose the correct option:

iii) Dennis Ritchie

- a) Who is the father of C language?
  - i) Steve Jobs

- ii) James Gosling
- iv) Rasmus Lerdorf
- b) Which of the following is not a valid C variable name? ii) float rate;
  - i) int number;
  - iii) intvariable\_count;
- c) All keywords in C are in \_\_\_\_\_
  - i) Lower case letters iii) Camel case letters
- ii) Upper case letters iv) None of the above
- d) Which of the following is true for variable names in C?
  - i) They can contain alphanumeric characters as well as special characters.
  - ii) It is not an error to declare a variable to be one of the keywords (like goto, static)

iv) int \$main;

- iii) Variable names cannot start with a digit
- iv) Variable can be of any length
- e) Which is valid C expression?

  - i) intmy\_num = 100,000; ii) intmy\_num = 100000; iii) int my num = 1000; iv) int \$my\_num = 10000;
  - iii) int my num = 1000;
- iv) int \$my\_num = 10000;

iv) export

- f) Which of the following cannot be a variable name in C? i) volatile ii) true

  - iii) friend
- g) What is short int in C programming?
  - i) The basic data type of C
  - ii) Qualifier
  - iii) Short is the qualifier and int is the basic data type
  - iv) All of the above
- h) Which keyword is used to prevent any changes in the variable within a C program?
  - i) immutable ii) mutable
  - iii) const iv) volatile
- i) What is the result of logical or relational expression in C?
  - i) True or False
  - ii) 0 or 1
  - iii) 0 if an expression is false and any positive number if an expression is true
  - iv) None of the above
- j) Which of the following typecasting is accepted by C language?
  - i) Widening conversions
  - ii) Narrowing conversions
  - iii) Widening and narrowing conversions
  - iv) None of the above

[CO1, 6] [L2] **2×10** 

## PART-A

- a) Describe the concept of variable and explain the need/purpose of global variables Q.2 and their scope and lifetime. [CO1] [L2] **10** [CO1] [L5] **10** 
  - b) Chart the various types of operators in tabular form with example.
- Q.3 Briefly describe the following:
  - a) Calloc vs Malloc.
  - b) Explain struct keyword with suitable example.
  - c) Union vs bitfields.
  - d) Arrays.

[CO2] [L2] 5×4

[CO5] [L2] **5×2** 

- Q.4 a) What are arrays? How many types of array do C support? Give the advantages and disadvantages of arrays. [CO3] [L2] **10** 
  - b) Create a program in C to find number of vowels, constants and digits in a given string. [CO3] [L2] **10**

#### PART-B

- a) Write a program to demonstrate call-by-value and call-by-reference concept. Q.5 [CO4] [L2] **10** 
  - b) Explain pointer to a function. Write a program to explain the same. [CO4][L2] **10**
- Q.6 a) Discuss about structures and their need. Explain with suitable example. [CO5] [L2] 10 b) Differentiate between:
  - i) While loop and do while loop.
  - ii) Variable and identifier.
- a) Write a program to display the given output. Q.7

, , ,	•	
i)	ii)	
1	12345	
12	1234	
123	123	
1234	12	
12345	1	[CO6] [L5] <b>10</b>

b) Differentiate between const and static keywords with suitable example. [CO6][L5] 10

B. Sc. (Information Technology) – First Semester **OPERATING SYSTEM (BSCIT-DS-102)** 

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from PART-A and TWO questions from PART-B. Marks are indicated against each question.

#### Choose the correct option: Q.1

- a) Where is the operating system placed in the memory?
  - i) Either low or high memory (depending on the location of interrupt vector)
  - ii) In the low memory
  - iii) In the high memory
  - iv) None of the above
- b) If a process fails, most operating system write the error information to a \_\_\_\_\_\_.
  - i) New file ii) Another running process iii) Log file
    - iv) None of the above
- c) Using transient code, \_\_\_\_\_ the size of the operating system during program execution.
  - i) Maintains

- ii) Changes iv) Decreases
- iii) Increases d) The operating system maintains a \_\_\_\_\_ table that keeps track of how many frames have been allocated, how many are there, and how many are available?
  - i) Memory ii) Mapping
  - iii) Page iv) Grame
- e) The real difficulty with SJF in short term scheduling is \_\_\_\_\_.
  - i) It is too good an algorithm
  - ii) Knowing the length of the next CPU request
  - iii) It is too complex to understand
  - iv) None of the above
- f) When was the first operating system developed?
  - ii) 1949 i) 1948
  - iii) 1950 iv) 1951
- q) Banker's algorithm is used?
  - i) To prevent deadlock
- ii) To deadlock recovery
- i) To prevent deadlockii) To deadlock recoveriii) To solve the deadlockiv) None of the above
- h) The state of a process is defined by \_\_\_\_\_.
  - i) The final activity of the process
  - ii) The activity just executed by the process
  - ii) The activity to next be executed by the process
  - iv) The current activity of the process
- i) Choose one of the disadvantages of the priority scheduling algorithm.
  - i) It schedules in a very complex manner
  - ii) Its scheduling takes up a lot of time
  - iii) It can lead to some low priority process waiting indefinitely for the CPU
  - iv) None of the above
- j) The larger the block size, the \_\_\_\_\_\_ the internal fragmentation.
  - ii) Lesser i) Greater
  - iii) Same

iv) None of the above.

[CO1, 2, 3, 4] [L1, 2] **2×10** 

## PART-A

- a) List out different services of operating systems and explain each service. Q.2 [CO1] [L2] **10** b) Describe process states with the help of a process transition diagram. [CO1] [L1] **10**
- Q.3 a) What are the necessary conditions that the process should satisfy to prevent it from entering the critical section? [CO1] [L2] **8** 
  - b) Describe the bounded buffer problem and give a solution for the same using semaphores. Write the structure of producer and consumer processes.[CO2] [L3] 12
- a) Consider the following set of processes, with the length of CPU-burst time given in Q.4 milliseconds.

Process	Burst time	Priority
p1	8	2
p2	12	4
p3	4	3
p4	6	2
p5	3	1

The processes are assumed to have arrived in order p1, p2, p3, p4, p5 all at time 0.

- i) Draw Gantt charts illustrating the execution of these processes using FCFS, SJF, a non-preemptive priority (a smaller priority number implies a higher priority), and RR (quantum=3) scheduling
- ii) Calculate the waiting time and turn around time of each process for each of the scheduling algorithms [CO3] [L4] **12**
- b) What are semaphores? Explain how it can be used to implement mutual exclusion? [CO3] [L2, 4] **8**

## PART-B

- a) Explain the use of a resource allocation graph. Q.5
  - [CO3] [L5] **5** b) State and explain the Banker's algorithm for deadlock avoidance. Let us consider the following scenario and solve it by applying banker's algorithm:

State	Allocation	Maximum Need
Process p0	112	433
Process p1	212	322
Process p2	401	402
Process p3	020	753
Process P4	112	112

Available resources of A, B, C are: 2 10

- i) Find the content of matrix need and determine whether the system is in safe state or not.
- ii) If a process request for pi arrives (0, 4, 2), can the request be granted immediately. [CO3] [L5, 6] **15**
- Q.6 a) Describe under what circumstances do page faults occur? Describe the action taken by the operating system when a page fault occurs. [CO4] [L2] **10** 
  - b) Consider the reference stream 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. How many page faults while using FCFS and LRU using 2 frames? [CO4] [L5] 10
- Q.7 Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999, the drive currently services a request at cylinder 143, and the previous request was at cylinder 125, the queue of pending request in FIFO order is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130 starting from the current position, what is the total distance (in cylinders) that the disk arm moves to satisfy all pending requests, for each of the following algorithms i) FCFS ii) SSFT iii) SCAN iv) LOOK [CO5] [L5] 20 v) C-SCAN.

# End Semester Examination, May 2023 B.Sc. (Information Technology) – First Semester LINEAR ALGEBRA AND STATISTICAL TECHNIQUES (BSCIT-DS-103)

Time: 3 hrs.

Note:	Attempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>compulsory</b> . Attempt any <b>TW</b> <b>PART-A</b> and <b>TWO</b> questions from <b>PART-B.</b> Marks are indicat question.	No. of pages: 2 <b>IO</b> questions from ted against each
Q.1	Multiple choice questions: a) If the order of matrix A is $p \times q$ , order of matrix B is $q \times r$ , then or	der matrix AB is:
	i) pr iii) pq b) How many solutions does a linear equation have? i) One ii) Two	[CO1] [L1]
	iii) Three iv) Four $A = \begin{bmatrix} 1 & 2 \\ 7 & 4 \end{bmatrix}$	[CO1] [L1]
	c) What is the order of the matrix $\begin{bmatrix} i & \neg \end{bmatrix}$ ? i) $1 \times 1$ ii) $2 \times 2$ iii) $3 \times 3$ iv) $2 \times 1$	[CO1] [L1]
	<ul> <li>d) If determinant of a matrix A is zero than</li> <li>i) A is a Singular matrix ii) A is a non-Singular matrix iii) Can't say iv) None of the above</li> </ul>	ix [CO1] [L1]
	<ul> <li>e) Find sum of mode and median of the data 12, 15, 11, 13, 18, 11,</li> <li>i) 26</li> <li>ii) 31</li> <li>iii) 36</li> <li>iv) 25</li> <li>f) The sharp of the normal sum is</li> </ul>	[CO3] [L1]
	<ul> <li>i) Bell shaped</li> <li>ii) Flat</li> <li>iii) Circular</li> <li>iv) Spiked</li> <li>a) In a binomial distribution if 'n' is the number of trials and 'n' is</li> </ul>	[CO3] [L1]
	<ul> <li>i) np</li> <li>ii) np</li> <li>iv) np(1-p)</li> </ul>	[CO3] [L1]
	<ul> <li>ii) 0.18</li> <li>iii) 0.14</li> <li>iv) 0.12</li> <li>iv) 0.12</li> </ul>	[[03] [  1]
	<ul> <li>i) Find the mode of the call received on 7 consecutive day 11, 13, 1</li> <li>i) 11</li> <li>ii) 13</li> <li>iii) 17</li> <li>iv) 23</li> </ul>	3, 17, 19, 23, 25.
	<ul> <li>j) The summary statistics which measure the middle or center of the i) Logarithms</li> <li>ii) Measures of central tend iii) Measures of dispersion</li> <li>iv Proportions</li> </ul>	e data are called: lency [CO4] [L1] <b>2×10</b>
	PART-A	
Q.2	a) Define 'Abelian group'. Prove that set of real numbers (Z, +) form $\begin{bmatrix} 1 & 0 & 5 \end{bmatrix}$	ns a Abelian group. [CO2] [L4] <b>10</b>
	b) Find the inverse of matrix $\begin{bmatrix} 2 & 1 & 6 \\ 3 & 4 & 0 \end{bmatrix}$	[CO2] [L4] <b>10</b>

Max Marks: 100

Q.3 a) Using the consistency theorem solve the following equation:

> x + v + z = 92x + 5v + 7z = 522x + y - z = 0

> > $A = \begin{pmatrix} 4 & -3 & 7 \\ -1 & 6 & 3 \\ 2 & 9 & 13 \end{pmatrix}$

b) Find the rank of the matrix

a) Find the eigen values and eigen vector of matrix Q.4

 $A = \begin{bmatrix} 2 & -3 & 0 \\ 2 & -5 & 0 \\ 0 & 0 & 3 \end{bmatrix}.$  [CO3] [L5] **10**  $A = \begin{bmatrix} 1 & 1 & 2 \\ 9 & 2 & 0 \\ 5 & 0 & 3 \end{bmatrix}, \text{ and hence find}$ b) Verify Caylay Hamilton theorem for the matrix inverse of matrix A. [CO] [L5] **10** 

#### PART-B

- Q.5 a) A coin that is fair in nature is tossed n number of times. The probability of the occurrence of a head six times is the same as the probability that a head comes 8 times, and then find the value of n. [CO4] [L4] **10** 
  - b) What is meant by confidence interval of a population parameter? [CO4] [L5] **10**
- a) By the method of least squares find the straight line to the data given below: Q.6

Χ	8	3	2	10	11	3	6	5	6	8
Υ	4	12	1	12	9	4	9	6	1	14

[CO5] [L6] 10

[CO4] [L3] 10

[CO3] [L4] **10** 

- b) Find the coefficient of variation of the following sample set of numbers. {1, 5, 6, 8, 10, 40, 65, 88} [CO5] [L5] **10**
- Find Karl Pearson's coefficient of correlation between the values of X and Y given data: Q.7

Х	128	129	130	140	132	135	125	130	132	135
у	80	89	90	95	96	94	80	100	96	100

[CO6] [L5] 20

B. Sc. (Information Technology) – Second Semester

## DATA STRUCTURE AND ALGORITHM (BSCIT-DS-201)

- Time: 3 hrs. Max Marks: 100 No. of pages: 1 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question. Q.1 Choose the correct option: a) The data structure required to check whether an expression contains a balanced parenthesis is: [CO-4] [L-1] i) Stack b) Queue c) Array d) Tree b) Which data structure is needed to convert infix notation to postfix notation? i) Branch ii) Tree c) Oueue d) Stack [CO-4] [L-2] c) Which of the following is false about a doubly linked list? [CO-2] [L-2] i) We can navigate in both the directions ii) It requires more space than a singly linked list iii) The insertion and deletion of a node take a bit longer iv) Implementing a doubly linked list is easier than singly linked list of these. d) In post order traversal of binary tree, right sub tree is traversed before visiting root. i) True ii) False [CO-4] [L-1] e) What is a hash table? [CO-4] [L-1] i) A structure that maps values to keys ii) A structure that maps keys to values iii) A structure used for storage iv) none of the above Answer the following in brief: f) What is primitive data structure? [CO-1] [L-1] q) What is sparse array? [CO-2] [L-1] h) What is circular queue? [CO-4] [L-1] i) What do you understand by directed graph? [CO-4] [L-1] j) What is searching? [CO-5] [L-1] 2×10 PART-A Q.2 Explain the various types and operations of data structures. Consider the linear array AAA (5:50), BBB (-5:10) and CCC (18) a) Find the number of elements in each array. [CO-2] [L-4] **10** b) Suppose Base (AAA)=300 and w=4 words per memory cell for AAA. Find the address of AAA [15], AAA [35] and AAA [55]. [CO-2] [L-4] **10** Q.3 Design an algorithm for the evaluation of postfix expression. Consider the following postfix expression P: P: 12, 7, 3, -, /, 2, 1, 5, +, \*, +,) evaluate P. Show each step. [CO-4] [L-6] **20** What do you understand by linked list? Compare single and double linked list. Explain Q.4 how polynomial are maintained in memory? Give a suitable example. [CO-4] [L-5] 20 PART-B Q.5 Define with suitable example: binary tree, complete tree, binary search tree, B-tree, AVL tree. [CO-4] [L-1] **20** Q.6 a) Compare Prim's and Kruskal algorithm. [CO-4] [L-5] 10 b) What is graph? Describe the various methods of traversing a graph. [CO-4] [L-2] 10
- Q.7 Write an algorithm to sort the list using heap sort method. Implement the following data by using heap sort:
   34, 67, 11, 88, 67, 42, 59, 25, 79, 94 [CO-5] [L-4] 20 79

B. Sc. (Information Technology) – Second Semester **PYTHON PROGRAMMING (BSCIT-DS-202)** 

Time: 3 hrs.

Max Marks: 100

No. of pages: 1

- Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 Answer the following in brief:
  - a) What are the properties of algorithm?
  - b) What is meant by selection, iteration and sequence control structures?
  - c) What are the advantages of using a flowchart?
  - d) Mention the features of lists in python.
  - e) What are the rules for naming a variable?
  - f) What operators does python support? Name them.
  - g) What is the use of break statement in Python?
  - h) What is module and package in Python?
  - i) What is the difference between break and continue statement?
  - j) Write a small code to illustrate try and except statements in Python.

[CO-1,2,3,4,5][L-2,3] **2×10** 

## <u>PART-A</u>

- Q.2 a) Write Python code to solve the quadratic equation  $ax^2 + bx + c = 0$  by getting input for coefficients from the user. [CO-1] [L-2] **10** 
  - b) Explain the concept of scope and lifetime of variables in Python programming language with an example. [CO-2] [L-2] **10**
- Q.3 a) Describe arithmetic operators, assignment operators, comparison operators, logical operators and bitwise operators in detail with examples [CO-3] [L-2] **10** 
  - b) What is pseudo code? Explain its guidelines and benefits. [CO-2] [L-2] **10**
- Q.4 a) Write Python code to determine whether the given string is a palindrome or not using slicing. [CO-4] [L-3] **10** 
  - b) Explain the use of join() and split() string methods with examples. Describe why strings are immutable with an example. [CO-4] [L-2] **10**

## <u>PART-B</u>

- Q.5 a) Write Python program to sort numbers in a list in ascending order using bubble sort by passing the list as an argument to the function call. [CO-5][L-3] **10** 
  - b) Explain the purpose of loop structure in a programming language. Describe the syntax and semantics of any two loop structures provided by Python. [CO-5][L-2]

#### 10

Q.6 a) What are python dictionaries? Explain how to create a dictionary. [CO-6][L-2] **10** 

b) Write a Python program to check the validity of a password given by the user. The Password should satisfy the following criteria:

- i) Contain at least 1 letter between a and z
- ii) Contain at least 1 number between 0 and 9
- iii) Contain at least 1 letter between A and Z
- iv) Contain at least 1 character from \$, #, @
- v) Minimum length of password: 6
- vi) Maximum length of password: 12

[CO-6][L-3] 10

Q.7 Describe about handling exceptions in detail with examples. Explain about the different types of exceptions in Python. [CO- 7][L-3] **20** <sup>80</sup>

B. Sc. (Information Technology) – Second Semester DATABASE MANAGEMENT SYSTEM (BSCIT-DS-203)

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.

#### Q.1 *Choose the correct option:*

a) If one attribute is determinant of second, which in turn is determinant of third, then the relation cannot be: i) Well-structured ii) 1NF iii) 2NF iv) 3NF b) Table should contain atomic values. i) 1NF ii) 2NF iii) 3NF iv) 4NF c) Degree of relationship calculated on no of \_ participating in a relation. iii) Cardinalities i) Entities ii) Attributes iv) Values d) Which function is used to find the count of distinct departments? i) Dist ii) Distinct iii) Count iv) Count, Dist e) If a relation is in BCNF, then it is also in: ii) 2NF i) 1NF iii) 3NF iv) 4NF f) The Desc command shows: ii) Semantics iii) Struct iv) Formatting i) Syntax g) Which of the following gives a logical structure of the database? i) ERD ii) DFD iii) 3-Tier Architecture iv) None h) Emp $\rightarrow$ works for-->Dept. shows the relationship. ii) 1:1,M:N i) 1:1,1:N iii) N:N,N:N iv) 1:1,1:1 i) strong entity set is represented as: i) Underline ii) Double line iii) Double diamond iv) Double rectangle j) Which of the following can be used as composit key entry of the instructor relation? i) NAME ii) DNAME iii) ID iv) All of the mentioned

#### 2×10

## PART-A

- Q.2 a) Define the 'database architecture'. Why would choose a database system instead of simply storing data in files? When would it make sense not to use a database system?
  [CO-1] [L-2] 10
  - b) Discuss the role and functions of administrator. Elaborate the applications of DBMS.

[CO-1] [L-2] **10** 

Q.3 a) Draw an ER diagram of library management system.

[CO-6] [L-6] **10** 

- b) State the major advantages and disadvantages of the following data models-
  - i) Network model
     ii) ER model [CO-6] [L-1] 10

Q.4 Consider the following table STUDENT:

REGD.NO	NAME	BRANCH
0001	Ram	CSE
0002	Hari	МЕСН
0003	Pradeep	EEE
0004	Deepak	ETC

a) Write a SQL command which will show the entire STUDENT table.

b) Write a SQL command which will count students in the table.

c) Write down the SQL command which will show the Regd. No of Hari.

d) Write down the SQL command which will show the REGD.NO and branch column.

