

**End Semester Examination, May 2022**  
B.Sc. (Hons.) Food Science and Technology – Fourth Semester  
**BIOSTATISTICS AND RESEARCH METHODOLOGY (BFST-402)**

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 briefly:

- a) Data is classified into two types. What is the main difference between these types?  
[CO 1,2] [L 1]
- b) Statistics is the way of collecting, classifying, summarizing, analyzing and interpretation of numerical facts. List out the suitable graphical methods to represent the statistics of the data.  
[CO 1,2] [L 3]
- c) In data analysis, variable plays a vital role. What are the different types of variables?  
[CO 1,3] [L 2]
- d) Gaussian distribution is used to analyze continuous variables. Draw Gaussian (Normal) distribution curve indicating percentage levels according to the levels of standard deviation? Discuss the properties of the curve.  
[CO 1,4] [L 4] **4×5**

**PART-A**

Q.2 Data is very essential for the validation of decision making and experimental research such as surveys and descriptive researches. Discuss the types of methods involved in the collection of primary data and secondary.  
[CO 1,2] [L 3] **20**

Q.3 The data of the residents according to their age is given below:

Age (Years)	No. of Residents
0-10	150
10-20	300
20-30	500
30-40	800
40-50	1000
50-60	900
60-70	400
70-80	100

Represent the data in the following forms:

- a) Histogram.
- b) Frequency polygon
- c) Ogive of less than type.
- d) Ogive of more than type.
- e) Pie Chart.

[CO1,2] [L 3] **4×5**

**End Semester Examination, May 2022**  
B.Sc. (FST) - Second Semester  
**TECHNOLOGY OF CEREALS, PULSES AND OILSEEDS (BFST-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 Explain the structure and composition of cereal grains i.e. Wheat, Rice and corn with neat sketch. **20**

**PART-A**

- Q.2 a) Explain rice milling. [CO1] [L-2]  
b) Explain wheat milling. [CO1] [L-2] **10x2**

- Q.3 Explain Parboiling process, brief about types of parboiling, advantage and disadvantage. [CO1][L-3] **20**

- Q.4 Explain nutritional importance of pulse in human diet and pulse milling process. [CO3] [L-2] **20**

**PART-B**

- Q.5 What are anti-nutritional factors present in pulses and processing techniques employed to reduce them. [CO3] [L-3] **20**

- Q.6 Explain the oil extraction techniques and oil refining. [CO4] [L-3] **20**

- Q.7 a) Explain dry and wet milling of corn.  
b) Explain malting and germination of barley. [C2] [L- 3] **10x2**

**End Semester Examination, May 2022**  
B.Sc. (FST) - Second Semester  
**TECHNOLOGY OF CEREALS, PULSES AND OILSEEDS (BFST-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 Explain the process of management with suitable examples in detail. **20**

**PART-A**

Q.2 Explain the types of hospital organizations and also discuss the steps in hospital planning in detail. **20**

Q.3 What are the steps for planning for various categories of staff and what are the administrative actions required for appointment of the staff? **20**

Q.4 Describe the principles and characteristics of management with suitable examples. **20**

**PART-B**

Q.5 Explain the role of following in detail:  
a) Quality council of India (QCI).  
b) National Accreditation Board of Hospitals (NABH). **10×2**

Q.6 What are the health care delivery systems in India? **20**

Q.7 Describe the Maslow's principle. What do you mean by employee turnover and suggest points to reduce it? **20**

**End Semester Examination, May 2022**  
B.Sc. (FST) - Second Semester  
**TECHNOLOGY OF CEREALS, PULSES AND OILSEEDS (BFST-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 Explain the process of management with suitable example in detail. **20**

**PART-A**

Q.2 Explain the types of hospital organization and what are the steps in hospital planning. **20**

Q.3 What are the steps for planning for various categories of staff and what are the administrative actions for appointment? **20**

Q.4 Describe with suitable examples the principles and characteristics of management. **20**

**PART-B**

Q.5 Explain the role of following in detail:

a) Quality council of india (QCI)

b) National accreditation board of hospitals (NABH)

**10×2**

Q.6 What are the health care delivery systems in India? **20**

Q.7 Describe the Maslow's principle. What do you mean by employee turnover and suggest points to reduce it. **20**

**End Semester Examination, May 2022**  
B.Sc. (FST) - Second Semester  
**TECHNOLOGY OF MILK AND MILK PRODUCTS (BFST-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 a) Define 'milk'. Explain about the importance of milk constituents in the diet. [CO1,2][L1] **10**  
b) What factors affect the composition of milk. [CO1,2][L1] **10**

**PART-A**

- Q.2 Discuss physical and chemical properties of milk in detail. [CO-2] [L-2] **20**
- Q.3 Write short notes on:  
a) Viscosity of milk.  
b) Alpha and beta lactose.  
c) Refractive index of milk fat.  
d) Milk fat composition. [CO-2] [L-1] **5x4**

- Q.4 Give structure of milk proteins. Differentiate between casein and serum proteins. Write down about enzyme markers to identify freshness of milk. [CO-3] [L-2] **20**

**PART-B**

- Q.5 Diagrammatically explain the processing of market milk. Define fermented milk, fortified milk and reconstituted milk. [CO-4] [L-4] **20**
- Q.6 Discuss manufacturing methodology of cheese, ghee and condensed milk. [CO-3] [L-1] **20**
- Q.7 Define 'CIP and COP'. Give details of cleaning and disinfecting agents used in dairy industry. [CO-4] [L-2] **20**

# End Semester Examination, May 2022

B.Sc. (FST) - Second Semester

## FOOD AND NUTRITION (BFST-DS-203)

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 "Meal planning is an integral part of each family system". Justify the statement. What are the non-nutritional factors, which affect meal planning? **20**

### **PART-A**

- Q.2 Elaborate on the different methods of food preparation. Discuss the changes that occur in carbohydrates and pigments during food preparation. Give examples to illustrate the changes you describe. [CO-3][L-3] **20**

- Q.3 What is acid base balance? How is the acid base balance regulated in the human body? Discuss the reactions of foods, acidosis and alkalosis. [CO-1][L-2] **20**

- Q.4 List the fat soluble vitamins and their precursors, what are the main sources? Explain the role played by:  
a) Vitamin A in vision.  
b) Sunlight in synthesis of vitamin D.  
c) Vitamin K in the blood clotting process. [CO-4][L-3] **20**

### **PART-B**

- Q.5 What are fatty acids? Discuss the role of triglycerides, phospholipids and cholesterol in the body. [CO-2][L-2] **20**

- Q.6 "Proteins are the main solid matter in the muscles", elaborate on the statement. What are the protein deficiency causes and symptom among under-five year age children? [CO-4][L-4] **20**

- Q.7 Explain the terms nutrition, nutrients, reference men and reference women balanced meal and under-nutrition. "Food is also used to satisfy social and psychological needs". Explain this statement by giving example. [CO-3][L-3] **20**

**End Semester Examination, May 2022**  
B.Sc. (FST) - Second Semester  
**FOOD LAWS, REGULATION AND STANDARDS (BFST-DS-204)**

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 Explain historical perspective of food laws and regulation. Explain the voluntary food laws in India. **20**