- e) Write a SQL command which will count the number of rows existing in STUDENT table.
- f) Write a SQL command to delete a record from the student table where branch is 'ETC'.
- g) Update the name of the '0001' REGD. No.
- h) Add rollno as a New Column in the existing table.
- i) Display the records of CSE branch students details.
- j) Fetch the student details whose name start from R letter. [Co

#### [CO-4] [L-3] **20**

[CO-5] [L-2] **10** 

#### <u>PART-B</u>

Q.5 a) To compute the closure for relation schema R={A,B,C,G,H,I} and F= {A  $\rightarrow$  B,A  $\rightarrow$  C,

 $CG \rightarrow H, CG \rightarrow I, B \rightarrow H, C \rightarrow G$ ).

Find the closure of A under F. Or  $\{A+\}$ 

- b) Describe the concept of Normalization and types of normal form with suitable example. [CO-5] [L-1,2] **10**
- Q.6 a) Discuss the transaction with its states. What are the conflicts and transaction precedence graph for the following schedule?
  S: r1(A); r2(B); w1(A); w2(A); w3(A); w3(B); r1(B); [CO-3] [L-6] 10
  b) Explain Concurrency control scheme with examples. [CO-3] [L-2] 10
- Q.7 a) Discuss about the causes of failure and security risks in detail. [CO-3] [L-1,3] 10b) Write a short note on the following topics:
  - i) Log based recovery.
  - ii) Shadow paging. [CO-3] [L-2] **10**

B. Sc. (Information Technology) – Third Semester COMPUTER NETWORK (BSCIT-DS-302)

Time:	3 h	rs.		Max Marks: <b>100</b> No. of pages: 2
Note:	Att <b>PA</b> que	tempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>C</b> <b>RT-A</b> and <b>TWO</b> questions from estion.	ompulsory. Attempt any TWO PART-B. Marks are indicate	<i>O</i> questions from ed against each
Q.1	An: a)	swer the following multiple choice qu Which of the following protocols is internet?	used for transferring email n	nessages over the
	b)	iii) HTTP What is the purpose of a MAC addre	iv) DNS ss in a network?	[CO2] [L1]
	c)	<ul><li>i) To identify a network interface</li><li>iii) To identify a network protocol</li><li>Which of the following topologies pr</li></ul>	<ul> <li>ii) To identify a network loca iv) To identify a network serv ovides the most redundancy?</li> </ul>	vice [CO1] [L2]
	d)	<ul><li>i) Bus</li><li>iii) Ring</li><li>Which of the following is a protocol</li></ul>	ii) Star iv) Mesh used for email transmission?	[CO1] [L1]
	, e)	<ul><li>i) SMTP</li><li>iii) TCP</li><li>Which of the following devices is use</li></ul>	ii) HTTP iv) FTP ed to connect two networks too	[CO3] [L3]
	c)	<ul> <li>i) Router</li> <li>iii) Hub</li> </ul>	ii) Switch iv) Repeater	[CO2] [L4]
	т)	mask of 255.255.255.240? i) 16	ii) 14	ork with a subhet
	g)	<ul><li>iii) 15</li><li>What is the main function of a route</li><li>i) To connect multiple LANs</li></ul>	iv) 32 r in a network?	[CO2] [L3]
		<ul><li>ii) To connect a LAN to a WAN</li><li>iii) To connect two different network</li></ul>	<s< td=""><td></td></s<>	
	h)	<ul><li>iv) To connect multiple devices on a Which of the following is an example</li><li>i) HTTP</li></ul>	LAN e of a transport layer protocol? ii) FTP	[CO4] [L2]
	i)	iii) TCP Which of the following wireless stand	iv) SMTP dards has the highest data trai ii) 802 11b	[CO3] [L2] nsfer rate?
	j)	iii) 802.11g Which of the following is a Layer 4 p	iv) 802.11 protocol in the OSI model?	[CO5] [L2]
		i) IP iii) HTTP	ii) TCP iv) Ethernet	[CO4] [L2] <b>2×10</b>
		<u>PA</u>	<u>K1-A</u>	

Q.2 a) What is a protocol? Discuss the different types of protocols used in computer networks and their significance. [CO4] [L2] 10
 b) What is the difference between half-duplex and full-duplex communication? [CO3] [L3] 10

- Q.3 What is network topology? Explain the different types of network topologies and their advantages and disadvantages. [CO4] [L2] **20**
- Q.4 a) Discuss the advantages and disadvantages of wireless networking. [CO5] [L3] 10
   b) Explain the concept of subnetting in IP addressing. Describe the process of subnetting a network. [CO2] [L3] 10

## <u>PART-B</u>

- Q.5 a) Discuss the spiral software development life cycle model with diagrammatic illustration. Also converse its strengths and deficiencies? [CO4] [L5] **10** 
  - b) Explain the concept of file sharing and its importance in file and print services. Describe the different types of file sharing, including local, remote, and cloud-based file sharing.
     [CO4] [L4] 10
- Q.6 Explain the process of domain name resolution, and the role of DNS servers in the process. [CO2] [L4] **20**
- Q.7 Explain the concept of cloud computing and its impact on network architecture and management. Describe the different types of cloud services [CO4] [L2] **20**

End Semester Examination, May 2023 B. Sc. (Information Technology) – Third Semester ARTIFICIAL INTELLIGENCE (BSCIT-DS-305)

rine.	5 11	13.		No of pages: 2
Note:	Att <b>PA</b>	tempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>c</b> <b>RT-A</b> and <b>TWO</b> questions from	ompulsory. Attempt any TW PART-B. Marks are indicate	<i>O</i> questions from ed against each
	qu	estion.		
Q.1	<b>Мі</b> а)	<i>Itiple choice questions:</i> Artificial intelligence is a way of?		
		i) Making a computer	ii) Making a computer contro	olled robot
		iii) Software thinking intelligently	iv) All of the above	[CO1] [L1]
	b)	Which of the following areas can con	ntribute to build intelligent sys	tem?
		i) Philosophy	ii) Biology	
	、	iii) Sociology	iv) All of the above	[CO1] [L2]
	C)	Which of the following is a compone	ent of an expert system?	
		i) Inference engine	II) Knowledge Base	
	N	III) User Interface	iv) All of the above	[CO1][L2]
	a)	Machine becomes intelligent once the	ley are:	
		I) Irained	II) Started	
	$\sim$	Misch of the following is the most a	IV) Turned OII	
	e)	i) Machina Learning	ii) Noural Natwork	
		i) Machine Learning	ii) Neural Network	[CO <b>3333</b> ] [13]
	f)	The neural network consists of	ny peurops each peurop	takes an input
	1)	processes it and gives an output	Which of the following stat	ement(s) correctly
		represents a real neuron?	which of the following state	ement(3) correctly
		i) A neuron has a single input and	a single output only	
		ii) A neuron has multiple input and	a single output only.	
		iii) A neuron has a single input but r	nultiple outputs.	
		iv) A neuron has multiple inputs and	I multiple outputs.	[CO5] [L1]
	a)	Which of the following AI domain a	ittempts to extract the inform	ation from spoken
	57	and written words using algorithms?		I.
		i) Neural network	ii) Computer vision	
		iii) Data science	iv) Natural Language Process	sing [CO5] [L1]
	h)	Semantic network is:		-
	-	i) A way of representing knowledge	e ii) Data structure	
		iii) Data type	iv) None of the above	[CO3] [L1]
	i)	What was originally called the "imita	ition game" by its creator?	
		i) The Turing test	ii) LISP	
		iii) The Logic Theorist	iv) Cybernetics	[CO4] [L1]
	j)	A perception is:		
		i) A single layer feed-forward neura	al network with pre-processing	l.
		II) An auto-associative neural netwo	ork.	
		III) A double layer auto-associative r	neural network.	
		iv) A neural network that contains fe	eeadack.	[CO4] [L2] <b>2×10</b>

Time: 3 hrs.

Max Marks: 100

## PART-A

- Q.2 a) List and discuss the various programming languages of Artificial Intelligence. [CO1] [L5] 10
   b) List and discuss the potentially positive and negative effects on society of the development of artificial intelligence. [CO1] [L2] 10
- Q.3 Write algorithms for the following search techniques:
  - a) Best first search technique.
  - b) Means-ends analysis.
  - c) Breadth first search technique.
  - d) Depth first search technique.
- Q.4 a) Draw a semantic network representing the following knowledge:
   Every vehicle is a physical object. Every car is a vehicle. Every car has four wheels.
   Electrical system is a part of car. Battery is a part of electrical system. Pollution system is a part of every vehicle. Vehicle is used in transportation. Swift is a car.
   [CO3] [L4] 10
  - b) Convert the following statements into first order predicate logic:
    - i) Ram teaches Mathematics or Chemistry.
    - ii) All children like to play Football.
    - iii) Some real numbers are rational numbers.
    - iv) Raju likes everyone.
    - v) Lily likes apples but not bananas.

[CO3] [L5] **2×5** 

## <u>PART-B</u>

- Q.5 Minimax algorithm is a kind of backtracking algorithm that is used in decision making and game theory to find the optimal move for a player. How does this algorithm work? Explain the process of backtracking along with the algorithm. [CO4] [L2] **20**
- Q.6 Define 'expert system' in terms of artificial intelligence. What are the applications of an expert system? Discuss the basic components and architecture of an expert system. [CO5] [L4] 20
- Q.7 Machine learning is talked about as the sub-field of artificial intelligence. Why is it said so? Explain the concept of machine learning along with its learning techniques and applications. [CO5] [L4] 20

[CO1] [L2] **5×4** 

B.Sc. (Information Technology) – Fourth Semester **SOFTWARE ENGINEERING (BSCIT-DS-401)** 

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

- Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- a) Software is defined as \_\_\_\_\_ Q.1
  - i) Set of programs, documentation and configuration of data
  - ii) Set of programs
  - iii) Documentation and configuration of data
  - iii) None of the mentioned
  - is not suitable for accommodating any change. b) ii) Waterfall model
  - i) RAD Model iv) Prototyping model
    - iii) Build and fix model
  - c) Who proposed the spiral model?
  - i) Barry Boehm ii) Pressman d) Software patch is defined as \_\_\_\_\_\_
    - ii) Daily or routine Fix
      - iii) Emergency Fix

ii) Required or Critical Fix

iv) IBM

iv) None of the mentioned

iii) Royce

- e) Which one of the following is not a software process quality? i) Visibility ii) Timeliness iii) Productivity iv) Portability
- f) Agile software development is based on which of the following type.
  - i) Iterative development
  - ii) Incremental development
  - iii) Both incremental and iterative development
  - iv) Linear development
- q) What does SDLC stands for?
- ii) Software design life cycle
- iv) System development life cycle
- g) what does SDLC stands for?
  i) System design life cycle ii
  iii) Software development life cycle ii
  h) Quality Management is known as \_\_\_\_\_\_ i) SQI ii) SQA
- iii) SQM iv) SQA and SQM
- \_\_\_\_\_ is a software development life cycle model that is chosen if the i) development team has less experience on similar projects.
  - i) Iterative Enhancement Model
- ii) RAD iv) Waterfall
- iii) Spiral j) What is the full form of the "COCOMO" model?
  - i) Cost constructive estimation model ii) Constructive cost estimation model
  - iii) Constructive case estimation model iv) Constructive cost estimating model

[CO-1] [L-1] 2×10

[CO-2] [L-2] 10 [CO-2] [L-3] 10

[CO-3] [L-2] **5** 

## PART-A

- Q.2 a) Explain spiral model with labelled diagram. b) Compare waterfall, spiral, prototype and incremental model.
- Q.3 a) Explain error, fault and failure.
  - [CO-3] [L-2] **5** b) Explain ER model. Explain entity, entity type, entity set, ER diagrams symbols and notations with example. [CO-3] [L-2] **10**
  - c) Discuss the characteristics of a good SRS document.

Q.4	Write short notes on following terms:	[(0-3] [1-2] 5
	b) Software project scheduling with techniques.	[CO-3] [L-2] <b>10</b>
	c) Feasibility study.	[CO-3] [L-3] <b>5</b>
	<u>PART-B</u>	
Q.5	<ul><li>a) Compare and contrast testing terms: unit testing, integration test testing.</li><li>b) Differentiate between 'black box' and 'white box' testing.</li></ul>	ing and system [CO-5] [L-4] <b>10</b> [CO-5] [L-4] <b>10</b>
Q.6	<ul><li>Write short notes on following terms:</li><li>a) Reverse engineering.</li><li>b) Re-engineering.</li><li>c) Cyclomatic complexity.</li></ul>	[CO-3] [L-5] <b>5</b> [CO-5] [L-4] <b>5</b> [CO-4] [L-5] <b>10</b>
Q.7	Write short notes on following terms: a) Cohesion. b) Coupling.	

c) User documentation.d) System documentation.

[CO-4] [L-4] **5×4** 

## B. Sc. (Information Technology) - Fourth Semester CLOUD COMPUTING (BSCIT-DS- 402)

Time:	3 hr	'S.	-	Max Marks: 100
Note:	Atte from each	empt <b>FIVE</b> questions in all; <b>Q.1 is c</b> n <b>PART-A</b> and <b>TWO</b> questions from n question.	<b>ompulsory</b> . Attempt ar <b>PART-B.</b> Marks are ind	<i>No. of pages: 2</i> ny TWO questions licated against
0.1	Chc	pose the correct option:		
	a)	Which of the following is a cloud exa	mple?	
	-	i) Amazon Web Services (AWS)	ii) Dropbox	
		iii) Cisco WebEx	iv) All of the above	[CO2][L-1]
	b)	Programs that may operate on a virt	ual machine image, sucl	h as a Web server
		or database server, are known as		
		i) Virtual server	ii) Virtual appliances	
		iii) Machine imaging	iv) All of the above	[CO3][L-2]
	c)	A system, cloud computing is	s by definition unidirection	onal in operation.
		i) Stateless	ii) Stateful	
		iii) Reliable	iv) All of the above	[CO1][L-2]
	d)	Which of the following is a PaaS clou	id service example?	
		I) Heroku	II) AWS Elastic Beansta	alk Toopati al
	、	III) Windows Azure	iv) All of the above	[CO3][L-2]
	e)	Identify the incorrect statement.		le a Trata una at
		<ol> <li>Azure enables .NET Framework a</li> <li>Cloud Commuting lags true distingtion</li> </ol>	pplications to run over t	ne Internet.
		II) Cloud Computing has two distinct	t sets of models.	aamilaa ito aaamah
		III) Amazon nas built a worldwide ne	twork of data centre to	service its search
		engine.		
	Ð	A distributed computing paradiam of	llod	[CO4][L-2]
	1)	domand utility based computing for	dionto	
		i) Pomoto Sonsing	ii) Pomoto Invocation	
		iii) Private Computing	iv) Cloud Computing	
	a) '	These cloud services are of the form	of utility computing i e	the
	9)	uses these services nav-as-you-go m	or during computing i.e.	uie
		i) Cloud providers	ii) Clients	
		iii) End users	iv) None of the above	[[03][]-2]
	h)	What is Cloud Computing?	iv) None of the above	
	,	i) Cloud Computing means providin	a services like storage.	servers, database.
		networking, etc	g bei vieeb inte bebruge, t	
		ii) Cloud Computing means storing (	data in a database	
		iii) Cloud Computing is a tool used to	create an application	
		iv) None of the above	F F ·	
	i)	What characteristics characterise clo	ud computing?	
	,	i) Security	ii) Availability	
		iii) Large Network Access	iv) All of the above	
	j)	What kind of service is included in th	e scope of cloud compu	iting?
		i) SaaS	ii) IaaS	-
		iii) PaaS	iv) All of the above	2×10

- Q.2 What is meant by cloud computing, discuss its advantages and also explain the architecture of cloud computing including various layers with suitable example? [CO1][L1] **20**
- Q.3 Explain the following:
  - a) System abstraction.
  - b) Cloud bursting.
  - c) Service attributes of cloud computing.
  - d) Cloud administration.

#### [CO2][L2] **5×4**

[CO2][L2] **5×4** 

- Q.4 Compare the three cloud computing delivery models, SaaS, PaaS, and IaaS, from the point of view of the application developers and users considering the following parameters:
  - a) Types of consumers.
  - b) Services offered.
  - c) Service coverage.
  - d) Customization.

## PART-B

- Q.5 A public cloud for higher education is made available to all users at no cost by an IT corporation. Should it adopt SaaS, PaaS, or IaaS as its cloud computing delivery strategy, and why? Which software would be most useful to the students? Will remote learning be affected by this solution, if yes, why? [CO4][L3] 20
- Q.6 What are the different security challenges in cloud computing? Discuss each in brief. How Onion encryption layer is useful to maintain trust and reputation in cloud computing? [CO5][L2] **20**
- Q.7 Although virtualization makes it easier to use resources, isolates users from one another, facilitates replication, and supports mobility, as it comes with a performance and financial penalty. Examine each of these factors for:
  - a) Memory virtualization.
  - b) Processor virtualization.
  - c) Virtualization of a communication channel.

[CO6] [L4] **20** 

B. Sc. (Information Technology) – Fourth Semester

#### **RELATIONAL DATABASE MANAGEMENT SYSTEM - (BSCIT-DS-403)**

Time: 3 hrs.

Max Marks: 100

[CO-1] [L-1]

[CO-6] [L-1]

[CO-5] [L-1]

[CO-2] [L-2]

[CO-1] [L-1] 2×10

No. of pages: 1

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.

## Q.1 *Choose the correct option:*

- a) Rows of a relation are called \_\_\_\_\_\_. [CO-1] [L-1]
   i) Entities ii) Tuples iii) Relationships iv) Data structures
   b) Multivalued dependency among attribute is checked at which level? [CO-4] [L-2]
- i) 2NF ii) 3NF iii) 4NF iv) None of the above c) Locking can take place at the following levels: [CO-4] [L-2]
- c) Locking can take place at the following levels: [CO-6] [L-2]
  i) Page level ii) Database level iii) Row level iv) All of these.
  d) The keys that can have NULL values are: [CO-3] [L-1]
- d) The keys that can have NULL values are:i) Primary keyii) Unique keyiii)
  - key ii) Unique key iii) Foreign key iv) Both ii) and iii) functions in SQL are: [CO-4] [L-2]

ii) SUM, COUNT and AVERAGE

iv) SQRT, POWER and MOD

- e) Aggregate functions in SQL are:i) GREATEST, LEAST and ABS
  - iii) UPPER, LOWER and LENGTH

Answer the following in brief:

- f) What is data model?
- g) What is concurrency?
- h) Give the full form of PL/SQL.
- i) What do you understand by entity?
- j) What is full form of RDBMS?

## PART-A

- Q.2 What are the objectives to normalize the database? What are the possible dependencies, which can exist in a database? Explain with suitable examples. [CO4][L3] **20**
- Q.3 What is RDBMS? Discuss the features and architecture of RDBMS. [CO-1] [L-2] 20
- Q.4 Following are the description of tables: STUDENT (S\_ID, S\_NAME, CLASSNAME, MARKSOBTAINED, FEE) CLASS (CLASS\_ID, CLASSNAME)
  - a) Create above mentioned tables.
  - b) Insert two records for each table.
  - c) Display the student details with class Id.
  - d) Add a new column named address in the table student.
  - e) List name of students in ascending order according to their fee.
  - f) List the names of students having last alphabet of their names is 'a'. [CO-4] [L-6] 20

## <u>PART-B</u>

- Q.5 What is an Exception? List various PL/SQL pre-defined exceptions along with their meaning. Summarize the steps to be followed for an exception with a suitable example. [CO-5] [L-2] **20**
- Q.6 a) Outline the method for dropping the existing function, procedure and package. Explain with an example. [CO-5] [L-4] **10** 
  - b) What are different modes of arguments in subprogram? Also, compare its each mode in brief. [CO-5] [L-5] **10**
- Q.7 Explain the following with respect to DDBMS:
  - a) Client server architecture.
  - b) Data fragmentation.
  - c) Replication and allocation technique.

B. Sc. (Information Technology) – Fourth Semester

## **INFORMATION SYSTEM SECURITY (BSCIT-DS-405/COMP609)**

Time: 3 hrs. Max Marks: 100 No. of pages: 2 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question. Multiple choice questions: Q.1 a) A worm \_\_\_\_\_ modify a program. [CO-1] [L-1] i) Does not ii) Does iii) May or may not iv) None of these b) Interception is an attack on: [CO-1] [L-1] i) Availability ii) Confidentiality iii) Integrity iv) Authenticity c) Which of the following is a type of independent malicious program that never required any host program? [CO-1] [L-1] ii) Worm iii) Trap Door i) Trojan Horse iv) Virus d) Why are the factors like confidentiality, integrity, availability, and authenticity considered as the fundamentals? [CO-2] [L-1] i) They help in understanding the hacking process ii) These are the main elements for any security breach iii) They help to understand the security and its components in a better manner iv) All of the above e) The modern cipher is usually a complex \_\_\_\_\_\_ cipher made of a combination of different simple ciphers. [CO-4] [L-1] ii) Secret iii) Round i) Square iv) Plain f) One way to preserve the integrity of the document is through the use of: [CO-2] [L-1] i) Eye-Rays ii) Finger Prints iii) Biometrics iv) X-Rays q) Firewalls are used for\_\_\_\_\_. [CO-5] [L-1] i) Security iii) Tunnelling i) Routing iv) Congestion control h) Which of the following ciphers is a block cipher? [CO-4] [L-1] i) Caesar cipher ii) Vernam cipher c) Playfair cipher iv) None of the above i) Data Encryption Techniques are particularly used for \_\_\_\_\_\_. [CO-4] [L-1] i) Protecting data in data communication system ii) Reduce storage space requirement iii) Enhances data integrity iv) Decreases data integrity pKI Stands for [CO-3] [L-1] 2×10 PART-A Q.2 Write short notes on: a) Bull's eye model for information security. b) Information security policy, its standards and practices. [CO-5] [L-2] 20

- Q.3 a) How issue-specific-policy helps in making the cyber operations secure? Give example of email-issue-specific-policy for an organisation. [CO-3] [L-2] **10** 
  - b) How intrusion detection and prevention system enhance organizational security? Justify your answer with an example. [CO-3] [L-2] **10**

- a) What is the importance of public key infrastructure? Q.4
  - b) Why encryption is required for data communication?

## PART-B

- Q.5 a) Explain the components of an information system and their security. How will you balance between security and access? [CO-4] [L-2] 10 [CO-4] [L-2] 10
  - b) Explain the security system development life cycle.
- Q.6 Differentiate between the following:
  - a) Issue specific security policy and system specific security policy.
  - b) Authentication and authorization.
  - c) Malware v/s viruses.
  - d) Honey pots and honey nets.
- Q.7 a) Explain the role of firewall in information security by taking a suitable example.
  - [CO-4] [L-2] **10** b) List and describe the four basic conversion strategies that are used when converting

to a new system. Under which circumstances each of these is best approach? Explain. [CO-4] [L-2] **10** 

[CO-1] [L-1] **10** 

[CO-5] [L-4] **10** 

[CO-3,4] [L-2] **5×4** 

B. Sc. (Information Technology) – Fourth Semester

## DATA MINING (BSCIT-DS-406)

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

- Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 a) Out of the below mentioned techniques, identify the data mining techniques: i) clustering ii) classification iii) Association iv) All of the above
  - b) Handling incorrect or missing data is called as \_\_\_\_\_\_.
    i) Selection ii) Preprocessing iii) Transformation iv) Interpretation
  - c) Abrupt value in data is known as \_
    - i) Changing data ii) Noisy data iii) Outliers iv) Missingdata.
  - d) Strategic information is needed for:
    - i) Day to day operations
- ii) Meet government requirements
- iv) Short range planning
- iii) Long range planninge) Full form of KDD is \_\_\_\_\_
- f) Which of the following activities is NOT a data mining task?
  - i) Predicting the future stock price of a company using historical records
  - ii) Monitoring and predicting failures in a hydropower plant
  - iii) Extracting the frequencies of a sound wave
  - iv) Monitoring the heart rate of a patient for abnormalities
- g) One of the attribute of data stored in data warehouse is:
  - i) operational ii) historical iii) transactional iv) optimized
- h) A \_\_\_\_\_\_ acts a bridge between data warehouse and database application.
  i) data mart ii) operational data iii) meta data iv) data cube
- i) data mart
   ii) operational data iii) meta data
   iv) data cut
   ii) \_\_\_\_\_is one of the supervised data mining technique.
  - i) Tuple ii) Association iii) Classification iv) Relation
- j) Which of the following data mining task is known as Market Basket Analysis?
  - i) Association Analysis
  - iii) Classification

- ii) Regression
- iii) Outlier Analysis

2×10

## <u>PART-A</u>

- Q.2 a) Explain the data warehouse architecture with the elaborated details of data staging area.
   [CO-1] [L-2] 10
  - b) Differentiate the following:
    - i) Relational table and data cube.
    - ii) OLTP and OLAP.
- Q.3 a) Explain the following in terms of multidimensional model of data warehouse with suitable examples:
  - i) Measure or metric.
  - ii) Granularity.

[CO-3] [L-2] **10** 

[CO-2] [L-4] 5×2

b) Compare and contrast the snowflake and star model of data warehouse.

[CO-3] [L-4] **10** 

Q.4 a) What is noise in data? Explain the methods through which noise can be removed from data. [CO-3] [L-2] **10** 

- b) Differentiate between the following:
  - i) ROLAP and MOLAP server.
  - ii) Distributed and virtual data warehouse. [CO-3] [L-4] **5×2**

## PART-B

- a) "Bayesian classification algorithm is based on conditional probability". Justify this Q.5 statement with the help of an example. [CO-4] [L-4] **10** 
  - b) Explain the K-Means algorithm of clustering technique with the help of an example.

[CO-4] [L-2] **10** 

- Q.6 Explain the following terms in relation to association rules:
  - a) Support.
  - b) Confidence.
  - c) Multidimensional association rule.
  - d) Frequent pattern.
- Q.7 Analyse the need of data mining techniques in the following areas:
  - a) Education.
  - b) Healthcare.

[CO-5] [L-4] **10×2** 

[CO-4] [L-2] 5×4

## End Semester Examination, May 2023 BCA / B. Sc. (Information Technology) – Second Semester PLACEMENT COMPETENCY ENHANCEMENT-II (CDC-112)

Time: 2 hrs.

Max Marks: 50

- No. of pages: 7
- Note: The paper consists of **FIFTY** multiple questions; each question has **FOUR** options with one correct answer. Select the correct answer. Attempt all questions. All questions are of **ONE** mark each. There is no negative marking. Calculator is not allowed. Mention the correct option for each question in the blank answer key given herein below. (Answer sheets with empty answer keys despite the correct options being ticked, will not be evaluated).

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
41.	42.	43.	44.	45.	46.	47.	48.	49.	50.

Q.1 Complete the following statement: A well-written paragraph should \_\_\_\_\_

1]

- A] Focus on a single, coherent idea.
- B] Consist of logically connected sentences.
- C] Both a and b
- D] None of above
- Q.2 How long should a paragraph be?
  - 1]
  - A] Every paragraph should be at least five sentences long.
  - B] Good paragraphs must be at least one page long.
  - C] It's okay for paragraphs to vary in length.
  - D] It should have two paragraphs
- Q.3 The smooth, logical flow of sentences within a paragraph is called \_\_\_\_\_\_.

[CO-1] [L-

[CO-1] [L-

[CO-1] [L-

- 1]A] Paragraph personalityB] Paragraph coherenceC] Paragraph deductionD] Paragraph conclusion
- Q.4 The castle sits \_\_\_\_\_ two snowy mountains, and it has a beautiful stone wall around it. [CO-1] [L-1]
  - A] on B] between C] above D] around

Q.5	Which sentence is best? 1] A] Can I know the problem B] Can you tell to me what C] Can you tell me what to D] Can you know me the	m? at is the proble he problem is? problem?	m?		[(	CO-1]	[L-
Q.6	Which sentence is best? 1]				[(	CO-3]	[L-
	<ul><li>A] I did not got that.</li><li>C] I did not getting that.</li></ul>		B] I did n D] I did n	ot get that. ot got this.			
Q.7	Which sentence is best?				[0	CO-1]	[L-
	<ul> <li>A] She said that she will of</li> <li>B] She was saying she will</li> <li>C] She was saying she con</li> <li>D] She said she will comin</li> </ul>	come on time. Il come on time mes on time. ng on time.	е.				
Q.8	We have high-speed Intended Home.	ernet access	work,	but I have a b	ad conne [(	ction CO-3]	 [L-
	A] at, in	B] in, at	C]	at, at	D	)] in, in	
Q.9	The kids are learning abou	It the Civil Wa	r their	history class	school [(	l. CO-1]	[L-
	1] A] at, in	B] in, at	C]	at, at	D	)] in, in	
Q.10	I've been sitting here minutes, I'm going to leav	. more than a e.	an hour. I	f they don't an	rivethe	e next [CO-2]	ten [L-
	A] during, after	B] since, with	in C]	for, in	D] after,	, before	2
Q.11	Every Friday, I meet up w out together from 6 PM to 2] A] After, from, to, by B] By, to, from, after C] By, from, to, after D] Before, by, in, before	ith friends afte midnight. I'm	r work for usually ba	drinks and dinna ack home by 1 A	er. We us M. [(	cO-2]	ang [L-
Q.12	Complete the Conditional S	Sentences.			[(	CO-1]	[L-
	If you (go)out with on TV. A] Will go, would watch	your friends t	conight, I	(watch)	the foot	ball ma	tch

	<ul><li>B] Went, watched</li><li>C] Go, will watch</li><li>D] Will go, will watch</li></ul>				
Q.13	Which type of the Condition	onal sentences is use	d?	[CO-3]	[L-
	If it rains, I'll wear a raince A] Zero	oat. B] First	C] Second	D] Thirc	1
Q.14	Which type of the Condition	onal sentences is use	d?	[CO-1]	[L-
	Daniel would have been h A] Zero	ome on time if the b B] First	us had come. C] Second	D] Thirc	1
Q.15	What is three-time system	?		[CO-2]	[L-
Q.16	A] Technical time, formal B] Technical time, informa C] Technical time, formal D] Technical time, formal What is Proxemics? A] Study of the hands B] The study of chaos or C] Is the study of physica D] The art of teaching by	time, informal time al time, informal time time, formality time time, official time chaos theory I space in interpersor question and answer	al relationship		
Q.17	What is ABCD in presentat	tion?		[CO-1]	[L-
	A] Asset Based Communit C] Attention, benefit, Cred	y Development libility, Direction	B] Any Body Can Dance D] Albinism, Black Lock, C	Cell Migrat	ion
Q.18	When giving a presentation except for: answer choices 1] A] Speak loud and clear B] Provide handouts if new C] Dress professionally D] Look at your screen an	on in front of an aud s. eded nd not the audience	ience you should do all of	the follov [CO-3]	ving [L-
Q.19	To whom should a present 1] A] The highest authority in B] The entire audience C] The people in the close D] Your best friend in the	tation be aimed? Ans n the room, regardles st rows room	swer choices. ss of where they are	[CO-2]	[L-

Q.20 Where should you look while presenting? Answer choices.

A] At the board -- that's where the audience is looking

B] At your notes so you get the info correct

C] In the eyes of random people in your audience

D] At the chins of individuals in your audience

Q.21 Which sentence that introduces or defines the topic of a paragraph\_

It rained in April; it rained in May. It rained in the mornings; it rained in the afternoons. It poured, it drizzled, it showered, it misted—but always it rained. But the good news is we won't have a drought this summer. [CO-3] [L-

1]

- A] The rain makes me gloomy.
- B] This spring was the rainiest on record.
- C] Rain is nice, but I prefer sunshine.
- D] Scientists know very little about the global climate.

#### **Q.22** and **Q.23** are based on the following paragraph:

In prolonged space flight, besides the obvious hazards of meteors, rocky *debris*, and radiation, astronauts will have to deal with muscle *atrophy* brought on by weightlessness; therefore, when they return to Earth, they face a protracted period of weight training to rebuild their strength.

Q.22	What is the most likely meaning	g of the	underlined	word	debris	as it	t is	used in	this
	passage?							[CO-3]	[L-
	1]								

A] fragments B] decay C] bacteria D] alien life

Q.23 The underlined word atrophy, as used in the paragraph, most nearly means.

[CO-2] [L-

1]A] Pain.B] Wasting.C] Weakening.D] Cramping.

Q.24 and Q.25 are based on the following paragraph:

Donna's memo caused much contention around the office last week. She may have meant well, but her usually *caustic* tone offended almost everybody. She has become a consistent nuisance at work, and probably should be fired.

Q.24 Based on the tone of the passage, which of the following words best describes the author's attitude toward Donna? [CO-2] [L-1]

A] exasperatedB] admiringC] patronizingD] isolated

Q.25 The underlined word caustic, as used in this passage, most nearly means. [CO-2] [L-1]

A] cause and effect B] reoccurring C] biting D] unclear

- Q.26 In the question below are given three statements, followed by conclusions: I, II, III, IV. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts. [CO-6] [L-
  - 1]

#### Statements:

All sulfur are oxygen. No oxygen is chlorine. Some carbon are chlorine. **Conclusion:** I. Some carbon are sulfur II. Some carbon are oxygen

III. Some sulfur are chlorine

IV. No chlorine is sulfur A] Only I B] Only II

C] Only III

D] Only IV

Q.27 In the question below are given three statements, followed by conclusions: I, II, III, IV. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts. [CO-6] [L-1]

#### Statements:

All hexagons are octagons.

Some octagons are sphere.

All sphere are cones

## **Conclusion:**

I. Some cones are octagons

II. Some cones are hexagons

III. Some sphere are hexagons

IV. Some octagons are cones A] Only I B] Only II

C] Only III

D] Only I & IV

- Q.28If P denotes `multiplied' by', T denotes `subtracted' from', M denotes `add to' and B<br/>denotes `divided by', then 28 B 7 P 8 T 6 M 4 =?[CO4] [L-2]<br/>D] 34A]-3/2B] 30C] 32D] 34
- Q.29 If Q means 'add' to; J means 'Multiply by', T means 'subtract from' and K means 'divide by' then 30 K 2 Q 3 J 6 T 5 = ? [CO-4] [L-2] A] 18 B] 28 C] 31 D] 103
- Q.30 Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures.
  [CO-4] [L-1]
  Problem Figures:
  Answer Figures:



Q.31 Select a figure from amongst the Answer Figures which will continue the same series as established by the five Problem Figures. [CO-4][L-1]



Q.32 Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X). [CO-



Q.33 Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X). [CO-



D] 4

Q.34 Insert the missing number in each of the following:





Q.35 Insert the missing number in each of the following: [CO-4][L-2]

	25200	5				
	3600	5				
	?	10				
	120	30				
	A] 600	B] 500	C] 400	D] 700		
Q.36	A is 30 % less than	B. B is how much %	6 more than A?		[CO-5]	[L-
	A] 30%	B] 42.85%	C] 30.15%		D] 35%	
Q.37	When 50% of num	ber is added to 27 t	the result is the num	ber itself. The	e number [CO-5]	is: [L-
	2] A] 50	B] 54	C] 90	D] 75		
Q.38	The expenditure o decrease his expen	f a person is Rs.40 diture to reduce the	0. By how much % expenditure to Rs.20	the person 00?	will have [CO-5]	e to [L-
	A] 50%	B] 20%	C] 25%		D] 30%	
Q.39	A person spend 20 and 50% of the rer	% of his monthly sal naining on health an	lary on rent, 15% or d saves 4000rs. Find	food , 15% ( his monthly s	on educat alary? [CO-5]	tion [L-
	2] A] 16000	B] 10000	C] 25000	D] 30000		
Q.40	On selling 20 balls cost price of a ball	at Rs.700, there is is?	a loss equal to the o	cost price of I	L0 balls. [CO-5]	The [L-
	A] Rs.50	B] Rs.60	C] Rs.70	D] Rs	.80	
Q.41	If the cost price of	15 pens is equal to t	the selling price of 9	pens, the gai	n percent [CO-5]	is? [L-
	1] A] 20%	B] 66.67%	C] 40%		D] 50%	
Q.42	A person incurs a lo watch be sold to ea	oss of 10% by selling arn 10% profit.	a watch for Rs.1170	). At what pric	e should [CO-5]	the [L-
	A] 1280	B] 1430	C] 1365		D] 1400	
Q.43	If A:B:C = 1/3: 1/4 1]	: 1/5, then simplify	the ratio.		[CO-5]	[L-

	A] 2:3:5	B] 20:15:12	C] 6:4:3		D] 4:6:9	)		
Q.44	Two numbers are r ratio of the two nur	respectively 30% and mber is:	d 40% more than t	han the third	number. [CO-5]	The [L-		
	A] 6:7	B] 13:14	C] 8:7	D] 7:5				
Q.45	If A : B = 7 : 4, B :	C = 8 : 9 and C : D	= 3 : 2, then A : D i	is equal to	[CO-5]	[L-		
	A] 8 : 7	B] 7:3	C] 21 : 10		D] 5:6	5		
Q.46	46 The difference between simple and compound interests compounded a certain sum of money for 2 years at 50% per annum is Re. 2. The sum							
	1] A] 08	B] 25	C] 36	D] 12				
Q.47	What will be the co of 12% p.a.?	ompound interest on	a sum of Rs. 25,00	0 after 2 year	rs at the [CO-5]	rate [L-		
	A] 10483.2 10123.20	B] 6360	C] 3360		D]			
Q.48	The effective annual rate of interest corresponding to a nominal rate of 10% per							
	A] 5 1]	B] 10.25	C] 21	D] 15	[CO-5]	[L-		
Q.49	If two types of rice to obtain a mixture	of rate Rs. 22 /kg ar of rate Rs. 34/kg.	nd Rs. 42/kg, Find th	ne ratio of two	types of [CO-5]	rice [L-		
	A] 2:3	B] 3:2	C] 1:2	D] 2:1				
Q.50	In what ratio must kg respectively so a	a grocer mix two va as to get a mixture w	rieties of pulses cos orth Rs. 20 kg?	iting Rs. 18 ar	nd Rs. 23 [CO-5]	per [L-		
	A] 3:2	B] 2:3	C] 3:4	D] 4:3				

## End Semester Examination, May 2023 BCA – Fourth Semester PLACEMENT COMPETENCY ENHANCEMENT-IV (CDC-212)

Time: 2 hrs.

Max Marks: 50

No. of pages: 5

Note: All questions are **compulsory**. Each question has **FOUR** options with **ONE** correct answer. Select the correct answer. All questions are of **ONE** mark each. There is no **NEGATIVE** marking. Mention the correct option for each question in the blank answer key given herein below. Calculator is not permitted.