**PART-A**

- Q.2 Name a few laboratories and research institute that develop standards for food products. List the important features of PFA Act. [CO-2][L-3] **20**
- Q.3 What are the main objectives behind formulating 'Essential Commodities Act'? List the Various control orders which have been formulated under the ECA.1955. [CO-3][L-1] **20**
- Q.4 What is codex alimentarius commission? Explain the benefits of WTO Trading. [CO-4][L-2] **20**

**PART-B**

- Q.5 Define "ISO". Explain the structure and governance of ISO. [CO-2][L-1] **20**
- Q.6 Explain the physical and biological hazards to food during food supply in food industry. [CO-4][L-2] **20**
- Q.7 What do you mean by HACCP? Give the importance and application of food safety? [CO-3][L-1] **20**

**End Semester Examination, May 2022**  
B.Sc. (FST) - Second Semester  
**ENZYMES IN FOOD PROCESSING (BFST-DS-205)**

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 a) What are enzymes? Explain its classification, properties and characterization. **10**  
b) Explain the factors affecting rate of enzyme reaction. **10**

**PART-A**

- Q.2 Explain Enzyme kinetics with simple and Michaelis-Menten equation. [C-1][L-2] **20**
- Q.3 a) What are immobilization of enzymes, explain its types? [C-1][L-3] **10**  
b) Explain what are enzyme inhibitors? [C-1][L-3] **10**
- Q.4 Explain about application of enzymes in food industry in detail. [C-2][L-2] **20**

**PART-B**

- Q.5 Explain role of enzymes in cheese making and whey processing. [C-3][L-3] **20**
- Q.6 Explain the role of enzymes in beverage industry in detail. [C-4][L-3] **20**
- Q.7 Explain the role of enzymes in starch and protein modification. [C-2][L-4] **20**



**End Semester Examination, May 2022**  
B.Sc. (Food Science and Technology) – Fourth Semester  
**FOOD CHEMISTRY-II (BFST-DS-401)**

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 What are lipids? Explain its physical and chemical properties. **20**

**PART-A**

Q.2 a) Explain changes occur in fats and oils during frying.  
b) What do you mean by rancidity, lipolysis and flavor reversion? [C1] [L-2] **10x2**

Q.3 Explain nutritional importance of Vitamins; explain water and fat soluble vitamins.  
[C3] [L-3] **20**

Q.4 What are macro and micro minerals? Explain them in detail. [C4] [L-2] **20**

**PART-B**

Q.5 a) What are basic tastes? Explain them in brief.  
b) Explain importance of flavors in food processing [C3] [L- 3] **10x2**

Q.6 Brief about food pigments and its classification. Also explain any four food pigments in detail. [C3] [L- 3] **20**

Q.7 a) What is auto-oxidation and its prevention? [C4] [L- 3] **10**  
b) Explain metal uptake in canned foods. [C4] [L-3] **10**

**End Semester Examination, May 2022**  
B.Sc. (N&D) – Fourth Semester  
**FOOD PACKAGING TECHNOLOGY (BFST-DS-402)**

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 How are the packaging materials classified? Which are the important flexible packaging materials? **20**

**PART-A**

- Q.2 What are the different plastics used for packaging? Differentiate between metallized films and aluminum foils. [CO-2] [L-3] **20**
- Q.3 Differentiate between 'vacuum' and 'gas packaging'. List the functions and applications of active packages. [CO-3] [L-2] **20**
- Q.4 Define 'moisture sorption isotherm'. What are the parameters that necessary to predict the shelf life of moisture sensitive food? [CO-4] [L-2] **20**

**PART-B**

- Q.5 What are the different toxicity hazards related to packaging and food? Mention the different regulations that govern food packaging. [CO-2] [L-1] **20**
- Q.6 What are the biodegradable packaging materials? Indicate the eco-code marking for plastics. [CO-1] [L-4] **20**
- Q.7 Why is food labeling required? Indicate the BIS specification on safety evaluation of plastics materials. [CO-3] [L-5] **20**

**End Semester Examination, May 2022**  
B.Sc. (Food Science Technology) – Fourth Semester  
**FOOD QUALITY EVALUATION AND MANAGEMENT (BFST-DS-403)**

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 quality, quality concepts, quality perception and quality attributes; importance of quality in food processing. **20**

**PART-A**

- Q.2 What is gustation and olfaction and explain the mechanism of taste and odor perception. [C1] [L-2] **20**

- Q.3 Explain the importance of colour in food processing and about different colour analysis systems. [C3] [L-3] **20**

- Q.4 What is Rheological analysis and explain texture profile analysis of food. [C4] [L-2] **20**

**PART-B**

- Q.5 Define 'food additives'. Explain its characteristics and types of food additives along with its safety measures. [C3] [L-3] **20**

- Q.6 a) Define 'food hazard and contamination'. Explain different types of contamination.  
b) Explain TQM. [C3] [L-3] **10x2**

- Q.7 Explain different acts and regulations for food safety in India and worldwide. [C4] [L- 3] **20**

**End Semester Examination May 2022**  
B.Sc. (Food Science Technology) – Fourth Semester  
**SCIENTIFIC WRITING IN AGRICULTURAL SCIENCES**  
**(BFST-DS-404)**

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**. Each question carries equal marks.

- Q.1 What do you mean by Scientific writing? Elaborate its types, objectives and importance in detail. **20**

**PART-A**

- Q.2 Explain the characteristics and steps involved in writing review article, systematic and meta-analysis, monographs and book chapters. [C-1] [L-2] **20**
- Q.3 Explain importance of outline and title in research? Brief about types of outlines. [C-3] [L-3] **20**
- Q.4 Explain selection and critical appraisal of a research literature. [C-2][L-2] **20**

**PART-B**

- Q.5 Explain CONSORT for trials and QUORUM for meta-analysis. [C-4] [L-3] **20**
- Q.6 Explain step by step how to develop a research manuscript in detail. [C-2] [L-3] **20**
- Q.7 Explain the process of publishing scientific manuscript along with selection of journals. [C-4][L-3] **20**

**End Semester Examination, May 2022**  
B.Sc. (Food Science and Technology) – Fourth Semester  
**FOOD BEVERAGES (BFST-DS-405)**

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 **(any five)** of the following:

- a) Hops
- b) Malt
- c) Whiskey
- d) TSS
- e) Must
- f) Whey
- g) Cordial

[CO] [L1] **4×5**

**PART-A**

Q.2 Classify beverages and discuss any two classes in detail.

[CO1] [L4] **20**

Q.3 Discuss in detail manufacturing process of bottled water.

[CO2, 4] [L2] **20**

Q.4 Outline the brewing steps and discuss malting of barley as a brewing step in detail.

[CO2, 4] [L3] **20**

**PART-B**

Q.5 a) Give detailed classification of wine.

[CO1] [L4] **10**

b) Give a flow chart of red wine manufacturing.

[CO2,4] [L3] **10**

Q.6 Define carbonated beverages. Discuss its five ingredients and their role in manufacturing of carbonated beverages.

[CO3] [L2] **20**

Q.7 Formulate a beverage (squash) from orange and give flow chart of manufacturing steps.

[CO2, 4] [L5] **20**

# End Semester Examination, May 2022

B. Sc. (N&D) – Fourth Semester

## COMMUNITY NUTRITION (BN&D-402)

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 Explain role of community nutritionist. How do you organize a community development programme in one nutrition problem? **20**

### **PART-A**

- Q.2 Explain Health care system in India? How do you improve the quality of life in India? [CO1] [L2] **20**

- Q.3 Define community organization to include its Philosophy, principles and assumptions. [CO1] [L2] **20**

- Q.4 Write details of National Nutrition Policy. [CO3] [L2] **20**

### **PART-B**

- Q.5 Why nutrition advocacy and social marketing included in nutrition and health education? [CO3] [L2] **20**

- Q.6 Define research and explain various methodologies used for research. [CO4] [L2] **20**

- Q.7 Explain role of national organizations like ICMR, ICAR, CFTRI. [CO4] [L2] **20**

**End Semester Examination, May 2022**  
**B.Sc. (Nutrition & Dietetics) - Second Semester**  
**BIOCHEMISTRY AND METABOLISM (BND-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**. Each question carries equal marks.

- Q.1 Enzymes play an important role in different metabolic pathways. Discuss different enzymes involved in carbohydrate and fat metabolism. **20**

**PART-A**

- Q.2 Gluconeogenesis and Glycolysis are different in context to three irreversible steps. Explain these three steps giving well defined reactions. Also explain the energetics of Glycolysis. [CO-1][L-3] **20**
- Q.3 What is understood by transamination reactions in amino acid metabolism? Also draw a well defined reactions of UREA cycle. [CO-1][L-2] **20**
- Q.4 "Km is important in defining affinity of enzyme to substrate", how? Also draw well defined diagram explaining the effect of substrate concentration on the rate of enzyme catalyzed reactions. [CO-3][L-4] **20**

**PART-B**

- Q.5 Beta oxidation of fatty acids is important for energy production reactions in lipid metabolism. Explain in detail the different reactions of this pathway giving energy production from palmitic acid molecule. [CO-1][L-3] **20**
- Q.6 What are the different nucleotides found in DNA and RNA molecule? Also discuss the structure of DNA molecule in detail. [CO-3][L-3] **20**
- Q.7 Write short notes on:  
a) Epigenetics in the field of nutrition.  
b) Nutrigenomics. [CO-3][L-3] **10x2**

**End Semester Examination, May 2022**  
B. Sc. (N&D) – Second Semester  
**NUTRITION – A LIFE CYCLE APPROACH (BND-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 Define physiological changes which occur in different stages of life cycle.  
(COI){L1} **20**

**PART-A**

- Q.2 Write details of growth and development of infancy. Write a short note on 'weaning food'.  
(CO 1) {L2} **20**
- Q.3 Describe school going children's nutritional requirement and in requirement in packed lunch.  
(CO2) {L3} **20**
- Q.4 Discuss about the nutritional requirement of an adult and write one menu for high income and low income group.  
(CO2) {L3} **20**

**PART-B**

- Q.5 What are the complications in pregnancy and explain the importance of antenatal care?  
(CO3) {L2} **20**
- Q.6 Describe the importance of breast feeding and meal pattern of the lactating woman.  
(CO4) {L2} **20**
- Q.7 Explain the processing of aging and it's nutritional related problems.  
(CO4) {L2} **20**



**End Semester Examination, May 2022**  
**B.Sc. (Nutrition and Dietetics) - Second Semester**  
**HUMAN ANATOMY AND PHYSIOLOGY-II (BND-DS-203)**

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 Draw a well labeled diagram of an eye. Also, discuss the various disorders associated with the organ. [CO-3][L-3] **20**

**PART-A**

- Q.2 Differentiate between:  
a) Sympathetic nervous system and parasympathetic nervous system.  
b) Autonomic and somatic nervous system. [CO-1][L-4] **10×2**
- Q.3 Discuss the bones and its classification in detail. [CO-1][L-2] **20**
- Q.4 Discuss the hormones secreted by the pituitary gland. Also, discuss the disorders caused due to over/under secretion of these hormones. [CO-3][L-2] **20**

**PART-B**

- Q.5 Draw the structure of a nephron and explain the process of urine formation. [CO-2][L-3] **20**
- Q.6 Draw a well labeled diagram of sperm. Also, discuss the process of spermatogenesis. [CO-4][L-3] **20**
- Q.7 Discuss the importance of water and electrolytes in sports physiology. [CO-2][L-2] **20**

**End Semester Examination, May 2022**  
**B.Sc. (Nutrition and Dietetics) - Second Semester**  
**FOOD AND NUTRITION LABELING (BND-DS-204)**

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 "Food label is the first display area to be explored while buying any food product". Elaborate it in detail. [CO-1][L-5] **20**

**PART-A**

- Q.2 Differentiate between:  
a) Nutritional claim and risk reduction claim.  
b) Use-by-date and best-before-date.  
c) PDP and nutritional panel.  
d) Labeling with regard to food colours and irradiated foods. [CO-2][L-3] **5×4**

- Q.3 Design any food label for a snack food and interpret its labeling details, in detail. [CO-3][L-6] **20**

- Q.4 a) Explain the labeling requirements for imported foods. [CO-4][L-2] **10**  
b) State some principles for labeling pre-packaged foods in India. [CO-4][L-2] **10**

**PART-B**

- Q.5 "The history of food and nutrition labeling dates back to early centuries". Comment on it in detail. [CO-1][L-3] **20**

- Q.6 Define "Food Label". Discuss the different parts found in a food label and state the regulation for mentioning food additives on a label. [CO-2][L-2] **20**

- Q.7 Demarcate any five commonly seen symbols and their relevance in a food label. [CO-4][L-3] **20**

**End Semester Examination, May 2022**  
**B.Sc. (Nutrition and Dietetics) - Second Semester**  
**FOOD LAWS AND REGULATION (BND-DS-205)**

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 Why regulation of food laws and food safety is mandatory in India? Explain the voluntary food laws in India. **20**

**PART-A**

- Q.2 Explain Agricultural Produce Act and list the important features of PFA Act. [CO-2][L-3] **20**

- Q.3 What are the main objectives behind formulating Essential Commodities Act? List the various control orders which have been formulated under the ECA, 1955. [CO-3][L-1] **20**

- Q.4 a) Write short notes on:

i) BIS.

ii) NABL.

[CO-4][L-2] **5×2**

- b) Explain the benefits of Legal Metrology Act.

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

**PART-B**

- Q.5 Define 'food and drug administration'. Explain the structure and governance of FDA. [CO-2][L-1] **20**

- Q.6 Explain the export inspection council. Define the role of environment protection agency in field of food safety system. [CO-4][L-2] **20**

- Q.7 What are spoilage bacteria? Classify foods on the basis of their stability. [CO-3][L-1] **20**

**End Semester Examination May 2022**  
B.Sc. (N&D) - Fourth Semester  
**THERAPEUTIC AND CLINICAL NUTRITION (BND-DS-401)**

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**. Each question carries equal marks.*

- Q.1 What do you understand by Therapeutic diet? Describe therapeutic adaptations of normal diets. [CO1] [L2] **20**

**PART-A**

- Q.2 Differentiate between the following:  
a) Enteral and Parenteral Mode of Feeding.  
b) Full Fluid and Clear Fluid Diets. [CO2] [L4] **10x2**
- Q.3 What are the types of diarrhoea? Discuss its dietary management. [CO3] [L2] **20**
- Q.4 Discuss febrile disorders and their dietary management. [CO4] [L3] **20**

**PART-B**

- Q.5 What do you understand by eating disorders? [CO-1] [L-2] **20**
- Q.6 Discuss the types of Diabetes Mellitus. Also, discuss the role of dietary management in the control of Diabetes Mellitus. [CO-2] [L-3] **20**
- Q.7 Give Dietary recommendations to a person suffering with nephrotic syndrome. [CO-3] [L-5] **20**

**End Semester Examination, May 2022**  
B. Sc. – Fourth Semester  
**INSTITUTIONAL CATERING MANAGEMENT (BND-DS-402)**

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**. Each question carries equal marks.