1.		2.	3.	4.	5.	6.	7.	8.	9.	10.
11.		12.	13.	14.	15.	16.	17.	18.	19.	20.
21.		22.	23.	24.	25.	26.	27.	28.	29.	30.
31.		32.	33.	34.	35.	36.	37.	38.	39.	40.
41.		42.	43.	44.	45.	46.	47.	48.	49.	50.
Q.1 Find the area and perimeter of the square whose side length is 4 meter. [CO-2][L-1] a) 16 m <sup>2</sup> b) 12 m <sup>2</sup> c) 8 m <sup>2</sup> d) 4 m <sup>2</sup>									CO-2][L-1]	
Q.2	The a) 2	area of 1 27 cm <sup>2</sup>	triangle h b	aving bas ) 54 cm <sup>2</sup>	se 6 cm a	nd heigh c) 22.5	t 9 cm is cm <sup>2</sup>	d)	45 cm <sup>2</sup>	CO-1][L-2]
Q.3	The a) t	area of   base + h	parallelog eight b	ram is ) base ×	height	c) base	× base	d)	[ height >	CO-1][L-3] < height
Q.4	In h	iow many	/ differen	t ways ca	n the lett	ters of th	e word M	AGIC can	be form	ed? CO-1][L-3]
	a) 2	24 ways	b	) 120 wa	iys	c) 240	ways	d)	720 way	/S
Q.5	For vow	the abov els are a	e word h lways tog	ow many ether?	different	types of	arranger	nent are	possible : [	so that the CO-2][L-1]
	a) 4	14 words	b	) 24 wor	ds	c) 48 w	ords/	d)	60 word	S
Q.6	In h a) 3	iow many 360	/ ways ca b	n the lett )  5!	ers of the	e word Bl c) 6!	EAUTY be	arrangeo d)	1? [ 7!	CO-1][L-2]
Q.7	For arra	the abo	ve word, can be p	if the v ossible	vowels ar	re always	s togethe	r than h	ow many [(	y types of CO-2] [L-2]
	a) 4	4! * 3!	В	) 6!		c) 4!		d)	4! * 3	
Q.8	A pe of m	erson has noney the	s 4 coins e person (	if differer	nt denom ?	inations.	What is t	he numbe	er of diffe	erent sums CO-1][L-3]
	a) 1	12	b	) 15		c) 11		d)	16	
Q.9	If re	epetition	is not allo	wed ther	n how ma	any distin	ct three-o	digit num	bers can	be formed
	a) 6	50 ways	b (1, 2,	) 50 way	'S	c) 40 w	/ays	d)	30 ways	CO-2][L-1]
Q.10	Find	l out the	distinct fo	our-letter	words th	nat can be	e formed	using the	word SI	NGAPORE. CO-1][L-2]
	a) 2	256	b	) 1024		c) 3024	1	d)	2048	JL J

In the following questions (Q.11-Q.15) find the value of the '?'

[CO-3][L-3]



c) 239

d) 145



Q.13

20	48	36
10	16	8
5	?	4
40	64	72

c) 13

d) 11

Q.14

a) 10

a) 613



b) 368

b) 12





?

1

Q.15



c) 178

## Direction (Q.16-Q.18) Study the following information carefully and answer the questions. [CO1] [L1]

There are 10 persons D, E, F, G, H, I, J, K, L and M sitting in two rows (5 persons in each row). Half of them are Indians and Half of them are Americans. The two rows are facing each other (North and South). No Indian sits next to or opposite to another Indian. K sits at

the left corner of the north facing row. K is a American. 2 people sit between L and F. G sits at the centre in the south facing row. M sits opposite to the neighbour of I. M is facing south. M and I do not sit at the end. H sits opposite to the person who is next to D. H is facing north. H is a Indian. No one is sitting to the right of D. L is American. E is a Indian. M is an American.

Q.16	Who among the following in pairs sit opposite each other?					
	a) E-L	b) H-M	c) D-J	d) G-I		
Q.17	Who among the fol	lowing sit at the corr	ner?			
	a) D	b) F	c) L	d) Both A & B		
Q.18	Who is sitting betw	een I and J?				
	a) D	b) K	c) M	d) E		

## **Direction (Q.19-Q.21): Study the following information carefully and answer the below questions.** [CO-1] [L-1]

Eight persons- A, B, C, D, E, F, G, and H are sitting at the circular table at an equidistant distance from each other facing the center but not necessarily in the same order. Only two persons are sitting between C and H. F sits immediate left of G. B and C are not immediate neighbors. E sits second to the right of C. The number of persons sitting between D and A when counting from the left of D is the same as between B and F when counting from the right of C. nor H.

Q.19	If all the persons a how many persons a) 2	are sitting in alphabo remain unchanged i b) 3	etical order starting fro n their position (excludi c) 1	m A in clockwise order ng A]? d) No one	
Q.20	If E is related to ( following is related	C and G is related to B?	to H in a certain way.	Then who among the	
	a) F c) D		<ul><li>b) The one who sits opposite to A</li><li>d) The one who sits second to the left of G</li></ul>		
Q.21	How many persons	are sitting between	A and H?	N -	
	a) One	b) Two	c) Three	d) Four	
Q.22	How many four-di (Repetition of digits	igit numbers can b s not allowed)?	e formed from the d	igits 1, 2, 3, 4, 5, 6	
	a) 360 Ways	b) 520 Ways	c) 420 Ways	d) 620 Ways	
Q.23	The radius of a cyl that may be added the volume of the c	inder is 10 cm and t I either to the radius cylinder is :	he height is 4 cm. The s or to the height to ge	number of centimeters et the same increase in [CO-1] [L-1]	
	a) 5	b) 4	c) 25	d) 16	
Q.24	A solid sphere of ra of length 8 cm and 11	adius 6 cm is melted external radius 10 c	l to form a hollow right m. The thickness of the	circular cylindrical tube tube in m is [CO-2] [L-	
	a) 1	b) 0.01	c) 2	d) 02	
Q.25	A person has 6 frie servants. In how m	nds to be invited for any ways can be ext	r dinner through invitati	on cards, and he has 3	

a) 729 Ways b) 520 Ways c) 650 Ways d) 840 Ways

## Direction (Q.26-Q.29): Fill in the blank with the correct answer from the options given below

Q.26	I pomegra a) have not been e c) do not eat	anates since I left ho ating	ome b) d)	am not eating have not eaten			[CO-5][L-2]
Q.27	Aftaba ı a) had bought	new bicycle last wee b) have bought	k. c)	bought	d)	has bo	[CO-5][L-2] pught
Q.28	By this time next se	emester, my friend _		his collegiate	deg	gree.	[CO-5][L-1]
	a) took	b) will take	c)	will have taken	d)	takes	
Q.29	Ashwin hurt his kne a) none of these	e while he b) was playing	c c)	ricket. had played	d)	is play	[CO-5][L-1] ing
Direc sente	tions (Q.30-Q.39) ence:	): Find out the	opt	tion which corre	ctly	com	pletes the
Q.30	A number of emplor a) Would	yeesabsent last v b) was	veeł c)	k because of the sno were	wst d)	orm will	[CO-6][L-2]
Q.31	All the cabinet mem a) lead	bersvery difficul b) Took	lt liv c)	es in private. Taken	d)	leads	[CO-6][L-2]
Q.32	Apple Iphone, as waa) Had	ell as Samsung ,r b) Has	rece c)	ntly risen in price. Would	d)	Have	[CO-5][L-1]
Q.33	Both of the student a) can	sdecided to live b) will	in t c)	he hostel. has	d)	have	[CO-5][L-1]
Q.34	Each of the student a) is	:responsible for o b) Were	doin c)	g his or her work. are	d)	Would	[CO-5][L-1]
Q.35	Neither of the pictu a) was appealing	res in the exhibition b) appeal	c)	for me, so I left the appealed	gall d)	ery. were a	[CO-5][L-1] appealing
Q.36	Siya and Riyaw a) doesn't	vant to see that mov b) not	ie ir c)	the movie theater. did not	d)	don't	[CO-5][L-2]
Q.37	The policeat the a) arriving	e scene of the crime. b) have arrived	с)	has arrived	d)	will ar	[CO-5][L-1] rive
Q.38	The Sharmas, along	g with Tiwaris,		to avoid acidity	afte	er eatir	g these oily
	samosas. a) Hope	b) Had hope	c)	Hopes	d)	Норес	[CO-5][L-1]
Q.39	This letter has	s no name on it begi	ns b	y saying "To it	: ma	iy conc	ern".
	a) Which/ him	b) What/ that	c)	Which/ whom	d)	That/	[CO-4][L-1] those
# Direction (Q.40-Q.50): Choose the correct answer from the options given below:

Q.40	In which of these, r a) The group interv c) The audition	nore than one candio view	date b) d)	e is interviewed? Sel The stress interview Thebehavioral inter	ect ( v viev	one: v	[CO-4][L-1]
Q.41	An Interview gives and career ambitior a) assess	you an opportunity t ns align with the job b) assist	to _ you c)	whe are applying for. neglect	ther d)	your oguess	qualifications [CO-4][L-1]
Q.42	The Interview chec and a) document	klist includes copy o proof. b) Identity	of yo c)	our resume, pen, pa important	isspo d)	ort size secure	photograph [CO-2][L-1]
Q.43	The three P's while perform.	e preparing for an In	nter	view stand for			prepare and [CO-4][L-1]
Q.44	<ul><li>a) proposition</li><li>6 types of Employee</li></ul>	b) program e grooming impleme	c) enta	plan tion includes	d) care	ploy e, denta	al care, body
	a) derma	ene, hair hygiene, bo b) complexion	ody c)	hygiene. peel	d)	skin	[CO-4][L-1]
Q.45	Employment Intervi interview, stress int a) direct	iew types include erview. b) straight	c)	interview, immediate	grou d)	up inte nonste	rview, board [CO-4][L-1] op
Q.46	A proverb says," it i a) when	s not what you say, b) how	it is c)	s you say where	it." d)	which	[CO-4][L-1]
Q.47	You should always ( a) True	dress to impress for b) False	an i c)	interview. None of the above	d)	Can't	[CO-4][L-1] say
Q.48	What should be the a) Above knees	ideal length for busi b) Below knees	ines c)	ss executive skirt and Both are ok	d dre d)	ess? Knee	[CO-4][L-1] length
Q.49	Which of the follow suit?	ving colors is NOT c	ons	idered as appropria	te fo	orabu Dink	isiness dress [CO-4][L-1]
0.50	d) DIdLK	D) Navy	C)	Gidy	u)		tant?
Q.50		le selection process	15 16		oyer	impor	[CO-4][L-1]
	<ul><li>a) Post Interview</li><li>c) before interview</li></ul>	1	ט) d)	auring interview none of these			

#### BCA / B. Sc. (Information Technology) – Fourth Semester PLACEMENT COMPETENCY ENHANCEMENT-IV (CDC-212)

Time: 2 hrs.

Max Marks: **50** *No. of pages: 6* 

Note: The paper consists of **FIFTY** multiple questions; each question has **FOUR** options with one correct answer. Select the correct answer. Attempt all questions. All questions are of **ONE** mark each. There is no negative marking. Calculator is not allowed.

Mention the correct option for each question in the blank answer key given herein below. (Answer sheets with empty answer keys despite the correct options being ticked, will not be evaluated)

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
41.	42.	43.	44.	45.	46.	47.	48.	49.	50.

# Direction (Q.1-Q.25): Choose the correct option from the options given below:

- Q.1 In how many different ways can the letters of the word MAGIC can be formed? [CO2][L-1] A] 24 ways B] 120 ways C] 240 ways D] 720 ways
- Q.2 In how many different ways can five friends sit for a photograph of five chairs in a row?

	[CO1][L-2]		
A] 120	B] 24	C] 240	D] 720

Q.3 For the above word how many different types of arrangement are possible so that the vowels are always together?

A] 44	B] 24	C] 48	D] 60

Q.4 Find out how many distinct three-digit numbers can be formed using all the digits of 1, 2, and 3. [CO1][L-1] A] 4 B] 5 C] 6 D] 7

Q.5 If repetition is not allowed then how many distinct three-digit numbers can be formed using the digits (1, 2, 3, 4, 5)? [CO1][L-2]

A] 60 B] 50 C] 40 D] 30

Q.6	Find out how 2, 3, 4, 5, 6,	many distinct three-c 7, 8, 9 such that the c	ligit numbers can be f digits are in ascending	formed using the digits 1, order.
	A] 80	B] 81	C] 83	D] 84
Q.7	What will be	the probability of gett	ing odd numbers if a	dice is thrown?
	A] 1/2	B] 2	C] 4/2	D] 5/2
Q.8	What is the p	robability of getting a	sum as 3 if a dice is t	thrown?
	A] 2/18	B] 1/18	C] 4	D] 1/36
Q.9	ossed is:			
	A] 1/6	B]½	C] 1/3	D] 1/4
Q.10	What is the thrown?	probability of getting	the sum as a prime	number if two dice are
	A] 5/24	[CO1][L-1] B] 5/12	C] 5/30	D] 1/4
Q.11	What is the tossed?	probability of getting	atleast one head if t	three unbiased coins are
	A] 7/8	[CO1][L-2] B]½	C] 5/8	D] 8/9
Q.12	What is the p	robability of getting 1	and 5 if a dice is thro	own once?
	A] 1/6	B] 1/3	C] 2/3	D] 8/9
Q.13	In a certain o MOVIE' writte	code, `FIVE' is written en in that code?	as `3587', `MORE' is	written as `9467'. How is
	A] 74857	B] 94587	C] 95487	D] 97584

# Following instructions are to be used for solving below questions (Q.14-Q.18):

[CO1][L-2]

Each of the questions given below consists of a statement and/or a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statement(s) is/are sufficient to answer the given question. Read both the statements and Give answer.

- A] if the data in Statement I alone is sufficient to answer the question, while the data in Statement II alone is not sufficient to answer the question.
- B] if the data in Statement II alone is sufficient to answer the question, while the data in Statement I alone is not sufficient to answer the question.

- C] if the data in each Statement I and Statement II alone is sufficient to answer the question.
- D] if the data even in both Statements I and II together are not sufficient to answer the question.

Q.14	If x,y	are integers, then (x2	+ y2)1/2 is an intege	r?
		I) x2 + y2 is an integ	ger	
		II) $x^2 - 3y^2 = 0$		
	A] A	B] B	C] C	D] D

Q.15 Is x - y is greater than u - v ? I) x > u and y < v II) y = 8, v = 9, x = 15 and u = 13. A] A B] B C] C D] D

Q.17	Who i	s father of meena?					
		I. X and Y are brothers					
		II. Y's wife is sister o	f Meena's wife				
	A] A	B] B	C] C	D] D			

Q.18 What day is 14th of a month? I. 2nd last day of the month is Tuesday II. 3rd Saturday of the month is seventeenth A] A B] B C] C D] D

#### Study the following information to answer the given question: (Q.19-Q.25) [CO1][L-1]

Twelve people are sitting in two parallel rows containing six people each such that they are Equidistant from each other. In row 1 P,Q,R,S,T& V are seated, and all of them are facing south. In row 2 A,B,C,D,E& F. And all of them are facing north. Therefore, in the given setting arrangement, each member is seated in a row faces another member of the other room.

S sits third to the right of Q.

Either S or Q sits at an extreme end of the line.

The one who faces Q sits second to the right of E.

Two people sit between B and F.

Neither B nor F sits at an extreme end of the line.

The immediate neighbour of B faces the person who sits third to the left of P.

R and T are immediate neighbours.

C sits second to the left of A]

T does not face the immediate neighbour of D]

Q.19Who amongst the following sit at the extreme ends of the rows?A] S, DB] Q, AC] V, CD] P, D

Q.20	Who an	nongst the following	faced S?	
	A] A	B] B	C] C	D] D

- Q.21How many persons are seated between V and R?A] 1B] 2C] 3D] 4
- Q.22P is related to A in the same way as S is related to B based on the given<br/>arrangement. Which of the following is T related to, following the same pattern?<br/>A] CB] DC] ED] F
- Q.23 Which of the following is true regarding T?A] F faces TB] V is an immediate neighbour of TC] F faces the one who is second to the right of T
  - D] R sits second to the right of T.
- Q.24Four of the following five are alike in a certain way based on give arrangements<br/>and so form a group. Which is the one that does not belong to background?<br/>A] A-TA] B] E-QC] F-PD] C-V
- Q.25If the area of rectangle increases from 2 cm² to 4 cm² the perimeter will<br/>A] increaseB] decreaseC] remains sameD] none of these

# Direction (Q.26-Q.30): Read the following passage carefully and answer the questions based on the passage.

[CO5][L2]

One of the most interesting features about the British Constitution, historically, is that the Constitution was not evolved by logicians. It has grown to what it is through the work of men like you and me- just ordinary people who have adapted the government of the country in order to meet the environment of the age in which they lived and they have always preserved sufficient flexibility to enable that adaption to be accomplished. Now that it is extremely important, because it seems to me that one of the reasons why

our people are alive and flourishing and have avoided many of the troubles that have fallen to less happy nations, is because we have never been guided by logic in anything we have done.

If you will only do what I have done- study the history of the growth of the constitution from the time of the Civil war until the Hanoverians came to the throne-you will see what a country can do without the aid of logic, but with the aid of commonsense.

#### Q.26 The passage implies that:

- A] British Constitution was made by you and me.
- B] There was no wise man among the British people.
- C] Ordinary people made British Constitution logically
- D] British Constitution is flexible.
- Q.27 British Constitution was made:

- A] For ordinary people only
- C] Because it was interesting. the age.

- B] To disapprove logic
- D] To meet the environment of

- Q.28 The author says that:
  - A] Because of logic people are flourishing
  - B] Because of logic people have avoided troubles.
  - C] His nation was never guided by logic.
  - D] Logic makes less happy nations happier.
- Q.29 The author has learnt from history that a country can do a lot:
  - A] With logic and commonsense
  - B] With the help of commonsense
  - C] With logic alone
  - D] None of the above
- Q.30 It is correct to say:
  - A] That logic is useless
  - B] Being guided by logic the writers have become less happy.
  - C] That historically British Constitution was made by God
  - D] That people can flourish without logic

# Direction (Q.31-Q.37): Choose the correct option which can be substituted for the given sentence:

[CO5][L2]

- Q.31 One who makes or compiles a dictionary.A] Arteriographer B] Prosopographer C] Lexicographer D]Oscillographer
- Q.32 Belief that God is in everything and that everything is God
  A] Pantheism B] Atheism C] Scepticism D] Animism
  Q.33 Living together of a man and woman without being married to each other.
  A] Equipage B] Marriage C] Lineage D]
  Concubinage
  Q.34 One who totally abstains from alcoholic drinks?
- A] TeetotalerB] TranquilC] Spite fullerD] LogrollerQ.35The study of origin and history of words.<br/>A] LinguisticsB] VerboseC] AnthologyD] Etymology
- Q.36 Will you allow us to stay up late tonight?
  A] permit B] join C] tell D] forbid
  Q.37 A memory that lingers, is a memory forever.
- A] dwells B] registers C] distress D] drenches

Direc	tion (Q.38-Q.50): below:	Choose the co	rrect option from the	e options given
Q.38	Because Cindy and A] same	Ciara are twins, the B] familiar	ey resemble each other. C] take after	D] like
Q.39	Twenty years A] are	the minimun B] is	n age to fill this form. C] has	D] have
Q.40	A pair of socks A] have	been mis B] has	ssing from my wardrobe. C] were	D] is
Q.41	The package A] is	to be carried B] are	d carefully. C] have	D] were
Q.42	He in English language	the States but he	still does not have a co	ommand over the
	A] have been living	B] has been living	g C] have lived	D] living
Q.43	You and I A] am fulfilled fulfilled	the obligations B] has been fulfilli	ng C] have fulfilled	D] has
Q.44	During the interview A] Resume quality B] Your ability to fit C] Your problem so D] None of the abo	v, the interviewer is t in to their organiz plving skills ve	s assessing: ation	
Q.45	The best way to app A] Specifically writt B] Full of personal C] Self-recommend D] Suitable for any	ply for a job is to s en for that particul information ling job	ubmit a résumé that is: ar job	
Q.46	Which of these is no A] Screening interv B] Stress interview C] Gossip interview D] Lunch interview	ot a type of intervie iew	ew?	
Q.47	Which form of inter A] Directed	viewing is used qui B] Unstructured	te often today as a first ir C] Telephone	nterview? D] Stress
Q.48	My friends and I A] had been have had bee	B] was B] was	ere. C] has be	een D]
Q.49	Jack and John Al be	helpful. B] have been	C] was	D] had been
	-	-	-	- 6/6

Q.50 The whole family \_\_\_\_\_\_ for the ceremony. A] has been invited B] have been invited

C] invites D] invited

## End Semester Examination, May 2023 MCA — Second Semester PLACEMENT COMPETENCY ENHANCEMENT MCA-II (CDC-512)

Time: 2 hrs.

Max Marks: **50** *No. of pages: 5* 

#### <u>Please read the instructions carefully</u>

Note: All questions are **compulsory.** Each question has **FOUR** options with **ONE** correct answer. Select the correct answer. All questions are of **ONE** mark each. There is no **NEGATIVE** marking. Mention the correct option for each question in the blank answer key given herein below. Calculator is not permitted. Use only black or blue pen.

1)	2)	3)	4)	5)	6)	7)	8)	9)	10)
11)	12)	13)	14)	15)	16)	17)	18)	19)	20)
21)	22)	23)	24)	25)	26)	27)	28)	29)	30)
31)	32)	33)	34)	35)	36)	37)	38)	39)	40)
41)	42)	43)	44)	45)	46)	47)	48)	49)	50)

- Q.1 In a class with a certain number of students if one new student weighing 50 kg is added, then average weight of class is increased by 1 kg. If one more student weighing 50 kg is added, then the average weight of the class increases by 1.5 kg over the original average. What is the original average weight (in kg) of the class?
  a) 46
  b) 42
  c) 27
  d) 47
- Q.2 The average height of the first six students is 170 cm, the average height of the last eight students is 175 cm. The average height of the total 16 students is 180 cm. Find the average height of the rest two students.
- a) 210 cm
  b) 250 cm
  c) 240 cm
  d) 230 cm
  Q.3 The average of runs of a cricket player of 10 innings was 32. How many runs must he make in his next innings so as to increase his average of runs by 4?
  - a) 76 b) 79 c) 85 d) 87
- Q.4 A batsman makes a score of 87 runs in the 17th inning and thus increases his average by 3. Find his average after 17th inning? a) 27 b) 39 c) 61 d) 38
- Q.5 The average weight of 8 persons increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What might be the weight of the new person? a) 70 kg b) 75 kg c) 80 kg d) 85 kg
- Q.6 Kritika is on a 4 days trip with school mates. She had decided to keep her average expense for 4 days at ₹80. However, at the end of third day she realized that her expenses on first three days were ₹80, ₹90, ₹110 and respectively. How much should she spend on 4<sup>th</sup> day to ensure that she meets her targeted average expense?
- a) ₹40
   b) ₹60
   c) ₹90
   d) ₹220
   [CO5] [L1]
   Q.7 Rakshit sold 21 tables in a day. He told his father, "My earnings at end of the day are ₹400000. The average earning from the first 11 tables I sold was ₹20000". What were his average earnings from the remaining tables?
- a) ₹9125
  b) ₹9750
  c) ₹16,363
  d) ₹18,000 [CO5] [L2]
  Q.8 The cargo ship was carrying gas cylinders from Australia to New Zealand. 3 cylinders with average weight X kg belonged to a single owner. Last minute one of the cylinders weighing 85 kg was replaced by another cylinder leading to a rise in average weight of the 3 cylinders by 7 kg. Find the weight of the new cylinder.
  a) ₹9125
  b) ₹9750
  c) ₹16,363
  d) ₹18,000 [CO5] [L2]
  d) ₹18,000 [CO5] [L2]
  - a) 79 kg b) 92 kg c) 106 kg d) 109 kg [CO5] [L1]

- Q.9 By mixing two qualities of pulses in the ratio 2: 3 and selling the mixture at the rate of ₹22 per kilogram, a shopkeeper makes a profit of 10 %. If the cost of the smaller quantity be ₹14 per kg, the cost per kg of the larger quantity is?
  a) ₹23 b) ₹25 c) None of these d) ₹24 [CO5] [L2]
- Q.10 Ajay bought 15 kg of dal at the rate of ₹14.50 per kg and 10 kg at the rate of ₹13 per kg. He mixed the two and sold the mixture at the rate of ₹15 per kg. What was his total gain in this transaction?
- a) ₹1.10
  b) ₹11
  c) ₹16.50
  d) ₹27.50
  [CO5] [L2]
  Q.11 Three pipes A, B and C can fill a tank from empty to full in 30 minutes, 20 minutes, and 10 minutes respectively. When the tank is empty, all the three pipes are opened. A, B and C discharge chemical solutions P, Q and R respectively. What is the proportion of the solution R in the liquid in the tank after 3 minutes?
- a) 5/11 b) 6/11 c) 8/11 d) 7/11 [CO5] [L2] Q.12 13 buckets of water fill a tank when the capacity of each bucket is 51 litres. How many buckets will be needed fill the same tank, if the capacity of each bucket is 17 litres? a) 33 b) 29 c) 39 d) 42 [CO5] [L1]
- Q.13 Two pipes A and B can separately fill a cistern in 40 minutes and 30 minutes respectively. There is a third pipe bottom of the cistern to empty it. If all the three pipes are simultaneously opened, then the cistern is full in 20 minutes. In how much time, the third pipe alone can empty the cistern?
- a) 120 min
  b) 100 min
  c) 140 min
  d) 80 min
  [CO5] [L1]
  Q.14
  A leak in the bottom of a tank can empty the full tank in 6 hours. An inlet pipe fills water at the rate of 4 liters a minute. When the tank is full, the inlet is opened and due to the leak, the tank is empty in 24 hours. How many liters does the tank hold?
  a) 4010 litre
  b) 2220 litre
  c) 1920 litre
  d) 2020 litre
  f(CO5) [L2]

**Directions (Q.15 to Q.19):** Study the table carefully answer the questions given below. In six years, the number of students taking admissions and leaving from the five different colleges which founded in 2010 is given below. [CO5] [L2] A- Admitted

// //umitted										
		4		В	С		D		E	
College Years	A	Ŀ	<u>A</u>	Ŀ	<u>A</u>	Ŀ	<u>A</u>	Ŀ	<u>A</u>	L
2010	1125		1050		1200		1600		1550	
2011	330	220	450	250	420	230	440	250	350	225
2012	290	210	325	215	400	250	400	260	380	230
2013	345	200	285	210	360	225	395	220	410	220
2014	380	250	300	190	340	240	420	225	440	210
2015	350	230	340	220	410	280	460	240	425	215

Q.15 What is the average number of students studying in all the five colleges in 2012? a) 1584 b) 1594 c) 1694 d) 1574 [CO5] [L1]

a) 1584 b) 1594 c) 1694 d) 1574 [C Q.16 What was the number of students studying in college B in 2014? a) 1555 b) None of these c) 1445 d) 1545 [C

a) 1555 b) None of these c) 1445 d) 1545 [CO5] [L1]
 Q.17 The number of students leaving college from the year 2010 to 2015 is approximately what per cent of the number of students taking admission in the same college and during the same year?

a) 37% b) 43% c) 39% d) 41% [CO5] [L1] Q.18 What is the difference behaviour the number of students taking admission between 2011 and 2015 in college D and B?

	a) 415	b) 395	c)	435	d)	None of th	ese	[CO5]
Q.19	In which of the follow	ving colleges, is th o 2015 the maxim	e pe	ercentage increase	in t	he number	of st	udents
Q.20	a) D Statements: All the locks are keys	b) A	c)	В	d)	С	[CO	5] [L2]
	All the keys are bats. Some watches are bat Conclusions: I. Some bats are loc II. Some watches are III. All the keys are loc a) Only I and II [L2]	ats. cks. e keys. ocks. b) Only I	c)	Only II	d)	Only I and	III	[CO6]
Q.21	Statements: Some envelops are g Some gums are seals Some seals are adhes Conclusions: I. Some envelopes a II. Some gums are a III. Some adhesives a IV. Some adhesive es	ums. s. sives. are seals. dhesives. are seals. s are gums.						
Q.22	<ul> <li>a) Only III</li> <li>Statements:</li> <li>All the bottles are boo</li> <li>All the boxes are bag</li> <li>Some bags are trays.</li> <li>Conclusions:</li> <li>I. Some bottles are</li> <li>II. Some trays are bottles are</li> <li>III. All the bottles are bottles are</li> <li>IV Some trays are bottles are</li> </ul>	b) Only I xes. s. trays. oxes. bags.	c)	Only II	d)	Only IV	[CO	6] [L1]
Q.23	a) Only III and IV [L1] Statements:	b) Only I and II	c)	Only II and III	d)	Only I and	IV	[CO6]
	Some cars are jeeps. All the boxes are jeep All the pens are cars. Conclusions: I. Some cars are bo II. No pen is jeep. III. Some boxes are c	xes.						
	a) None of three	b) Only I and II	c)	Only I and III	d)	Only II and	d III	[CO6]
Q.24	A coin is tossed twice a die is tossed. If 8 die shows a number	e if the coin shows possible outcomes greater than 4, if i	hea are t is	nd it is tossed agair e equally likely. Fir known that the firs	n bu nd t st th	it if it shows he probabil row of the	s a ta ity th coin	il then hat the results
	a) <sup>1</sup> ⁄4	b) 1/5	c)	1/2	d)	1/3	[CO	6] [L2]

- Q.25 A college is organizing an event for Carom competition involving some boys and girls. 66 games were played between 2 girl students and 210 games were played between 2 boys students. Every player needs to play exactly one game with every other player. How many games were played between a boy and a girl student?
- a) 190 b) 210 c) 230 d) 252 [CO5] [L2] Q.26 Peter is going to rob a jewelry shop, whose locker code is an even number between 100 & 500. Peter also know that the numbers used in the code is from the set: 0 to 5. Find the number of maximum trials Peter has to take to unlock the locker? a) 80 b) 75 c) 72 d) 60 [CO5] [L2]
- Q.27 Amar had 9 cars where he drives two in a day to office. If the combinations of the two cars on any given day are not the same as that on any other day, find the number of days that are required to exhaust all such combinations. On how many days will he be taking one particular car to the office during this period? a) 22 b) 24 c) 36 d) 20 [CO5] [L2]
- Q.28 A basket contains 3 brown and 4 green balls. If three balls are drawn at random. What is the probability that all the three are same colour? a) 7/5 b) 3/7 c) 1/7 d) 4/7 [CO5] [L1]
- Q.29 The probability of two persons of passing the interview are 1/3 and 3/5. Then calculate the probability that only one of them pass the interview?
  a) 7/15
  b) 8/15
  c) 11/15
  d) 13/15
  [CO5] [L1]
- Q.30The probability that the problem will be solved by three persons are 1/2, 1/3 and 1/6.Find the probability that the problem is solved?a) 11/18b) 13/18c) 15/18d) 17/18[CO5] [L2]

# **Directions (Q.31 to Q.35):** Read the following passage and answer the question. [CO1] [L2]

Bacteria are extremely small living things. While we measure our own sizes in inches or centimeters, bacterial size is measured in microns. One micron is a thousandth of a millimeter a pinhead is about a millimeter across. Rod shaped bacteria are usually from two to tour microns long, while rounded ones are generally one micron in diameter Thus if you enlarged a founded bacterium a thousand times, it would be just about the size of a pinhead. An adult human magnified by the same amount would be over a mile (1.6 kilometers) tall.

Even with an ordinary microscope, you must look closely to see bacteria. Using a magnification of 100 times, one finds that bacteria are barely visible as tiny rods or dots. One cannot make out anything of their structure. Using special stains, one can see that some bacteria have attached to them wavy - looking "hairs" called flagella. Others have only one flagellum. The flagella rotate, pushing the bacteria though the water. Many bacteria lack flagella and cannot move about by their own power while others can glide along over surfaces by some little understood mechanism. From the bacterial point of view, the world is a very different place from what it is to humans to bacterium water is as thick as molasses is to us. Bacteria are so small that they are influenced by the movements of the chemical molecules around them. Bacteria under the microscope, even those with no flagella, often bounce about in the water. This is because they collide with the water molecules and are pushed this way and that. Molecules move so rapidly that within a tenth of a second the molecules around a bacterium have all been replaced by new ones even bacteria without flagella are thus constantly exposed to a changing environment.

- Q.31 Which of the following is the main topic of the passage?
  - a) The characteristics of bacteria
  - c) The various functions of bacteria
- Q.32 Bacteria are measured in a) Inches b) Centimeters
- Q.33 Which of the following is the smallest?a) A pinhead
- b) How bacteria reproduce
- d) How bacteria contribute to disease
  - d) Millimeters
- b) A rounded bacterium

c) Microns

Q.34	c) A microscope d) A According to the passage, someone who e that magnifies 100 times would see	A rod-shaped bacterium examines bacteria using only a	microscope
Q.35	a) Tiny dots b) Small "hairs" c) The relationship between a bacterium and it of the following?	Large rods d) Detailed states discrete the discrete discr	ructures us to which
	a) A rider jumping on a horse's back b) a c) A boat powered by a motor d) a	A ball being hit by a bat A door closed by a gust of wind	
Direc	ctions (Q.36 to Q.40): Fill in the blanks belo	w to form a meaningful sentence	e: [CO1]
Q.36	Although it is necessary to carry a relatively the Australian Outback, it is that	large number of provisions when you keep your pack from bec	traversing
Q.37	a) Crucial – Ponderous b) c) Mandatory – Insulated d) After living a life of depravity and transgre declared he would become a priest, and dev a) Terrible – sin b) c) Remorseful – Atonement d)	Helpful – Elongated Important-Convoluted ession, the offender felt so rote the remainder of his life to Tentative – Shame Melancholv- Sadness	that he 
Q.38	He vowed to embrace a newfound accused resorted to his typical manner of a) Passion – Exuberance b)	once the trial began; nonet as soon as he took the star Candor – Duplicity	heless the nd.
Q.39	c) Residence – Decrepitude d) Despite some members of the Board of E argument, Proposition G6 was still denied by	Hobby- Deceitfulness Education admitting to the ( a vote of 4 to 3.	of his
Q.40	a) Force b) Negligence c) Mr. Plainview is a man of secrecy. He organizations and regularly participates in the	Cogency d) Brusquenes deals with the mob and oth	ss er
	a) Amiable– Illegitimate b) c) Disdainful – Scrupulous d)	Anarchistic – Fraudulent Clandestine – Unlawful	
Q.41	Quadrant 4 of Covey's Time Management Ma a) Urgent & Important b)	atrix categorizes things/tasks whi Not Urgent & Important	ch are:
Q.42	c) Not Urgent & Not Important d) What is NOT the best attire to wear for an in a) Tattered leans and Vest b)	Urgent & Not Important nterview? 3 Piece Business Suit	[CO4] [L2]
	c) Semi Casuals did Vest b)	Black Trouser & White Shirt	[CO3] [L2]
Q.43	One of the main part of the resume that incl	udes the address and the contact Heading d) Body	t details is
Q.44	The cumulative action of a team in which	an individual member keeps as	ide his/her
	interests and opinions to fulfill the objectives	s or goal of the group is known as Group d) Club	5 [CO3] [I 1]
Q.45	Which of the following should not be include	ed in the resume?	
	c) Details of problems faced in past d)	Your Skills, Qualification & Experi Your Knowledge about the Co.	ence [CO4] [L2]
Q.46	Select the location where the name and add a) Bottom left corner b)	ress can be mention in a skills pro Top right corner	ofile?
0 47	c) Top left corner d)	None of these	[CO4] [L2]
Q.47	[CO2][L2]		
Q.48	<ul> <li>a) Leader</li> <li>b) Initiator</li> <li>c) A</li> <li>Which of the following is a benefit of preparation</li> <li>a) Improved answers to tricky questions</li> <li>b) Improved ownership facts about compana</li> </ul>	All of the above d) Controller ation about Employer? Y	[CO4] [L2]

- c) Improved Outcome
- d) All of the above
- Q.49 The group discussion assesses the candidate's ability to:
  - a) Control others
  - c) Argue with others

- b) Confer with others on a specified subject d) Lead others [CO3] [L1]
- Q.50 "Tease" or "stress" questions are asked to judge the candidate's.
  - a) Intelligence quotient
  - c) How the candidate handles them
- b) Technical skill d) Stress level

[CO4] [L1]

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[CO4] [L1]

B. Sc. (Information Technology) – Fourth Semester OPERATING SYSTEMS (COMP-621)

l ime:	3 h	Irs.	Max Marks: <b>100</b> No. of pages: 2
Note:	Ata frc qu	tempt <b>FIVE</b> questions in all; <b>Q.1 is c</b> om <b>PART-A</b> and <b>TWO</b> questions from <b>I</b> pestion.	ompulsory. Attempt any TWO questions PART-B. Marks are indicated against each
Q.1	M	ultiple choice questions:	
	a)	<ul> <li>i) Enables the programmer to draw a f</li> <li>ii) Provides a layer, user friendly interfa</li> <li>iii) Links a program with subroutine it re</li> <li>iv) All of the above.</li> </ul>	low-chart ace eferences
	b)	FIFO scheduling is	[CO-3] [L-1]
		i) Fair-share scheduling	ii) Deadline scheduling
	->	iii) Non-preemptive scheduling	iv) Pre-emptive scheduling
	C)	what is the name of the operating syst	
		i) Real time system	ii) Time sharing system
		iii) Ouick response time	iv) Batch system
	d)	Because of virtual memory, the memory	v can be shared among: [CO-4] [L-1]
	,	i) Processes ii) Threads	iii) Instructions iv) None of the above
	e)	is the concept in which a p	rocess is copied into main memory from the
		secondary memory according to the req	uirement. [CO-3] [L-1]
		i) Paging	ii) Demand paging
	£١	III) Segmentation	IV) Swapping
	1)	i) Allocate the space in file system	ii) make an entry for new file in directory
		iii) Both i) and ii)	iv) none of the above
	g)	File type can be represented by:	[CO-4] [L-1]
		i) File name ii) File extension	iii) File identifier iv) None of the above
	h)	What are the requirements for the solut	ion to critical section problem? [CO-3] [L-1]
		i) Mutual exclusion	ii) Progress
		iii) Bounded waiting	iv) All of the mentioned
	I)	i) Notwork operating system	ii) Real time operating system
		iii) Batch operating system	iv) Unix operating system
	i)	A program in execution is called:	[CO-2] [L-1]
	"	i) A page ii) A process	iii) A virtual memory iv) A Demand page
			2×10
		PART	<u>-A</u>
Q.2	a)	What is an operating system and what	are the goals and functions of an operating

b) What is a process and what are the different states of a process?

synchronization. Give reasons for requirement of process

in

multiprogramming environment. Explain in detail with adequate examples.

an

Operating

system

environment

system?

Multiprogramming

Q.3

P. T. O 123

process

[CO-1] [L-1] **10** 

[CO-1] [L-1] **10** 

[CO-2] [L-2] **20** 

synchronization in

supports

Q.4 State the purpose of CPU scheduling. Several algorithms have been developed for CPU scheduling. Explain the well-known CPU scheduling algorithms. [CO-3] [L-2] **20** 

- Q.5 Deadlock occurs in many situations in our daily lives. Define deadlocks in operating system. Illustrate the situations where deadlock occurs. [CO-3] [L-3] **20**
- Q.6 Memory Management is a technique to efficiently utilize the fixed amount of memory to allocate it to various processes for their execution. Classify the various methods involved in memory management. [CO-3] [L-4] **20**
- Q.7 List four operations performed on files. Describe these operations and give examples. [CO-4] [L-2]**20**

B. Sc. (Information Technology) – Fifth Semester INFORMATION TECHNOLOGY PROJECT MANAGEMENT (COMP701A)

Time: 3 hrs.