- Q.1 What are the different tools of management which are implemented in a catering institute for effective functioning? Explain providing suitable examples. [CO2][L3] **20**

**PART-A**

- Q.2 Explain the principles of management with respect to food service unit. [L3][CO1] **20**

- Q.3 What are the factors to be kept in mind while planning service areas? [L2] [CO3] **20**

- Q.4 What are different size and types of Kitchens? Explain the types of storage space. [L3] [CO2] **20**

**PART-B**

- Q.5 a) Explain the types of Menus. **10**  
b) Give the format of menu along with essential points to be considered while framing a menu. [L4] [CO4] **10**

- Q.6 Discuss the types of food service systems followed in different setup of catering institutions. [L 2] [CO1] **20**

- Q.7 Describe the factors kept in mind for maintaining food hygiene and sanitation in a catering unit. [L2] [CO3] **20**

**End Semester Examination, May 2022**  
**B.Sc. (Nutrition & Dietetics) - Fourth Semester**  
**INSTRUMENTATION FOR FOOD ANALYSIS (BND-DS-403)**

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**. Each question carries equal marks.

- Q.1 Explain the significance of instrumentation and sampling in food analysis. Also indicate their relevance in the food analysis sector. **20**

**PART-A**

- Q.2 Soxhlet method is important in food industry? Explain the principle, procedure and set up for estimating fat content. [CO1] [L1] **20**
- Q.3 What is moisture content in food analysis? Explain its role in food industry? Also indicate the use of different techniques in estimating moisture content. [CO2] [L3] **20**
- Q.4 What are the different food standards and regulations in the field of food science? Explain the relevance of each of these standards separately in the field of food science. [CO4] [L1] **20**

**PART-B**

- Q.5 Explain in detail the principle of Spectrophotometer? Also draw well defined standard curve used in calculating the concentration of a molecule from the known standard. [CO4] [L3] **20**
- Q.6 How does partition/distribution coefficient explain the principles of separation of components in a mixture? [CO4] [L2] **20**
- Q.7 SDS-PAGE is used in separation of protein. Explain its principle and significance in the field of protein chemistry. [CO3] [L2] **20**

**End Semester Examination, May 2022**  
B. Sc. – Fourth Semester  
**TECHNIQUES OF SCIENTIFIC WRITING (BND-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**. Each question carries equal marks.

- Q.1 The study of techniques of scientific writing enables students to develop competence in writing and abstracting skills. Justify the statement. **20**

**PART-A**

- Q.2 What is scientific writing? Explain types of methods of scientific writing. [CO1] [L2] **20**

- Q.3 Write short notes on:

- a) Monograph.
- b) Book Review.

[CO2] [L3] **10×2**

- Q.4 What points to be kept in mind while drafting titles and tables [CO3] [L1] **20**

**PART-B**

- Q.5 What is CONSORT in clinical trials? Explain in detail the purpose of CONSORT guidelines. [CO4] [L4] **20**

- Q.6 The most obvious problem in writing abstract is deciding what to include and what to omit. Write some suggestions to overcome this problem. [CO4] [L5] **20**

- Q.7 What criteria will a peer reviewer use when evaluating a manuscript? [CO3] [L2] **20**

**End Semester Examination May 2022**  
B.Sc. – Fourth Semester  
**INDIAN TRADITIONAL FOOD (BND-DS-407)**

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**. Each question carries equal marks.

Q.1 'The history of Indian foods dates back to earlier centuries'. Comment on the statement. **20**

**PART-A**

Q.2 Describe the following:

- a) Traditional Indian dietary pattern.
- b) Indian food ethics.

[CO1] [L2] **10×2**

Q.3 "India possesses a rich culture of traditional foods having varied medicinal/nutritional benefits". Explain in detail. **20**

[CO2] [L4] **20**

Q.4 Differentiate between:

- a) Sattvic food and Rajasic food.
- b) Punjabi cuisine and Hyderabadi cuisine.

[CO3][L3] **10×2**

**PART-B**

Q.5 "Newer food processing technologies are better than the traditional technologies". Illustrate your answer with suitable examples. **20**

[CO4] [L4] **20**

Q.6 How is spiritual health linked with traditional foods?

[CO4] [L3] **20**

Q.7 'India comprises of many traditional food beliefs'. Elaborate.

[CO2] [L5] **20**



**End Semester Examination, May 2022**  
B.Sc. – Fourth Semester  
**HUMAN HEALTH PSYCHOLOGY (BND-DS-408)**

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**. Each question carries equal marks.

Q.1 Define health psychology and its goals. Discuss its application in modern day disease. **20**

**PART-A**

Q.2 Explain the factors affecting patient adherence to medication or treatment. Use an appropriate model to improve the patient adherence. [CO2] [L2] **20**

Q.3 To what extent does the gate control theory of pain depart from biomedical models of pain? What are the implications of the GCT of pain for the mind–body debate? [CO4] [L4] **20**

Q.4 Evaluate theories of stress to provide rational picture of human behavior. [CO3] [L5] **20**

**PART-B**

Q.5 Apply health behavior models to treat population addicted to alcohol and tobacco consumption. [CO2] [L4] **20**

Q.6 What are eating disorders? Elaborate different types of eating disorders. [CO2] [L3] **20**

Q.7 Briefly state the emergence of health psychology and the change in medical perspective towards this field. How doctor-patient communication is important to treat illness? [CO1] [L2] **20**

**Annual Examination, May 2022**  
**Bachelor of Physiotherapy — First Year**  
**ANATOMY (BPT-101)**

Time: 3 hrs.

Max Marks: **80**

No. of pages: 1

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

**PART-A**

Q.1 Answer the following in brief:

- a) Explain "Synovial joint".
- b) Discuss "Anatomical Position".
- c) Enumerate the nine quadrants of abdomen.
- d) Describe 'layers of heart'.
- e) Name any four types of joints.

**2×5**

**PART-B**

- Q.2 Explain types of cartilages with examples. [CO-5][L-2] **8**
- Q.3 Name the muscles of face and its action with diagram. [CO-4][L-2] **8**
- Q.4 Discuss "Cubital fossa". [CO-2][L-3] **8**
- Q.5 Discuss the anatomy of duodenum, jejunum and stomach with suitable diagram. [CO-1][L-3] **8**
- Q.6 Elaborate the types of muscle with suitable diagrams. [CO-1][L-3] **8**
- Q.7 Discuss the anterior compartment of thigh. [CO-4][L-2] **8**

**PART-C**

Q.8 Write origin, insertion, nerve supply and action of following muscles:

- a) Deltoid.
- b) Sartorius.
- c) Pectoralis major.

[CO-3][L-2] **15**

Q.9 Discuss radial nerve in detail with its clinical anatomy.

[CO-4][L-2] **15**

Q.10 Explain detailed anatomy of brachial plexus.

[CO-2][L-3] **15**

**Annual Examination, May 2022**  
**Bachelor of Physiotherapy—First Year**  
**PHYSIOLOGY (BPT-102)**

Time: 3 hrs.

Max Marks: **80**

No. of pages: 1

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

**PART-A**

Q.1 Answer the following questions:

- a) Name different types of cells in human body. [CO-1][L-2]
- b) What is the blood-brain barrier? [CO-2][L-3]
- c) Define 'peripheral resistance'. [CO-4][L-1]
- d) Differentiate between inspiration and expiration in breathing cycle. [CO-5][L-2]
- e) What are the factors affecting cardiac output. [CO-1][L-1]

**2x5**

**PART-B**

- Q.2 Define different glands present in the skin. What are the role of the sebaceous and sudoriferous glands? [CO-1,2][L-2] **8**
- Q.3 Describe the autonomic regulation of heart rate? Discuss the conduction system of the heart. [CO-2,3][L-3] **8**
- Q.4 Elaborate different lung volumes and capacities. Write about the changes in carbon dioxide levels affect the respiratory rate? [CO-1][L-1] **8**
- Q.5 Give the function of hormones that are stored in the posterior lobe of the pituitary gland. [CO-1][L-1] **8**
- Q.6 Differentiate between cortical and juxtamedullary nephrons? [CO-5][L-2] **8**
- Q.7 Explain the roles of insulin and glucagon on glucose metabolism in the blood. [CO-6][L-1] **8**

**PART-C**

- Q.8 Explain preganglionic and postganglionic components of the autonomic nervous system and their secretions. Differentiate between the sympathetic and parasympathetic nervous system. [CO-5][L-1,2] **15**
- Q.9 Describe the mechanism of the renin-angiotensin system. Explain the processes of urine formation [CO-4][L-1,3] **15**
- Q.10 Which hormones are released from the testes and ovaries? Describe their functions. Explain briefly the ovarian cycle and ovulation [CO-6][L-1,2] **15**

# Annual Examination, May 2022

Bachelor of Physiotherapy - First Year

## BIOCHEMISTRY (BPT-103)

Time: 3 hrs.

Max. Marks: **80**

No. of pages: **1**

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

### **PART-A**

- Q.1 Write in brief:
- a) Discuss classification of Carbohydrates.
  - b) What is the role of balanced diet in the body?
  - c) Why Gums bleed in Scurvy?
  - d) How Enzymes are classified?
  - e) Albinism-deficient enzyme and symptoms.
- 2x5**

### **PART-B**

- Q.2 Explain TCA Cycle and its significance in human body. **8**
- Q.3 What are lipotropic factors? Also mention their functions. **8**
- Q.4 What is diabetes mellitus and its types? How blood sugar level is maintained in the body? **8**
- Q.5 Explain visual cycle and its role in dim light vision. **8**
- Q.6 What is normal Blood Ca level ? How it is regulated? **8**
- Q.7 Explain muscle contraction in detail. **8**

### **PART-C**

- Q.8 Explain essential and non-essential amino acids with examples. Explain urea cycle in detail. **15**
- Q.9 Discuss Beta Oxidation of fats and its significance. Describe the role of essential fatty acid in body. **15**
- Q10. Discuss HMP cycle and its significance in the body. **15**

**Annual Examination, May 2022**  
**Bachelor of Physiotherapy – First Year**  
**ELECTROTHERAPY (BPT-104)**

Time: 3 hrs.

Max Marks: **80**

No. of pages: **1**

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

**PART-A**

- Q.1 Answer the following in brief:
- a) Define 'Ohms Law'. [CO1] [L1]
  - b) Explain in detail Condenser and Its types. [CO2, 3] [L2]
  - c) Elaborate Vant Hoff law. [CO4][L4]
  - d) Define electromagnetic spectrum. [CO2] [L2]
  - e) What are SG Cells and explain their role in Pain Inhibition. [CO5] [L4]
- 2×5**

**PART-B**

- Q.2 Explain Sunderland classification for nerve injury and classification of nerve fibres. [CO4,3] [L2] **8**
- Q.3 Explain Faradaic foot bath technique in detail. [CO1,2][L4] **8**
- Q.4 Explain Principle of Cold therapy and its physiological effects. [CO3,4][L5] **8**
- Q.5 Define 'IDC'. Explain technique of Galvanic currents. [CO1,2][L2] **8**
- Q.6 Explain Iontophoresis and its physiological effect? [CO3,4][L2] **8**
- Q.7 Elaborate and explain methods of Moist Heat pack and its indications. [CO2,3][L2] **8**

**PART-C**

- Q.8 Explain Electrodiagnostic technique. Discuss the SD curves for various nerve injuries. [CO3,4][L2] **15**
- Q.9 Explain types of heat therapy and its physiological effect. [CO1,2][L4] **15**
- Q.10 Explain Faradic currents and give its physiological effects and indications. [CO3,2][L3] **15**

**Annual Examination, May 2022**  
**Bachelor of Physiotherapy — First Semester**  
**EXERCISE THERAPY-I (BPT-105)**

Time: 3 hrs.

Max Marks: **80**

No. of pages: 1

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

**PART-A**

Q.1 Answer the following questions briefly:

- a) Define "Movements".
- b) What is the normal range of elbow flexion and extension?
- c) Enumerate the uses of finger ladder.
- d) What is soft tissue manipulation?
- e) What is mobilization?

**2×5**

**PART-B**

- Q.2 Discuss the MMT of shoulder joint in detail. [CO-1][L-3] **8**
- Q.3 Explain the derived position of standing. [CO-1][L-3] **8**
- Q.4 What is relaxation? Explain the effects, uses and technique of relaxation. [CO-3][L-2] **8**
- Q.5 Define massage and enumerate types of massage. [CO-3][L-3] **8**
- Q.6 Explain in detail, the different grades of MMT. [CO-3][L-2] **8**
- Q.7 Enumerate the fundamental positions with diagrams. [CO-2][L-3] **8**

**PART-C**

- Q.8 Classify "Movements". Explain in detail the indications and contraindications of resisted exercises. [CO-4][L-2] **15**
- Q.9 What is soft tissue manipulation? Discuss the physiological effect of soft tissue manipulation. [CO-3][L-2] **15**
- Q.10 What is suspension therapy? Explain in detail. [CO-3][L-3] **15**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Second Semester  
**PHYSIOLOGY II (BPT-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**. Each question carries equal marks.

Q.1 Answer in brief:

- a) Draw the structure of a neuron and briefly describe the types of neurons.
- b) What is the significance of the strength duration curve?
- c) Write briefly about the mechanism of urine formation.
- d) Explain briefly about factor affecting glomerular filtration.
- e) Discuss briefly the mechanisms of action of nonsteroidal hormones.
- f) Name the three main components of the diencephalon, describing their functions.
- g) Describe the locations in the cerebral cortex of the primary sensory areas and their association areas.
- h) Write a note on functions of acetylcholine as a neurotransmitter.
- i) Describe briefly neural control of respiration.
- j) Discuss the role of pontine centers on breathing.