Max Marks: 100

No. of pages: 1

- Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 Answer the following in brief:
  - a) Write the advantage of Perl chart.
  - b) Define 'project control'.
  - c) List the activities of project management.
  - d) List down any four govt. IT projects initiated in last 5 years.
  - e) What is risk management?
  - f) Write any two challenges faced by the project manager.
  - g) Give names of three tools for project quality management.
  - h) What is project closure analysis?
  - i) Define 'project management'.
  - j) Name 4 qualities of a 'project manager'. [CO1, 2, 3, 4, 5, 6] [L1, 2, 3] **2×10**

#### <u>PART-A</u>

- Q.2 a) "Project manager plays a key role". How does a project manager play the key role? [CO1] [L2] **10** 
  - b) Explain the structured approach of project planning with example. [CO1] [L2] **10**
- Q.3 a) Describe the life cycle stages in project management including selection, goal setting. [CO2] [L2] **10** 
  - b) Explain the importance of planning. How planning can help us to overcome failure?

[CO2] [L2] **10** 

[CO5] [L2] 5×2

- Q.4 a) What is the role of a critical path in project planning? What are the steps that you will take to do risk planning? [CO3] [L2] **10** 
  - b) How resource loading and leveling are done in project resource allocation? [CO3] [L4] **10**

- Q.5a) We use QA and QC for ensuring the quality of the final deliverables. What's the<br/>difference between them?[CO4] [L2] 10
  - b) What is Gantt chart? How Gantt chart helps in project scheduling? Give a suitable example to support your answer. [CO4] [L4] **10**
- Q.6 a) Write short notes on:
  - i) Project evaluation.
  - ii) Auditing.
  - b) In which situation the project is terminated? .lustily your answer with a suitable example. [CO5] [L2] **10**
- Q.7a) We all are aware of conflict management techniques that can be applied for managing<br/>conflicts between stakeholders and team members. Elaborate.[CO6] [L2] 10
  - b) Describe the various types of organizations and identify their suitability for the different projects. [CO6] [L2] 10

B. Sc. (Information Technology) – Fourth Semester SERVER ADMINISTRATION (CONE618)

Time: 3 hrs.

Max Marks: 100

No. of pages: 1

[CO-2] [L-1]

[CO-2] [L-1]

[CO-3] [L-1]

[CO-2] [L-1]

[CO-3] [L-1]

[CO-4] [L-1]

[CO-4] [L-1]

[CO-3] [L-1]

[CO-3] [L-1]

[CO-2] [L-1] 2×10

[CO-2] [L-1] 5×4

- Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 Answer the following in brief:
  - a) What are users, groups and OUs and their relationships?
  - b) What are windows server 2012 Roles?
  - c) What are user properties and computer properties?
  - d) What are group policy sections?
  - e) What are dialup PPP and VPN networks?
  - f) How do we configure network access policies?
  - g) What is BitLocker drive encryption?
  - h) What is distributed file system?
  - i) What are failover cluster hardware, network and requirements?
  - j) Explain RAID, MPIO, ISCi and ISNS.

#### PART-A

- Q.2 Explain the concept of windows remote management and file system introduction and setup. [CO-1] [L-1] **20**
- Q.3 Write short notes on:
  - a) Active directory groups.
  - b) Introduction to DNS.
  - c) Filtering and advanced active directory features.
  - d) DNS queries and DNS database zones.
- Q.4 What is the difference between group policy, script policy and loopback policy? How can we manage group policy inheritance, security filtering and assigning permissions of a group policy? [CO-3] [L-2] **20**

- Q.5 Explain the concept of routing, routing tables, and routing types. Pen down your views on IP routing and VPN protocols. [CO-3] [L-3] **20**
- Q.6 What do you mean by BitLocker drive encryption? What is branch cache? Write its main features. [CO-3] [L-1] **20**
- Q.7 Write short notes on:
  - a) Implementing disaster recovery.
  - b) Backup and recovery of active directory.
  - c) Configuring windows firewall.
  - d) WBB admin and VSS admin.

#### B.Sc. (Information Technology) – Fifth Semester ADVANCE COMPUTER NETWORKING (CONE710)

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

- Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 Answer the following multiple choice questions:
  - a) What is congestion control in the transport layer?
    - i) A technique to prevent data packets from being lost during transmission.
    - ii) A mechanism to manage the flow of data packets in a network.
    - iii) A method to prevent unauthorized access to a network.
    - iv) A protocol used to establish a connection between two devices.
  - b) Which of the following is NOT a congestion control technique used in TCP?
    - i) Window scaling ii) Congestion avoidance
    - iii) Random early detection (RED) iv) Stop-and-wait
  - c) Which of the following is not a wireless networking technology?
    - i) Bluetooth ii) Wi-Fi
    - iii) Ethernet
  - d) Which of the following is NOT a reason for network congestion?
    - i) High network traffic
    - ii) Slow network links
    - iii) Large number of devices in the network
    - iv) Strong network security measures
  - e) Which layer of the OS1 model is responsible for error detection and correction?

iv) NFC

- i) Network layer
- ii) Transport layer
- iii) Data link layer
- f) What is a WAN?
  - i) A type of local area network (LAN)
  - ii) A virtual network that spans across multiple geographic locations
  - iii) A type of wireless network
  - iv) A network protocol used for routing between VLANs
- g) What is the main function of a router in a network?
  - i) To connect multiple LANs
  - ii) To connect a LAN to a WAN
  - iii) To connect two different networks
  - iv) To connect multiple devices on a LAN
- h) Which of the following is an example of a transport layer protocol?
  - i) HTTP ii) FTP
  - iii) TCP iv) SMTP
- i) Which layer of the OSI model is responsible for routing and switching?
  - i) Network layer ii) Transport layer
  - iii) Data link layer iv) Physical layer
- j) Which transport layer protocol does NOT provide congestion control?
  - i) TCP
  - ii) UDP
  - iii) SCTP (Stream control transmission protocol)
  - iv) RDP (Reliable data protocol)

[CO1, 2, 3, 4] [L1, 2, 3, 4] **2×10** 

#### PART-A

- Q.2a) Describe the different types of network devices, including hubs, switches, routers,<br/>and gateways. Explain their functions[CO4] [L2] 10
  - b) Explain the different layers of OSI with the help of suitable diagram. [CO3] [L3] **10**
- Q.3 Explain the difference between TCP and UDP protocols. [CO4] [L2] **20**
- Q.4 a) Explain the protocols commonly used for transferring multimedia data over the network. [CO5] [L3] **10** 
  - b) Explain the different types of transmission media used in networking. Discuss the advantages and disadvantages of each. [CO2] [L3] **10**

- Q.5a) Compare and contrast the operation and benefits of two popular VLAN protocols:<br/>IEEE 802.1Q and virtual trunk protocol (VTP).[CO4] [L5] 10
  - b) Explain various congestion control mechanisms and algorithms used in transport layer protocols. [CO4] [L4] **10**
- Q.6 Explain the following high-level Wide Area Network (WAN) protocols:
  - a) Frame relax.
  - b) Asynchronous transfer mode (ATM).
  - c) Multiprotocol label switching (MPLS).
  - d) Frame-relay protocol.
- Q.7 Explain the concept of quality of service (QoS) in computer networks. How does QoS ensure reliable and efficient network performance? [CO4] [L2] **20**

MCA – First Semester

#### FUNDAMENTALS OF COMPUTER PROGRAMMING (MCA-DS-001)

Time:	3 h	nrs.	Max Marks: <b>100</b> No. of pages: 2
Note:	Att <b>PA</b> qu	tempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>con</b> <b>ART-A</b> and <b>TWO</b> questions from <b>PA</b> vestion.	<b>npulsory</b> . Attempt any <b>TWO</b> questions from <b>ART-B.</b> Marks are indicated against each
Q.1	М	ultiple choice type of questions:	
	a)	Size of float data type.	
		i) 16 bits ii	) 8 bits
		iii) 32 bits iv	/) Null
	b)	Which of the following will not return a	a value?
		i) Null ii	) Void
		iii) Int iv	/) Free
	c)	The data elements in structure are also	o known as what?
		i) Objects ii	) Members
		iii) Data iv	<ul><li>None of the above</li></ul>
	d)	How many type of comments are there	e in Java?
		i) 1 ii	) 2
		iii) 3 iv	/) 4
	e)	Where does the execution of the progr	am starts in Java?
		i) User-defined function ii	) Main function
	_	iii) Void function iv	<ol> <li>None of the above</li> </ol>
	f)	Which symbol is used to take output in	C++ programming?
		i) & ii	) >>
	_	iii) << iv	/) #
	g)	Which header file is used for sqrt() ope	erations?
		i) stdlib.h ii	) string.h
		iii) stdarg.h	/) math.h
	h)	Which header file is used for string ope	erations?
		i) stdlib.h	) string.h
		iii) stdarg.h	/) math.h
	i)	What will be the output of the following	g code snippet?
		1) #include <stdio.h></stdio.h>	
		2) int main() {int $a = 3, b = 5$ ; intt =	a; a = b; b = t; printf("%d %d", a, b);return
		0;}	
		i) 3 3 ii	) 35
		iii) 5 5 iv	/) 5 3
	j)	Who is the father of Java language?	
		i) Steve Jobs	) James Gosling
	_	iii) Dennis Ritchie iv	<i>i</i> ) Rasmus Lerdorf[CO2, 3, 4,] [L1, 2, 3]
	<b>2</b> ×	<10	
		PAR	<u>T-A</u>

- Q.2 a) Differentiate between 'open source' and 'license software' with suitable examples.
   [CO2] [L3] 10
   b) Differentiate between 'high level' and 'low level' language.
   [CO4] [L3] 10
- Q.3 Describe the difference between 'server side vs. client side' programming. [CO3][L4] 20
- Q.4 Explain the open source software. How do you contribute to an open source project? 129 P.T.O.

- Q.5 What is ooPS? Explain the concepts of ooPS with real life example along with syntax in any syntax. [CO5] [L2] **20**
- Q.6 Differentiate between 'pseudo code and algorithm' with suitable example. [CO2] [L2] 20
- Q.7 a) Write a program for printing the table and explain using flow chart. [CO3] [L1] 10
   b) Write a program for calculation qf simple interest and explain it with flow chart. [CO3] [L1] 10

MCA – Third Semester

# LINEAR ALGEBRA AND STATISTICAL TECHNIQUES (MCA-DS-301)

Time:	3 h	rs.	Max Marks: <b>10</b> No. of pages:	<b>10</b> 2
Note:	Att <b>PA</b> que	tempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>co</b> I <b>RT-A</b> and <b>TWO</b> questions from I estion.	<b>pmpulsory</b> . Attempt any <b>TWO</b> questions from <b>PART-B.</b> Marks are indicated against each	n h
Q.1	<b>Ch</b> a) b) c)	How many solutions does a quadratic i) One iii) Three The determinant of Null matrix is: i) 1 iii) Depends on the matrix What are eigen values of idemponen i) 0 or 1 iii) Depends on the matrix $A = \begin{bmatrix} 2 & 1 & 1 \\ 3 & 2 & 1 \\ 1 & -1 & 3 \end{bmatrix}$ is skew so	c equation have? ii) Two iv) Four ii) 0 iv) None of the these t matrix? ii) 0 iv) 1 and 2 wmetric.	
	ч)	i) True	ii) False	
	e) f)	Let A be a nil potent matrix of order i) $A^n = O$ iii) $A = nI$ , I is Identity matrix The mean often numbers is 58. If o of the other nine?	n then. ii) nA = O iv) None of the above ne of the numbers is 40 then what is the me	an
		i) 18 iii) 162	ii) 60 iv) 540	
	g)	The mean of 11 numbers is 7. One of the remaining 10 numbers? i) 7.7 iii) 6.0	ii) 6.4	an
	h)	In a binomial distribution, if 'n' is the success, then the mean value is give i) np iii) p	ne number of trials and 'p' is the probability n by ii) n iv) np(1-p)	of
	i)	<ul><li>Feasible region is the region in the se</li><li>i) The objective functions</li><li>iii) All of the given constraints</li></ul>	ii) Some the given constraints	
	j)	<ul> <li>In normal distribution:</li> <li>i) Mean = Median = Mode</li> <li>iii) Mean &gt; Median &gt; Mode</li> </ul>	<ul> <li>ii) Mean &lt; Median &lt; Mode</li> <li>iv) Mean ≠ Median ≠ Mode [CO1, 3] [L1] 2×3</li> </ul>	10
		PAI	х <i>і-</i> м	

Q.2 a) Consider the abelian group  $G = \{1, 2, 3, 4, 5, 6, 7\}$  under multiplication modulo 7. i) Find the multiplication table.

ii) Find  $5^{-1}$ ,  $6^{-1}$ ,  $7^{-1}$ [CO2] [L4] **10**  $A = \begin{bmatrix} 4-x & 4+x & 4+x \\ 4+x & 4-x & 4+x \end{bmatrix} = 0$ 4 + x + 4 + x + 4 - x, find x. [CO2] [L4] 10 b) Evaluate the determinant of a matrix a) Solve the following system using the augmented matrix M: 3x - 9z = 337x - 4y - z = -154x + 6y + 5z = -6[CO3] [L4] **10** b) The set of all values of/, for which the system of linear equations:  $2x_1 - 2x_2 + x_3 = \lambda x_1$   $2x_1 - 3x_2 + 2x_3 = \lambda x_2$ ,  $-x_1 + 2x_2 = \lambda x_3$  has a non-trivial solution. [CO3] [L4] **10** a) Discuss the consistency of the system of equations: x - y + z = 0x + 2y - z = 02x + y + 3z = 0[CO3] [L5] **10** 

b) Verify the Cayley-Hamilton theorem for the matrix  $A = \begin{bmatrix} 2 & 1 & 1 \\ 3 & 2 & 1 \\ 1 & -1 & 3 \end{bmatrix}$ , and hence find  $A^{-1}$ . [CO3] [L5] **10** 

#### <u>PART-B</u>

- Q.5 a) A problem is given to three students whose chances of solving it are 1/2, 1/3 and 1/4 respectively. What is the probability that the problem will be solved? [CO4] [L4] **10** 
  - b) A factory produces blades in packets of 10. The probability of blades to be defective is 0.2%. Find the number of packets having two defective blades in a consignment of 10000 packets. [CO4] [L5] 10
- Q.6 a) What is meant by goodness of fit test? Explain with suitable example. [CO5] [L6] 10
  b) The median of the following data set is 525. Find the values of *x* and *y*. if the total frequency is 100. [CO5] [L5] 10

Marks	0-100	100-200	200-100	300-400	400-500	500-600	600-700	700-800	800-900	900-1000
No. of	2	5	Х	12	17	20	Y	9	7	4
Students										

Q.7 a) Solve the following linear programming problem simplex method. Maximize Z = 50 x + 60 y subject to the constraints:  $2x + y \le 300$  $3x + 4y \le 509$ 

 $5x + 4y \le 509$  $4x + 7y \le 812$  $x \ge 0, y \ge 0$ 

Q.3

Q.4

[CO6] [L5] **10** 

b) Niki holds two part-time jobs, job I and job II. She never wants to work more than a total of 12 hours a week. She has determined that for every hour she works at job I. she needs 2 hours of preparation time, and for every hour she works at job II, she needs one hour of preparation time, and she cannot spend more than 16 hours for preparation. If she makes \$40 an hour at job I, and \$30 an hour at job II, how many hours should she work per week at each job to maximize her income? [CO6] [L5] **10** 

# End Semester Examination, May 2023 MCA – First Semester

DATA STRUCTURES (MCA-DS-302)

Time:	3 h	3 hrs.	Max Marks: <b>100</b> No. of pages: 2
Note:	Ati <b>PA</b> qu	Attempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>compulsory</b> . <b>PART-A</b> and <b>TWO</b> questions from <b>PART-B.</b> M question.	Attempt any <b>TWO</b> questions from larks are indicated against each
Q.1	Cł	Choose the correct option:	
	a)	a) What is the postfix form of the following prefix $st$	+ab–cd?
		i) ab+cd-* ii) abc+*-	
		iii) ab+*cd- iv) ab+*cd	_
	b)	b) A queue is a,	
		i) FIFO (first In First Out) list. ii) FIFO (Li	ast In First Out) list.
	$\sim$	III) Ordered array. IV) Linear t	ree.
	C)	i) Branch	
		iii) Tree iv) Stack	
	d)	d) In Breadth First Search of Graph, which of the fo	llowing data structure is used?
	۵)	i) Stack. ii) Oueue.	
		iii) Linked List. iv) None of	the above.
	e)	e) The largest element of an array index is called its	S:
	-	i) lower bound. ii) range.	
		iii) upper bound. iv) All of th	ese.
	f)	f) How many nodes in a tree have no ancestors?	
		i) 0 ii) 1	
	、	iii) 2 iv) n	
	g)	g) Which data structure is used for implementing re	ecursion?
		I) Queue. II) Stack.	
	h)	III) Alldys. IV) LISL.	
	11)	i) Binary Search ii) Linear S	Search
		iii) Tree Search iv) Hashing	
	i)	The complexity of multiplying two matrices of or	, der m*n and n*p is:
	.,	i) mp ii) mp	
		iii) mn iv) np	
	j)	i) A(n) is a graph in which each conr	nection has two directions.
		i) undirected graph ii) Weighte	ed graph
		iii) bidirectional graph iv) None of	the above2×10
		<u>PART-A</u>	
Q.2	a)	a) What is stack? What are the basic operations as	sociated with stack? <b>10</b>
-	b)	b) Convert the expression into its postfix form and	also evaluate it. Write the algorithm
		for conversion of infix into postfix:	
		5*(6+2)-12/4	[CO2, 4] [L1, 2] <b>10</b>
Q.3	a)	a) Write the routine to insert and delete an element	t in a queue. 8
	b)	b) Convert the following infix expression into postfix	x expression.
		$A^{*}(b + c) + (b/d)^{*}a + z^{*}u$	
		P + (Q*K−(S/T^U)*V)	[CO5] [L2, 3] <b>12</b>

P.T.O. 133

- a) How polynomial manipulations are performed with lists? Explain the operations. Q.4 8
  - b) Explain the steps involved in insertion and deletion into a singly linked list at beg. mid., end. Also explain it diagrammatically. [CO7] [L3, 6] **12**

#### PART-B

- Q.5 a) What are various ways to represent a tree in memory?
  - b) Differentiate between 'trees and graphs'.
  - c) What are various tree traversal methods?
  - d) How can we construct a B Tree?
- Q.6 a) Construct a tree by using following data: Preorder G B Q A C K F P D E R H

QBKCPAGPEDHR Inorder

- [CO8] [L6, 2] **12** b) Explain insertion sort in details write an algorithm for it. Discuss the complexity of insertion sort. [CO8] [L6, 2] **8**
- Q.7 a) Write a brief note on the following:
  - i) AVL Tree.
  - ii) Representation of graph in memory.
  - b) Write a brief note on hashing. Explain hash functions in details. [CO 10] [L2, 4] 10

[CO8] [L2] **5×4** 

CO 10] [L2, 4] **5×2** 

MCA – First Semester

#### **OBJECT ORIENTED PROGRAMMING IN JAVA (MCA-DS-303)**

Time: 3 hrs.