**2x10**

**PART-A**

Q.2 Explain how glomerular filtration rate (GFR) is maintained? Illustrate on physiology of micturition. **20**

Q.3 a) Define pain sensation, its receptors, and types of pain and how it is perceived? **10**  
b) Describe how and where the cerebrospinal fluid is formed? **10**

Q.4 a) Describe the functional areas of cerebral lobes and their functions. **10**  
b) Describe the components and functions of limbic system. **10**

**PART-B**

Q.5 Discuss the following:

- a) Ovarian.
- b) Endometrial changes during female sexual cycle.

**10×2**

Q.6 Describe the following:

- a) Transport of O<sub>2</sub> from lungs to tissue.
- b) Transport of CO<sub>2</sub> from tissue to blood.

**10×2**

Q.7 Discuss the pathway of accommodation reflex and auditory conduction. **20**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Second Semester  
**ELECTROTHERAPY-I (BPT-DS-203/BPT-203)**

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:

- |  |             |
|--|-------------|
| a) Elaborate duty cycle.                               | [CO-2][L-1] |
| b) What are a motor unit and motor unit?               | [CO-3][L-1] |
| c) Explain refractory period.                          | [CO-2][L-1] |
| d) Explain depolarization and resting nerve potential. | [CO-4][L-4] |
| e) Explain latency period.                             | [CO-1][L-2] |
| f) Differentiate between NCV and EMG.                  | [CO-2][L-5] |
| g) Explain low frequency currents with example.        | [CO-2][L-3] |
| h) Explain iontophoresis.                              | [CO-3][L-2] |
| i) Explain motor nerve conduction.                     | [CO-3][L-4] |
| j) Explain stabile and labile technique.               | [CO-4][L-5] |

**2×10**

**PART-A**

- Q.2 What do you understand by current? Explain various classifications for currents? Examples and uses for different frequency of currents in physiotherapy. [CO-2,1][L-4] **20**
- Q.3 Enumerate and elaborate the function of different forms of nerve fibers. Elaborate various classifications for nerve Injury. [CO-3,2][L-3] **20**
- Q.4 A patient of 50 year visited the department with chronic pain which mode of TENS will be applicable for the patient also briefly explains different modes of current with its function on pain gate. [CO-4,5][L-6] **20**

**PART-B**

- Q.5 Explain faradic current, physiological effects and indications of short duration currents and its placement and technique for faradism under pressure. [CO-1,4][L-2] **20**
- Q.6 Elaborate electro diagnostic technique. Explain strength duration curve for different form of nerve lesion? What happen to rheobase and chronaxie with severity of nerve lesion explain with diagram? [CO-2,3][L-3] **20**
- Q.7 A patient come to department for deep seated muscle pain which modality is best advised? Explain physiological effect and indication IFT along with technique for placement for ankle sprain? Also beat frequency in detail. [CO-2,3][L-3] **20**



**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Second Semester  
**ELECTROTHERAPY-I (BPT-DS-203/BPT-203)**

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:

- |  |             |
|--|-------------|
| a) Elaborate duty cycle.                               | [CO-2][L-1] |
| b) What are a motor unit and motor unit?               | [CO-3][L-1] |
| c) Explain refractory period.                          | [CO-2][L-1] |
| d) Explain depolarization and resting nerve potential. | [CO-4][L-4] |
| e) Explain latency period.                             | [CO-1][L-2] |
| f) Differentiate between NCV and EMG.                  | [CO-2][L-5] |
| g) Explain low frequency currents with example.        | [CO-2][L-3] |
| h) Explain iontophoresis.                              | [CO-3][L-2] |
| i) Explain motor nerve conduction.                     | [CO-3][L-4] |
| j) Explain stabile and labile technique.               | [CO-4][L-5] |

**2×10**

**PART-A**

- Q.2 What do you understand by AC and DC current? Explain various classifications of currents with examples? Elaborate the uses of different frequency of currents in physiotherapy. [CO-2,1][L-4] **20**
- Q.3 Enumerate the function of different nerve fibers. Also explain various types of nerve lesion in accordance with Sunderland. [CO-3,2][L-3] **20**
- Q.4 A patient aged 50 year visited the department of physiotherapy with chronic pain, which mode of TENS will be suitable for the patient. Also explain different modes of current with its functions on pain gate. [CO-4,5][L-6] **20**

**PART-B**

- Q.5 Explain Faradic current with its physiological effects and indications to be used on human body. Briefly explain placement and technique for Faradism under pressure. [CO-1,4][L-2] **20**
- Q.6 Elaborate electro diagnostic technique, explaining strength duration curve for different grades of nerve lesion. Also explain what happens to chronaxie and rheobase with increasing grade of nerve lesion? [CO-2,3][L-3] **20**
- Q.7 A patient comes to department for deep seated muscle pain, explain which all modalities can be used stating best suited modality for above mentioned condition. Explain physiological effect and indication for usage of IFT on body with importance of beat frequency in usage of IFT [CO-2,3][L-3] **20**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Sixth Semester  
**NEUROLOGY PHYSIOTHERAPY (THEORY) (BPT-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) Epilepsy.
- b) Raccoon Eyes.
- c) MAS.
- d) RLA Stages.
- e) Cranial nerve VII.

[CO-1; L1] **4x5**

**PART A**

Q.2 Write notes on Disorder of tone, posture, bladder control, muscle contraction, movement, and pain in incomplete spinal cord injury patient. [CO-2; L3] **20**

Q.3 Discuss developmental disorders under following heads: prevention, early identification, diagnosis and management. [CO-1; L1] **20**

Q.4 What is stroke? Explain in detail about its etiology, classification, findings and management. [CO-4; L6] **20**

**PART B**

Q.5 What is Muscular dystrophy? Discuss in detail about its progression. Explain the role of rehabilitation team in its management. [CO-1; L4] **20**

Q.6 Explain PEM disorders. Write their management in detail. [CO-2; L2] **20**

Q.7 Write down the causes, clinical features, assessment and management of Parkinson's disease. [CO-4; L6] **20**

**End Semester Examination, May 2022**  
**Bachelor of Physiotherapy – Sixth Semester**  
**MANUAL THERAPY (BPT-603)**

Time: 2 hrs.

Max Marks: **50**

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 in brief:

- a) Define 'dysfunction syndrome'. [CO-2][L-1]
- b) What is the ideal patient position for C6-T1 Maitland mobilization? [CO-1][L-2]
- c) What are the indications for NAG? [CO-3][L-3]
- d) Write a short note on the 'use of McKenzie technique'. [CO-2][L-1]
- e) What are the grades of Kaltenborn mobilization? [CO-2][L-2] **2x5**

**PART A**

- Q.2 Discuss the use of massage therapy techniques for a biker, riding for more than 4hrs every day having limited ROM of back and radiating pain to the left leg. [CO-3] [L-5] **10**
- Q.3 Highlight the physiological effects of massage therapy on Cardiovascular and digestive system. [CO-2][L-2] **10**
- Q.4 Give the scientific rationale for the principles of mobilisation given by Maitland. Discuss the indications of various grades given by Maitland. [CO-3] [L-2] **10**

**PART A**

- Q.5 Give the diagrammatic representation and explanation of lower limb tension test for sural nerve. [CO-1][L-2] **10**
- Q.6 Which are the best neural tension tests to be used for the diagnosis of a patient having pain radiating to left arm? Give reasons. [CO-3][L-6] **10**
- Q.7 Describe the indications, techniques and contraindications of Mulligan technique for neck pain. [CO-2][L-2] **10**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Eighth Semester  
**COMMUNITY BASED REHABILITATION (THEORY) (BPT-801)**

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:

- a) Explain various types population dynamics. [CO 2] [L1]
- b) Classify demography. [CO3] [L 2]
- c) Explain matrix of CBR. [CO3] [L 1]
- d) Difference between CBR and DPR. [CO4] [L5]
- e) Write a short note patient charting. [CO2] [L1]
- f) Describe the principle of confidentiality and records. [CO5] [L4]
- g) Name the five stages of population which determine population composition and distribution. [CO 3] [L3]
- h) Explain mental health. [CO 1] [L 1]
- i) Enumerate various methods of contraception. [CO1] [L1]
- j) Define ergonomics and various occupational diseases. [CO3] [L1] **2x10**

**PART-A**

- Q.2 a) Elaborate the concept of CBR. Write in detail about Principle of CBR. [CO4][L3] **10**  
b) Discuss in detail members of CBR team. Write down role of each member in team in detail. [CO2] [L2] **10**
- Q.3 Elaborate public health. Discuss its principle and assessment in public health services. [CO5][L3] **20**
- Q.4 Explain why it is important to look into factors income, age, gender and density of the population when gathering demographic information that might affect the demand for a health center's services. Why do you need them? [CO2][L3] **20**

**PART-B**

- Q.5 Explain the National health program - high lighting the role of social economic and cultural factors in the implementation of the National (programme) and briefly explain health problems of vulnerable groups. [CO4] [L4] **20**
- Q.6 Write in details natural history of disease with mode of transmission, route of entry and discuss about the level of prevention. [CO3] [L2] **20**
- Q.7 Explain the occupational hazards in detail. Elaborate different occupational hazards. Write different level for the prevention from occupational hazards. [CO4] L3] **20**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Eighth Semester  
**SPORTS MEDICINE AND SPORTS PT (BPT-802)**

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 in brief:
- |   |                             |
|---|-----------------------------|
| a) Goalkeeper's thumb                       | [CO1, CO2] [L1]             |
| b) Golfer's elbow                           | [CO1, CO2] [L1]             |
| c) Unhappy triad                            | [CO1, CO2] [L1]             |
| d) Tennio Log                               | [CO3, CO4] [L3]             |
| e) Osgood Schlatter disease                 | [CO3, CO4] [L2]             |
| f) Open and closed kinematic chain exercise | [CO2, CO3] [L2]             |
| g) Empty can test                           | [CO2, CO3] [L3]             |
| h) Turf ToE                                 | [CO1] [L2]                  |
| i) Carrying angle                           | [CO3, CO4] [L3]             |
| j) Define TUE                               | [CO3, CO4] [L3] <b>2x10</b> |

**PART A**

- Q.2 A 21-year old man sustained fracture shaft of humerus which is reduced and treated conservatively with plaster of paris slab, visited a physical therapist one day after the removal of slab for further management. List out the assessment, aims and means of treat for the same. [CO3, CO4] [L4] **20**
- Q.3 Explain the different parts of sports helmet as a protective gear. Also, explain its usage and benefits. [CO3, CO4] [L4] **20**
- Q.4 Write the role of water intake in sports. Describe its effect and benefits. Also prescribe the amount of water intake before, during and after the competition. [CO1, CO4] [L3] **20**

**PART B**

- Q.5 A 24-year-old baseball pitcher complaining of shoulder pain whenever he throws a ball with 90-degree abduction. He shows no history of direct trauma or pull. Neer-impingement and Hawkins-kennedy tests are positive. Write down the detailed assessment and physiotherapy management. [CO3, CO4] [L4] **20**
- Q.6 Write down the on-field assessment and physiotherapy management of Ankle lateral sprain Grade II. [CO1, CO3] [L3] **20**
- Q.7 Explain the types of exercise and treatment prescription for a diabetic athlete of 45 years of age. [CO3, CO4] [L3] **20**

**End Semester Examination, May 2022**  
**Bachelor of Physiotherapy – Eighth Semester**  
**GENERAL PHYSIOTHERAPY (BPT-803)**

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 in brief:**

- a) For every cigarette an individual smoke the cilia are paralyzed for how much time? [CO2][L3]
- b) A 60yr old female patient with Knee OA presents with knee joint ROM as 10 to 100 degrees with difficulty in ADLs. Which movement you will restore first? [CO1][L2]
- c) Passive movement can be started after how many days of skin grafting. [CO2][L2]
- d) What is the clinical sign of DVT? [CO2][L2]
- e) Vestibular rehabilitation is unsuccessful in which case? [CO2][L3]
- f) Define 'urinary incontinence'. [CO1][L2]

**Fill in the blank:**

- g) Loss of hearing for low pitched tones is a feature of \_\_\_\_\_. [CO2][L4]
- h) Out of bed activities are contraindicated when a patient is connected to \_\_\_\_\_. [CO1][L2]
- i) Inhalation injury can be diagnosed with \_\_\_\_\_. [CO2][L1]
- j) Pain during labor arises from \_\_\_\_\_. [CO4][L3] **2x10**

**PART-A**

**Q.2 Explain the following:**

- a) Describe oedema. [CO1][L2]
- b) Define alopecia and its types. [CO2][L2]
- c) Explain keloids. [CO2][L3]
- d) Explain briefly path physiology in vestibular dysfunction. [CO2,][L2] **5x4**

**Q.3 Plan out a prenatal, exercise protocol for a 41 year old female emphasizing on the complications that might occur during pregnancy and precautions to be considered for the fetus and mother.** [CO3,4][L3] **20**

**Q.4 A 60 yr female patient has undergone both breast radical mastectomies. Discuss the principles of physiotherapy management for the same.** [CO3][L4] **20**

**PART-B**

- Q.5 a) Write in detail about ACSM guideline for exercise prescription in pregnancy.** [CO2][L3] **10**
- b) Explain the principles of post – operative physiotherapy management for a female patient of 42yrs old undergone surgery for incisional hernia.** [CO1,2][L5] **10**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Eighth Semester  
**DISABILITY PREVENTION AND REHABILITATION - (BPT-804)**

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 in brief:

- a) Write the classification of disability. [CO-1; L-2]
- b) In which stage of Poliomyelitis rehabilitation is advisable? [CO-1; L-2]
- c) Enlist any two techniques of handling wheelchair in public places. [CO-1; L-1]
- d) What do you mean by Autism? [CO-1; L-1]
- e) How much percentage of burns can be recovered under Mediclaim? [CO-1; L-1]
- f) PWD stands for? [CO-1; L-1]
- g) Define 'Rehabilitation'. [CO-1; L-1]
- h) Define 'MR'. [CO-1; L-1]
- i) Who leads the team of rehabilitation? [CO-1; L-1]
- j) Write the signs and symptoms of Neurosis. [CO-1; L-3] **2x10**

**PART-A**

- Q.2 Write in detail about the use of therapeutic exercises in old age population. [CO-1] [L-3, L-6] **20**
- Q.3 Describe various behavior strategies to improve the psychological level of patients suffering from Alzheimer's. [CO-2] [L-1, L-2] **20**
- Q.4 How would you categorize cerebral palsy? Write the assessment and rehabilitation for a six-year female child with a developmental age of 8 months. [CO-5] [L-1; L-6] **20**

**PART-B**

- Q.5 Discuss the Common deformities and the role of surgery in rehabilitation. [CO-1] [L-2; L-3] **20**
- Q.6 Describe the role of rehabilitation in patient with cardio respiratory dysfunction. [CO-3] [L-3] **20**
- Q.7 Differentiate between RA and OA. Write the appropriate rehabilitation for the two. [CO-1] [L-1; L-6] **20**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Fourth Semester  
**PSYCHOLOGY AND PSYCHIATRY - (BPT-AP-04)**

Time: 2 hrs.