Max Marks: 100

No. of pages: 1

[CO1] [L1]

[CO3] [L2]

[CO3] [L1] 2×10

[CO1] [L1] **10** 

[CO1] [L1] **10** 

- Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from PART-A and TWO questions from PART-B. Marks are indicated against each question.
- Answer the following in brief: Q.1
  - a) What is the need of JDK and JVM for Java?
  - b) Write down the commands needed to compile and interpret a Java file. [CO1] [L1]
  - c) Explain type casting.
  - [CO1] [L1] d) Differentiate between empty and parameterized constructors. Which one is default constructor? [CO2] [L1]
  - e) Can constructor and interface be extendable?
  - f) Multiple inheritance in C++ leads to data duplication in child classes. How does Java overcome this inconsistency? [CO5] [L2] [CO5] [L1]
  - q) Write a note on: 'garbage collector'.
  - h) Differentiate between 'handling the exception by throw and throws keyword'. [CO5] [L1] [CO6] [L1]
  - i) Draw the life cycle of an applet.
  - j) Define 'Abstract Class'.

## PART-A

- Q.2 a) Differentiate between Java and Internet. b) Explain main features of Java.
- Q.3 a) Differentiate between multiple and multi-level inheritance. Give suitable example of each type. [CO2] [L1] **10** 
  - b) What is constructor overloading? Justify it with an example. [CO2] [L2] **10**
- Q.4 Define 'interface' with an example. Can interface be extended? If yes, justify the [CO3] [L2] **20** answer.

## PART-B

- Explain the thread along with its life cycle. Also, explain multithreading with an Q.5 example. [CO5] [L3] **20**
- a) What is an event handling? Explain event delegation model in detail. [CO3] [L3] **10** Q.6 b) Describe 'applet'. How an applet can be run? [CO3] [L3] **10**
- a) Define AWT. How a button can be added on the frame via frame class? [CO6] [L2] 10 Q.7 b) Define 'JDBC'. Explain different types of JDBC drivers. [CO3] [L3] **10**

MCA – Third Semester

#### WEB APPLICATIONS DEVELOPMENT USING PHP (MCA-DS-305)

Note:	Ata <b>PA</b> qu	tempt <b>FIVE</b> questions in all; <b>Q.1</b> is <b>co</b> <b>IRT-A</b> and any <b>TWO</b> questions from estion.	omp n PA	ulsory. ART-B.	Attempt any Marks are il	No <b>TWO</b> qu ndicated	o. of pages: 2 lestions from against each	<b>)</b>
Q.1	M	ultiple choice questions:						
	a)	Which of the following is correct to a	idd a	comme	ent in PHP?			
		I) & &	II) /	// ::)  ::	:)			
	<b>հ</b> )	III) $/^{+}$ $/$	l (VI	ii) and ii the outr				
	D)	i) ocho	piay	uie ouu				
		ii) print	iv) i	i) and iii	)			
	c	What does PEAR stands for?	10)	i) and iii	)			
	ري	i) PHP extension and application rel	posit	orv.				
		ii) PHP enhancement and application	n rec	luce.				
		iii) PHP event and application reposit	tory.					
		iv) None of the above	,					
	d)	Which of the following is used for co	ncate	enation	in PHP?			
		i) + (plus)	ii)	* (Aster	isk)			
		iii) . (dot)	iv) a	append(	()			
	e)	Which of the following starts with	_ (do	uble und	derscore) in l	PHP?		
		i) Inbuilt constants	ii)	User-de	fined constar	nts		
	0	III) Magic constants	IV)	Default	constants			
	T)	PHP stands for:	::>					
		i) Hypertext preprocessor	)   )	Pretext I Nono of	the above	eprocesso	)r	
	a)	Who is known as the father of PHP?	10)					
	9)	i) DrekKolkevi	ii)	l ist hare				
		iii) Rasmusl erdrof	iv)	None of	the above			
	h)	Variable name in PHP starts with:	,					
	.,	i) ! (Exclamation)	ii)	\$ (Dolla	r)			
		iii) & (Ampersand)	iv)	, # (Hash	)			
	i)	Which of the following is the default	file e	extensio	n of PHP?			
		i) .php	ii)	.hphp				
		iii) .xml	iv)	.html				
	j)	Which of the following is not a varial	ole so	cope in l	PHP?			
		i) Extern	ii)	Local				_
		III) Static	IV)	Global			2×10	J
		PAL	RT-	<u>A</u>				
Q.2	a)	What is for each loop? Write a progra	am ι	ising for	each loop.		[CO1] [L6] <b>1</b>	D
-	b)	Design a registration page for the e-	mail	account	using HTML		[CO1] [L5] <b>1</b>	D

- Q.3a) Define introspection and explain it with suitable example.[CO2] [L5] 10b) Differentiate between session and cookies.[CO2] [L5] 10
  - \_

Max Marks: 100

Time: 3 hrs.

Q.4	<ul><li>a) Differentiate between implode and explode functions.</li><li>b) Define session and explain how it works.</li></ul>	[CO3] [L2] <b>10</b> [CO3] [L1] <b>10</b>
	<u>PART-B</u>	
Q.5	<ul><li>a) Write update and delete operations on table data.</li><li>b) State the variable function. Explain it with example.</li></ul>	[CO4] [L1] <b>10</b> [CO4] [L2] <b>10</b>
Q.6	<ul> <li>a) Explain the concept of serialization with example.</li> <li>b) Explain the terms given below: <ul> <li>i) Get session variables.</li> <li>ii) Destroy session.</li> <li>iii) Explain inserting.</li> <li>iv) Retrieving the query result operations.</li> </ul> </li> </ul>	[CO5] [L2] <b>10</b> [CO5] [L2] <b>2½×4</b>
Q.7	<ul><li>a) Create a web page using GUI components.</li><li>b) Write a program to connect PHP with My SQL.</li></ul>	[CO6] [L5] <b>10</b> [CO6] [L5] <b>10</b>

### End Semester Examination, May 2023 MCA - Second Semester DATA COMMUNICATIONS (MCA-DS-402)

Time: 3 hrs.

Max Marks: **100** 

No. of pages: 2

[CO2][L1]

- Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question.
- Q.1 Choose the correct option:
  - a) The \_\_\_\_\_\_ is the physical path over which a message travels.
    - i) Protocol ii) Medium iv) All of the above [CO3][L1] iii) Signal
  - b) \_\_\_\_\_transmission is required for keyboard and computer communication. i) Full-Duplex ii) Half-Duplex iv) None of the above iii) Simplex [CO1][L1] c) \_\_\_\_\_\_ is the protocol suite for the current Internet.
  - i) UNIX ii) NCP iv) ACM iii) TCP/IP d) Which topology needs a hub or central controller?
  - i) Bus ii) Star iii) Ring iv) Mesh
  - [CO2][L1] e) The information to be sent in a data communications system is the\_\_\_\_\_.
  - i) Mediumii) Protocoliii) Transmissioniv) Messagef) Measures of a network'sinclude failure frequency and network recovery time after a failure.
    - i) Performance ii) Security
  - iv) Feasibility iii) Reliability [CO1][L1] g) Bits are converted into electromagnetic impulses via the \_\_\_\_\_ layer.
  - i) Physical ii) Transport iii) Data Link iv) None of these [CO4][L1]
  - h) \_\_\_\_\_ can impair a signal.
  - i) Noise ii) Attenuation iv) All of the above [CO3][L1] iii) Distortion
  - i) Protocol for transmission control (TCP) \_\_\_\_\_\_.
    - i) Is a connection-oriented protocol
    - ii) Uses a three-way handshake to establish a connection
    - iii) Receives data from application as a single stream iv) All of the above [CO5][L1]
  - i) The layer is between the session layer and the application layer. i) Physical ii) Presentation
    - iii) Transport iv) None of these [CO4][L1] **2×10**

## PART-A

- a) Explain data communication and its basic components. Also explain its Q.2 characteristics. [LO1][CO1] **10** 
  - b) What is network topology? Explain the different network topologies.

[LO1][CO1] **10** 

Q.3 a) Describe the OSI model and its layers.b) Explain the difference between TCP and OSI model.

Q.4 What do you mean by switching? What are the three basic switching techniques and which is preferable? [LO2][CO2] **20** 

#### <u>PART-B</u>

- Q.5 Discuss the various data encoding methods and their use in data transfer. For the provided data, illustrate various digital-to-digital data encoding methods:
  - a) 11101101
  - b) 01111101
  - c) 11110010
  - d) 10000111

[LO3][CO4] **20** 

[LO2][CO2] **10** 

[LO2][CO2] **10** 

- Q.6 a) What is the Data link layer's primary purpose? [L2][CO5] 10
  b) Given the data word 101011110 and the divisor 1011, show the generation of CRC codeword at the sender site. [CO5] [L4] 10
- Q.7Provide a detailed explanation of the architecture and operation of the IEEE 802.11<br/>standard. Explain how logic link control works.[CO6] [L4] 20

MCA – First Semester

#### **ANALYSIS AND DESIGN OF ALGORITHM (MCA-DS-403)**

Time:	3 hrs.	Max Marks: <b>100</b> No. of pages: 2
Note:	Attempt <b>FIVE</b> questions in all; <b>Q.1 is c</b> from <b>PART-A</b> and <b>TWO</b> questions from question.	ompulsory. Attempt any TWO questions PART-B. Marks are indicated against each
Q.1	<ul> <li>Multiple choice questions:</li> <li>a) Strassen's algorithm is a/ani) Non-recursive ii) Recursive</li> <li>b) Kruskal's algorithm is used toi) find minimum spanning tree</li> <li>iii) find all pair shortest path algorithm</li> <li>c) What is the objective of the knapsack p</li> <li>i) To get maximum total value in the k</li> <li>ii) To get minimum total value in the k</li> <li>iii) To get minimum weight in the knap</li> <li>iv) To get minimum weight in the knap</li> <li>d) The main time taking step in fractional</li> <li>i) Breaking items into fraction</li> </ul>	algorithm. [CO-3] [L-1] iii) Approximation iv) Accurate [CO-3] [L-2] ii) find single source shortest path iv) traverse the graph roblem? [CO-3] [L-2] snapsack napsack napsack sack sack knapsack problem is [CO-4] [L-1] ii) Adding items into knapsack iv) Looping through sorted items
	<ul> <li>e) If a problem can be solved by comb problems, the strategy is called</li></ul>	ining optimal solutions to non-overlapping [CO-4] [L-1] ii) Greedy iv) Recursion
	<ul> <li>f) A greedy algorithm can be used to solver i) True</li> </ul>	e all the dynamic programming problems. ii) False [CO-3] [L-2]
	<ul><li>g) Steps of divide and conquer approach s</li><li>i) Divide, conquer and combine</li><li>iii) Combine, divide and conquer</li></ul>	elect one: [CO-3] [L-1] ii) Combine, conquer and divide iv) Divide, combine and conquer
	<ul> <li>h) The problem of finding a path in a gr called:</li> <li>i) Hamiltonian path problem</li> <li>iii) Subset sum problem</li> </ul>	aph that visits every vertex exactly once is [CO-5] [L-1] ii) Hamiltonian cycle problem
	<ul> <li>i) Which of the following methods can be us</li> <li>i) Brute force algorithm</li> <li>ii) Recursion</li> <li>iii) Dynamic programming</li> <li>iv) Brute force, recursion and dynamic</li> </ul>	programming
	j) Compare algorithm and program.	[CO-2] [L-5] <b>2×10</b>
	PART	<u>-A</u>

- Q.2 a) What do you mean by asymptotic notations? List each notation and explain what it signifies? [CO-2] [L-1] **10** 
  - b) What are various ways to check the performance of an algorithm? Write an algorithm to delete an element from the array. [CO-2] [L-1] **10**

- What do you understand by sorting? Compare internal and external sorting. Write an Q.3 algorithm to sort the list using guick sort method. Also, sort the following list using quick sort method and show each step: [CO-3] [L-2] 20
- Q.4 a) What do you understand by knapsack problem? Consider that the capacity of the knapsack W = 60 and the list of provided items are shown in the following table. Use greedy algorithm.

Item	A	В	С	D
Profit	280	100	120	120
Weight	40	10	20	24

Find the profit.

b) Given the jobs, their deadlines and associated profits as shown:

Jobs	J1	J2	J3	J4	J5
Profit	20	15	10	5	1
DeadLine	2	2	1	3	3

- i) Write the optimal schedule that gives maximum profit.
- ii) Are all the jobs completed in the optimal schedule?
- iii) What is the maximum earned profit?

# PART-B

- Q.5 a) What is travelling sales man problem? Discuss with the help of an example.
  - b) Define the following with an example:
    - i) Dynamic programming.
    - ii) Optimal binary search tree.
- Q.6 Compare backtracking and branch and bound approach. Define hamiltonian circuit and path. Identify possible hamiltonian circuits using backtracking for the following:



- b) Deterministic and Non-deterministic algorithm.
- c) NP hard and NP complete.

[CO-5] [L-5] **20** 

[CO-6] [L-2] **20** 

[CO-3] [L-3] **10** 

[CO-4] [L-2] 10

[CO-4] [L-1] **10** 

[CO-3] [L-3] 10

2 1 3 4 5

a) P and NP problem.

MCA – Second Semester

#### **ARTIFICIAL INTELLIGENCE (MCA-DS-404)**

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

- Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Answer the following in brief: Q.1
  - a) List out the limitations of expert system.
  - b) Define 'conditional probability'.
  - c) What are the ways to formulate the problem?
  - d) What is the difference between declarative and procedural knowledge?
  - e) List some of the uniformed search techniques.
  - f) Which searching algorithms is the best among the following and why. (BFS, DFS, Best first search, hill climbing).
  - g) How to measure the performance of an agent?
  - h) What are the four properties for knowledge representation?
  - i) What are the elements of propositional logic?
  - j) Why does uncertainty arise?

[CO-1,2,3,4,5][L-2,3] 2×10

# PART-A

a) What is AI? Define artificial intelligence on the basis of "system that think rationally" Q.2

and "system that act like humans".

[CO-1] [L-2] **10** b) What is natural language processing? Mention its application domain in AI. What are

some of the problems which arise in natural language understanding for autonomous machines like robots, intelligent computers? [CO-1] [L-2] 10

- Q.3 a) What are the problems encountered during hill climbing and what are the ways available to deal with these problems? [CO-2] [L-3] 10
  - b) Solve the following:

ΤWΟ + T W O FOUR

[CO-2] [L-4] 10

[CO-3] [L-3] 10

- Q.4 a) Convert the following well formed formula into clause from with sequence of steps:  $\forall x: [Roman(x)^Know(x, Marcus)] \rightarrow [hate(x, Caesar)v(\forall y: \exists z: hate(y, z) \rightarrow thinkcrazy(x, y))]$ [CO-3] [L-4] 10
  - b) State representation of facts in predicate logic with an example.

## PART-B

Q.5 a) Consider a two player game in which the minimax search procedure is used to compute the best moves for the first player. Assume a static evaluation function that

> returns values ranging from -10 to 10, with 10 indicating a win for the first player and -10 a win for the second player. Assume the following game tree in which the static scores are from the first player's point of view. Suppose the first player is the

maximizing player and needs to take the next move. What move should be chosen at this point? Can the search be optimized? [CO-4] [L- 3] **10** 

- b) Discuss two primarily modes for an inference engine: forward chaining and backward chaining. [CO-5] [L-3] **10** [CO-4] [L-3]
- a) What are the characteristics of expert systems? Q.6
  - b) Explain the role of domain expert.
  - c) List out the limitations of expert system.
  - d) What are applications of expert systems?
- a) What do you understand by a neuron? How it is related to artificial intelligence? Q.7 Discuss various applications of neural network. [CO-6] [L-3] **10** 
  - b) Define 'machine learning'. What are the steps to build a machine learning system?

[CO-7] [L-3] **10** 

[CO-4] [L-3]

[CO-4] [L-3]

[CO-4] [L-3] **5×4** 

MCA – Second Semester

#### CYBER SECURITY (MCA-DS-405)

Time: 3 hrs. Max Marks: 100 No. of pages: 2 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question. Q.1 Multiple choice questions: a) In which of the following, a person is constantly followed/chased by another [CO-3] [L-1] person? i) Phishing iii) Stalking iv) Identity theft ii) Bulling b) Which one of the following can be considered as the class of computer threats? [CO-6] [L-1] iii) Soliciting iv) Both A and C i) Dos Attack ii) Phishing c) Which of the following is considered as the unsolicited commercial email? [L3][CO2] iii) Spam i) Virus iv) All of the above ii) Malware d) \_\_\_\_\_ is a type of software designed to computer detects viruses and avoid them. [CO-2] [L-2] ii) Adware i) Malware iii) Antivirus iv) Both B and C e) Which one of the following is a type of antivirus program? [CO-1] [L-2] i) Quick heal ii) Mcafee iii) Kaspersky iv) All of the above f) It can be a software program or a hardware device that filters all data packets coming through the internet, a network, etc. it is known as the \_\_\_\_\_: [CO-6] [L-2] ii) Firewall iii) Cookies i) Antivirus iv) Malware g) Which of the following refers to stealing one's idea or invention of others and use it for their own benefits? [CO-4] [L-4] i) Piracv ii) Plagiarism iii) Intellectual property rights iv) All of the above h) Which of the following refers to exploring the appropriate, ethical behaviours related to the online environment and digital media platform? [CO-4] [L-4] iii) Cybersecurity i) Cyber low ii) Cyberethics iv) Cybersafety i) Which of the following refers to the violation of the principle if a computer is no accessible? [CO-5] [L-4] i) Access control ii) Confidentiality iii) Availability iv) All of the above i) Which one of the techniques used for verifying the integrity of the message? [CO-5] [L-4] i) Digital signature ii) Decryption algorithm iii) Protocol iv) Message Digest 2×10 PART-A 0.2 a) What is cybercrime? List the five IT-act of activities which under comes of cybercrime. [CO-1] [L-1] **10** b) What is vulnerability? Explain different types of vulnerabilities with suitable example. [CO-2] [L-1] 5 c) What is firewall? Explain the uses of firewall and how we can activate default. [CO-3] [L-4] **5** 

Q.3 a) What is the difference between threat, vulnerability, and risk? [CO-1] [L-1] **5** 144

**P. T. O**
b) Explain advantages of firewalls in our daily uses of operating system. [CO-3] [L-2] 10

c) Differentiate between 'HTTP and HTTPS'. [CO-2] [L4] 5 [CO-1] [L2] 5 a) Explain contemporary crimes with suitable examples. b) What is Brute force attack? Explain with suitable example. [CO-2] [L-1] 10 [CO-3] [L2] 5

c) Describe the VPN advantages and disadvantages.

Q.4

### PART-B

a) Explain the cryptography model. Describe RSA algorithm with suitable example. Q.5 [CO-4] [L-4] **10** 

- b) What is digital signature? Explain the advantages and disadvantages of it.
- [CO-5] [L1] 5 c) Differentiate between 'phishing and shoulder sniffing'. Explain with suitable example. [CO-6] [L-4] **5**
- a) Differentiate between 'public and private Keys'. Q.6 [CO-5] [L-4] 10 b) Differentiate between 'RSA and Diffie Hellman Cryptography algorithms'. [CO-4] [L4] 5 c) Differentiate between 'trap door and back door'. Explain with suitable example.

[CO-6] [L-4] **5** 

- Q.7 a) Differentiate between 'TCP and UDP packets'. [CO-4] [L-4] 5
  - b) Differentiate between 'internet protocol and web security protocols'. [CO-5] [L-4] 5
  - c) Differentiate between 'web attacks and network attacks'. Explain with suitable example. [CO-6] [L4] 10

### End Semester Examination, May 2023 MCA – Second Semester MOBILE COMPUTING (MCA-DS-406)

Time: 3 hrs.

Max Marks: 100

No. of pages: 1

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART A** and **TWO** questions from **PART B**. Marks are indicated against each question.

Q.1 Define the following:

2X10	
a) IMEI	[CO1][L1]
b) OMC	[CO2][L1]
c) SIM	[CO1][L1]
d) HLR	[CO1][L1]
e) VLR	[CO1][L1]
f) BTS	[CO1][L1]
g) BSS	[CO5][L1]
h) OSS	[CO1][L1]
i) GGSN	[CO1][L1]
j) NSS	[CO3][L1] <b>2×10</b>

### PART-A

Q.2	a) Explain the GSM architecture, GSM entities and call routing	ng in GSM. [CO-1][L-2] <b>15</b>
	c) What do you mean by GPRS?	[CO-2][L-1] <b>5</b>

Q.3 Why there was a need for IEEE 802.11 standard? How IEEE 802.11 has made our life easy? Explain Wireless LAN architecture and it's working. [CO-4][L-4] **20** 

Q.4	a) Justify the role of each layer in the WAP protocol stack in detail.	[CO-4][L-5] <b>15</b>
	b) Give Applications of wireless application protocol.	[CO-4][L-2] <b>5</b>

### <u>PART-B</u>

Q.5	<ul><li>a) Why the adhoc networks become so prominent in the past few characteristics and applications of adhoc networks?</li><li>b) What are the minimum requirements for an adhoc network?</li></ul>	years? What are the [CO-4][L-4] <b>15</b> [CO-4][L-1] <b>5</b>
Q.6	<ul><li>a) Differentiate between the dynamic state routing protocols an distance vector rotung.</li><li>b) What is reactive protocol and what is pro-active protocol?</li></ul>	d adhoc on-demand [CO-5][L-4] <b>15</b> [CO-5][L-1] <b>5</b>
Q.7	Write short notes on the following: a) RFID. b) WIMAX.	

- c) HiperLAN.
- d) Reverse tunneling.

[CO-6][L-2] **5×4** 

MCA – Third Semester

### PROGRAMMING IN .NET (MCA-DS-503)

Time: 3 hrs.

Max Marks: 100

No. of pages: 1

Note: Attempt **FIVE** questions in all; **Q.1** is **compulsory**. Attempt any **TWO** questions from PART-A and TWO questions from PART-B. Marks are indicated against each question.

- Answer the following in brief: Q.1
  - a) Define 'visual studio IDE'.
  - b) What is execution model?
  - c) What is index overloading?
  - d) Differentiate between 'Msg box' and 'dialog box'.
  - e) Explain 'session tracking'.
  - f) What do you mean by interface? Can it be extended or implemented?
  - q) What is the use of data reader?
  - h) Differentiate between 'text box' and 'rich text box'.
  - i) What do you mean by session during the development of web using ASP.NET?
  - j) Write full forms of XML and ADO.

#### [CO6] [L1] **2×10**

### PART-A

- a) "Microsoft has united various modern as well as existing technologies of software Q.2 development in .NET Framework to develop highly efficient applications for modern as well as future needs". business Explain the components main .NET framework. of [CO2] [L2] **10** [CO2] [L2] **10** 
  - b) Explain the execution process of .NET program.
- Q.3 a) Explain 2-dimensional array. Write a code to add two matrices. [CO2] [L1] **10** 
  - b) What is an exception? Try, catch, finally are some handlers to handle the exception. Differentiate among them. [CO1] [L2] **10**
- a) Illustrate the concept of inheritance in C#. Give different types of inheritance. Q.4 Illustrate a type with the help of a suitable program. [CO3] [L2] **10** 
  - b) Differentiate between operator overloading and method overloading. [CO2] [L2] 10

### PART-B

- a) Let us assume that you have asked to automate the process of admission letter Q.5 generation for a certain university the current process is completely manual and requires editing existing admission letters, which is prone to error. There are certain things that would be common for all admission letters, such as university location, university timings, university title, university branding, etc. Other things such as student name, course, fees, joining date, etc. are specific to each admission letter. Provide a better solution to resolve this problem. [CO3] [L3] **10** 
  - b) Explain different controls used to create a windows form. [CO5] [L2] 10
- a) "The Microsoft ASP.NET framework includes several options to create web services Q.6 and applications". Analyse the various features of ASP.Net that are used to create dynamic web pages. [CO3] [L2] **10** 
  - b) Explain the architecture of ADO .NET and its components in detail. [CO4] [L3] **10**
- Q.7 a) Create a simple login Windows form application in C#. It will show a simple login screen, which will be accessible by the user. The user will enter the required credentials and then will click on the login button to proceed. Only three attempts are allowed at a time. Write a code to show the required functionality in C#. [CO3] [L3] **10** 
  - b) What is state management? How can state be managed at server side as well as at 147 client side? [CO5] [L2] **10**

MCA – Third Semester

### **DATABASE ADMINISTRATION (MCA-DS-508)**

Time: 3 hrs.

Max Marks: 100

No. of pages: 2

- Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Answer the following. Q.1
  - a) Poor data administration can lead to which of the following?
    - i) A single definition of the same data entity
    - ii) Familiarity with existing data
    - iii) Missing data elements
    - iv) All of the above.
  - b) A traditional data administrator performs which of the following roles?
    - i) Tune database performance
    - ii) Establish backup and recovery procedures
    - iii) Resolve data ownership issues
    - iv) Protect the security of the database.
  - c) If both data and database administration exist in an organization, the database administrator is responsible for which of the following?
    - ii) Database design i) Data modeling
      - iv) All of the above.
  - d) Which of the following is part of an administrative policy to secure a database?
    - i) Authentication policies
    - ii) Limiting particular areas within a building to only authorized people
    - iii) Ensure appropriate responses rates are in external maintenance agreements
    - iv) All of the above.

iii) Metadata

- e) Backward recovery is which of the following?
  - i) Where the before-images are applied to the database
  - ii) Where the after-images are applied to the database
  - iii) Where the after-images and before-images are applied to the database
  - iv) Switching to an existing copy of the database
- f) What do you mean by one to many relationships?
  - i) One class may have many teachers
  - ii) One teacher can have many classes
  - iii) Many classes may have many teachers
  - iv) Many teachers may have many classes
- g) A Database management system is a type of \_\_\_\_\_\_software.
  - i) It is a type of system software
    ii) It is a kind of general software
    iii) It is a kind of general software
    iv) Both i) and iii)
- h) The term "FAT" is stands for\_\_\_\_\_.
  - ii) File allocation Table
  - iii) File allocation Graph
    - iv) All of the above
- i) Which of the following can be considered as the maximum size that is supported by FAT?

iii) 4TB

i) 8GB ii) 4GB

- iv) None of the above
- j) The term "NTFS" refers to which one of the following?
  - i) New technology file system ii) New tree file system

### PART-A

- Q.2 a) Define the database architecture. Why would choose a database system instead of simply storing data in operating system files? When would it make sense not to use a database system? [CO-1] [L-2] **10** [CO-1][L-2] **10** 
  - b) Discuss the role and functions of administrator.
- Q.3 a) Draw and describe the general oracle database architecture. [CO-6] [L-1] **10** 
  - b) State the major advantages and disadvantages of the following data models: i) Network model.
    - ii) ER model.

[CO-6] [L-1] 5×2

a) Consider the following table STUDENT: Q.4

REGD.NO	NAME	BRANCH
0001	Ram	CSE
0002	Hari	MECH
0003	Pradeep	EEE
0004	Deepak	ETC

i) Write a SQL command which will show the entire STUDENT table.

- ii) Write down the SQL command which will show the Regd. No of Hari.
- iii) Write down the SQL command which will show the REGD.NO and Branch column.
- iv) Write a SQL command alter and update existing data in STUDENT table.
- v) Update the name of the '0001' REGD. No. [CO4] [L5] **10**
- b) Define table spaces and explain table spaces management in database.

[CO-3][L-2] **10** 

### PART-B

Q.5	<ul><li>a) Define the online and offline database management techniques.</li><li>b) Differentiate between logical and physical database layout on clo</li></ul>	[CO-5] [L-2] <b>10</b> oud.
		[CO-5] [L-1,2] <b>10</b>
Q.6	<ul><li>a) Discuss the ACID properties with suitable example.</li><li>b) Briefly explain concurrency control scheme with examples.</li></ul>	[CO-6] [L-6] <b>10</b> [CO-5] [L-2] <b>10</b>
Q.7	<ul><li>a) Discuss about the causes of failure and security risks in detail.</li><li>b) Write short notes on each terms:</li><li>i) SaaS, IaaS, PaaS.</li></ul>	[CO-4][L-1,3] <b>10</b>
	ii) Public, private and hybrid cloud.	[CO-4][L-2] <b>5×2</b>

MCA – Fourth Semester

**ADVANCE JAVA (MCA-DS-601)** 

Time: 3 hrs. Max Marks: 100 No. of pages: 1 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question. a) Which of the following action variable is used to include a file in JSP? Q.1 [CO-2] [L-1] i) jsp:setProperty ii) jsp:getProperty iii) jsp:include iii) jsp:plugin b) Which one of the following is correct for directive in JSP? [CO-2] [L-1] ii) <%!directive%> i) <%@directive%> iii) <%directive%> iv) <%=directive%> c) How constructor can be used for a servlet? [CO-3] [L-1] i) Initialization ii) Constructor function iii) Initialization and Constructor function iv) Setup() method d) Which of the following is not an Enterprise Beans type? [CO-5] [L-1] ii) Singleton iii) Stateful i) Doubleton iv) Stateless e) Java Beans are extremely secured. [CO-2] [L-1] i) True ii) False f) Which attribute is used to specify initialization method? [CO-2] [L-1] d) initialization-method i) init ii) init-method iii) initialization q) Which attribute is used to specify destroy method? [CO-2] [L-1] i) destroy ii) destroy-method iii) destruction iv) destruction-method [CO-2] [L-1] h) Which of the following is advantage of using JDBC connection pool? i) Slow performance ii) Using more memory iii) Using less memory iv) Better performance i) Which of the following is used to rollback a JDBC transaction? [CO-4] [L-1] i) rollback() ii) rollforward() iii) deleteTransaction() iv) RemoveTransaction() j) Which of the following is used to call stored procedure? [CO-4] [L-1] i) Statement b) PreparedStatement iv) CalledStatement iii) CallableStatment 2×10 PART-A Define 'JDBC drivers'. Mention all types of JDBC drivers and contrast them with their Q.2 advantages and disadvantages. Also specify your answer with a note on when to use of which type. [CO-4] [L-2] 20

- Q.3 a) Differentiate between 'window and document'. [CO-2] [L-2] **10** 
  - b) What are the different ways to get an element from DOM? [CO-2] [L-2] **10**
- Q.4 Describe the servlets architecture using suitable block diagram and explain major task performed by servlets. [CO-2] [L-2] **20**

#### PART-B

- Q.5a) What is JSP tags? Explain the different types of JSP tags.[CO-2] [L-1] 10b) What are the types of elements with Java Server Pages (JSP)?[CO-2] [L-1] 1010[CO-2] [L-1]
- Q.6a) What is EJB? Explain main components of EJB?[CO-5] [L-1] 10b) What are the benefits of EJB? Explain in detail.[CO-5] [L-1] 10

Q.7 Write a program to establish connection with database, create table name student, insert two entries of name, age and gender into the table and delete one row from that table. [CO-4] [L-6] **20** 

# End Semester Examination, May 2023 MCA – Fourth Semester

### SOFTWARE PROJECT MANAGEMENT (MCA-DS-602)

Time: 3 hrs.

Max Marks: 100

No. of pages: 1

- Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.
- Q.1 Write short notes on:
  - a) Software project issues.
  - b) Risk in software development.
  - c) Cost-benefit analysis.
  - d) Software quality.
  - e) Software prototype.

[CO-1,2,3] [L-1] **4×5** 

[CO-2] [L-4] 5

### PART-A

- Q.2 a) Why Capability Maturity Model (CMM) is considered a method to measure software quality? Explain the various stages of CMM with a diagram. [CO-2] [L-4] **15** 
  - b) What are the various issues of software project management? [CO-1] [L-1] 5
- Q.3 a) Explain the V & V model of software development. What is the relevance of this model to improve the quality of software? [CO-3] [L-2] 10
   b) What are the advantages of review and inspection in software development?
  - b) What are the advantages of review and inspection in software development? [CO-1] [L-1] **5**
  - c) Differentiate between 'review' and 'inspection'.
- Q.4 a) How PERT chart is helpful in keeping a track of software? Explain the PERT chart by giving example of project activities. [CO-5] [L-3] **10** 
  - b) Why timely consideration of risk can be helpful in avoiding the unnecessary delays in software project? [CO-2] [L-4] **10**

#### <u>PART-B</u>

- Q.5 a) Differentiate between generic software and customized software. What are the limitations of generic software? [CO-4] [L-4] 10
  b) "COCOMO model can help us to calculate the cost of a project in advance." Explain with the help of an example. [CO-6] [L-2] 10
  Q.6 a) Differentiate between 'software testing' and 'software quality'. [CO-2] [L-4] 10
  b) How to carry out the cost benefit analysis for software? [CO-6] [L-2] 10
- Q.7 a) Why agile software development methodology is better than SDLC? Cite relevant examples to prove your opinion. [CO-4] [L-2] 10
  b) Write the 10 issues of android software development. [CO-1] [L-3] 10

MCA – Fourth Semester

DATA MINING AND WAREHOUSING (MCA-DS-603)

Time: 3 hrs.

Max Marks: **100** 

No. of pages: 2

Note: Attempt **FIVE** questions in all; **Q.1 is compulsory**. Attempt any **TWO** questions from **PART-A** and **TWO** questions from **PART-B**. Marks are indicated against each question.

#### Q.1 *Choose the correct option:*

- a) Out of the below mentioned techniques, identify the data mining techniques: i) clustering ii) classification iii) Association iv) All of the above b) Handling incorrect or missing data is called as \_\_\_\_\_ i) Selection ii) Preprocessing iii) Transformation iv) Interpretation c) Abrupt value in data is known as i) Changing data ii) Noisy data iii) Outliers iv) Missingdata. d) Strategic information is needed for: i) Day to day operations ii) Meet government requirements iii) Long range planning iv) Short range planning e) Full form of KDD is \_\_\_\_\_ f) Which of the following activities is NOT a data mining task? i) Predicting the future stock price of a company using historical records ii) Monitoring and predicting failures in a hydropower plant iii) Extracting the frequencies of a sound wave iv) Monitoring the heart rate of a patient for abnormalities q) One of the attribute of data stored in data warehouse is: i) operational ii) historical iii) transactional iv) optimized h) A \_\_\_\_\_\_ acts a bridge between data warehouse and database application. i) data mart ii) operational data iv) meta data iv) data cube \_\_\_\_\_\_is one of the supervised data mining technique. i) ii) Association iii) Classification i) Tuple iv) Relation. j) Which of the following data mining task is known as Market Basket Analysis? i) Association Analysis ii) Regression iii) Classification iv) Outlier Analysis 2×10 PART-A a) Explain the data warehouse architecture with the elaborated details of data staging area. [CO-1] [L-2] **10** 
  - b) Differentiate the following:

Q.2

- i) Relational table and data cube.
- ii) ER Modelling and multidimensional modelling. [CO2][L4] 5×2
- Q.3 a) Explain with examples the need of multiple fact tables in a data warehouse.

[CO-3] [L-2] **10** 

b) Compare and contrast the Snowflake and Star model of data warehouse.

[CO-3] [L-4] 10

Q.4 a) What is Noise in data? Explain how the presence of noise in data can lead to incorrect results. [CO-3] [L-2] **10** 

- b) Differentiate the following:
  - i) ROLAP and MOLAP server.
  - ii) Distributed and Virtual data warehouse.

[CO-3] [L-4] **5×2** 

### <u>PART-B</u>

- Q.5 a) Compare and contrast the Decision Tree and Bayesian method of classification.
  - [CO-4] [L-4] **10** b) Explain the K-Means algorithm of Clustering technique with the help of an example. [CO-4] [L-2] **10**

Q.6 Explain the following terms in relation to association rules:

- a) Support.
- b) Confidence.
- c) Multidimensional association rule.
- d) Frequent pattern.

[CO-4] [L-2] **2½×4** 

- Q.7 Analyse the need of data mining techniques in the following areas:
  - a) Agriculture.
  - b) Supermarkets.

[CO-5] [L-4] **5×2** 

B.Sc. (Information Technology) – Third Semester OBJECT ORIENTED PROGRAMMING (SOFT 605)

Time: 3 hrs. Max Marks: 100 No. of pages: 2 Note: Attempt FIVE questions in all; Q.1 is compulsory. Attempt any TWO questions from PART-A and TWO questions from PART-B. Marks are indicated against each question. Choose the correct option: Q.1 invented Java Programming. a) i) Guido van Rossum ii) James Gosling iii) Dennis Ritchie iv) Bjarne Stroustrup is the extension of Java code files. b) i) .js ii) txt iv) .Java iii) .class c) Evaluate the following Java expression, if x = 3, y = 5, and z = 10. ++z + y - y + z + x++i) 24 ii) 23 iii) 20 iv) 25 d) Which of the following is true about the anonymous inner class? i) It has only methodsiii) It has a fixed class name ii) Objects can't be created iv) It has no class name e) Which exception is thrown when Java is out of memory? i) Memory Error ii) Out of Memory Error iii) Memory out of Bounds Exception iv) Memory Full Exception f) What is not the use of "this" keyword in Java? i) Referring to the instance variable when a local variable has the same name ii) Passing itself to the method of the same class iii) Passing itself to another method iv) Calling another constructor in constructor chaining q) Which exception is thrown by read() method? i) IOException ii) Interrupted Exception iii) System Exception iv) System Input Exception h) What is the listener used to handle the events of a text field? i) java.awt.ActionListener interface ii) Java.awt.event.ActionListener iii) awt.event.ActionListener interface iv) Java.awt.event.ActionListener interface i) In following g lines of Java code what will be stored in the object emp. Employee emp; i) Memory address of allocated memory of object ii) NULL iii) Any arbitrary pointer iv) Garbage j) Use the following declaration and initialization to evaluate the Java expressions. int a = 2, b = 3, c = 4, d = 5; float k = 4.3f; System.out.println( --b \* a + c \*d--); i) 21 ii) 24 iii) 28 iv) 26

v) 22

### $P \Delta R T - \Delta$

- Q.2 a) Differentiate between the procedural paradigm and object-oriented paradigm. [CO2][L1] **10** 
  - b) Explain the Java program structure with the help of a suitable example. [CO1][L2] 10
- Q.3 a) Write a program to find the greatest of three numbers. [CO2] [L3] **10** b) Differentiate between entry-controlled and exit-controlled loop. Write a program to show the usage of both loops. [CO1] [L2] **10**
- Q.4 a) Discuss the role of interface in Java. Differentiate between an interface and a class. Give example where interface can be used to support multiple inheritance?

[CO4][L3] **10** 

b) List out the role of constructors. Write down its various features and different types. Write a program to demonstrate the use of the parameterized constructor. [CO3] [L6] **10** 

### PART-B

- Q.5 a) Define "Exception in Java". How it is different from an error? What are the various techniques to handle exceptions in Java? Explain with example. [CO4][L2] **12** 
  - b) List out the benefits of using package in Java. Demonstrate with a suitable example how packages are created and accessed in Java? [CO5] [L4] 8
- Q.6 a) Design a GUI interface by using the required AWT components to perform insert operation on a student database. [CO5] [L6] **10** 
  - b) Write short notes on:
    - i) Input stream reader.
    - ii) Output stream writer.

[CO4] [L2] **5×2** 

- Q.7 a) Write a Java program using AWT to print "Welcome to Manav Rachna" in red colour. When we click on a button the text should be displayed in text box? [CO5] [L6] **10** [CO5] [L2] **10** 
  - b) Explain the applet life cycle with the suitable diagram.