Max Marks: **50**

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 in brief:

- a) Define 'behavior'.
- b) What is retrograde amnesia? Write its possible causes.
- c) Define 'abnormal Psychology'.
- d) Define 'anxiety disorders'. Give any two examples.
- e) What is OCD? What can be its management?

[CO-1] L-1] **2x5**

**PART-A**

Q.2 Differentiate between Psychosis and Neurosis.

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

Q.3 What do you understand by the term Thinking? Write a detail note on thinking abilities and its related problems.

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

Q.4 What are the various motivational theories? Explain any one in detail.

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

**PART-B**

Q.5 Write in detail about various personality disorders. What are the various issues and controversies related to these disorders?

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

Q.6 What do you mean by geriatric psychiatry? Write about various methods of assessment and treatment in geriatric population.

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

Q.7 What are the rationale of Psychotherapeutics? Explain in detail.

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



**End Semester Examination, May 2022**  
**Bachelor of Physiotherapy – Fourth Semester**  
**MEDICINE (BPT-DS-401)**

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) Inflammatory Bowel Disease.
  - b) Serum Bilirubin.
  - c) Leucopenia.
  - d) Dermatitis.
  - e) Corneal Ulcer.
  - f) Glaucoma.
  - g) Mastoidectomy.
  - h) Boil.
  - i) Diabetes Mellitus.
  - j) Cushing Syndrome.

**2x10**

**PART-A**

- Q.2 Define "HIV". Mention causative organism, clinical features and management of AIDS.  
[CO-1,2] [L-3] **20**
- Q.3 Write a short note on "venous thrombosis." Mention the clinical symptoms and Management of DVT.  
[CO-2,5] [L-2,3] **20**
- Q.4 Explain "Leprosy". Write its clinical manifestation and management.  
[CO-4,3] [L-4,2] **20**

**PART-B**

- Q.5 Describe in detail about Squint. Explain the types.  
[CO-1,3] [L-1] **20**
- Q.6 Write in detail about disorders of Pituitary gland. Mention their clinical features.  
[CO-4,1] [L-2] **20**
- Q.7 Explain "Blood transfusion" in detail.  
[CO-2,5] [L-4] **20**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Fourth Semester  
**SURGERY INCLUDING OBSTETRICS AND GYNAECOLOGY**  
**(BPT-DS- 402)**

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) Phases of normal labour. [CO3] [L1]
  - b) Acute Renal Failure. [CO1] [L1]
  - c) Ulcers. [CO3] [L1]
  - d) What is preterm baby? [CO4] [L4]
  - e) Briefly explain about Uterine bleeding. [CO1,2] [L5]
  - f) What is birth control? [CO4] [L1]
  - g) Stress incontinence. [CO2,4] [L1]
  - h) Enumerate the types of Grafts. [CO1] [L1]
  - i) Write the principles of Pre and Post-Operative Physical examination. [CO1,3] [L2]
  - j) Define 'obesity'. [CO4,5] [L3] **2×10**

**PART-A**

- Q.2 Explain Gestational Diabetes its prevention and management in detail. [CO2,5] [L3] **20**
- Q.3 Write notes on:
- a) Complication of labour. [CO4] [L5]
  - b) Prolapse Uterus. [CO4] [L5] **10×2**
- Q.4 Write notes on:
- a) Calculation of fluids administration in burn patients. [CO1] [L4]
  - b) Principles of skin grafting in plastic surgery and precautions. [CO2] [L3] **10×2**

**PART-B**

- Q.5 Explain the post-operative management of plastic surgery briefly explaining the reconstructive surgery used in burns. [CO2] [L1, 2] **20**
- Q.6 Write short notes on the complications of:
- a) Blood transfusion. [CO1,2] [L4]
  - b) Pelvic inflammatory disease. [CO1,2] [L4] **10×2**
- Q.7 Write the post-operative complications of abdominal surgeries. [CO1,2] [L4] **20**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Fourth Semester  
**BIOMECHANICS AND KINESIOLOGY (BPT-DS-403)**

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) Kinetics.
- b) Classification of Motion.
- c) Enumerate the biomechanical properties of skeletal muscles.
- d) Anatomical pulley.
- e) Newton's Second Law of Motion.
- f) Effect of immobilization on bones.
- g) Mechanical advantage of levers.
- h) Classification of lever.
- i) Example of second and third order lever from human body.
- j) Newton's first law of motion.

[CO-1] [L-1] **2x10**

**PART-A**

Q.2 Define 'equilibrium'. Give its classification and factors affecting the same.

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

Q.3 Write down the functions of skeletal muscles. Give classification according to arrangement of fibres with diagram.

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

Q.4 Discuss the structural and functional classification of joints with examples.

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

**PART-B**

Q.5 Discuss the detailed biomechanics of Gleno-Humeral Joint. Write a note on 'Scapulo-Humeral Rhythm'.

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

Q.6 Write down in detail about kinetics and kinematics of Elbow complex. Add a note on carrying angle.

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

Q.7 How many types of Pinches and Grips of Hand are present in human body? Write down their details.

[CO-1] [L-4] **20**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy — Fourth Semester  
**ETHICS AND ADMINISTRATION (BPT-DS-404)**

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) Expand DCPTOT and WCPT.
  - b) Affiliation.
  - c) Confidentiality.
  - d) Define 'staffing'.
  - e) Define 'CPA'.
  - f) Types of referral.
  - g) Filing.
  - h) Types of correspondence.
  - i) Importance of documentation.
  - j) SWOT analysis.

**2×10**

**PART-A**

- Q.2 Discuss various laws applicable to medical practice in India. [L2;1] **20**
- Q.3 Examine the relationship of physiotherapist with:
- a) Patient.
  - b) Other therapist.
  - c) Other medical professional.
- [L3;2] **20**
- Q.4 How do you plan for setting up a new clinic of physiotherapy? Explain in detail.

[L6;3] **20**

**PART-B**

- Q.5 Discuss the various services offered by the hospitals in India. [L1,2;3] **20**
- Q.6 What do you understand by communication? Discuss various types of communications in detail. [L5;1] **20**
- Q.7 What standards of professional conduct and ethical principles, a physiotherapist should follow? Elaborate. [L3;2] **20**

**End Semester Examination, May 2022**  
**Bachelor of Physiotherapy – Fourth Semester**  
**PROBLEM BASED LEARNING – (BPT-DS-405)**

Time: 2 hrs.

Max Marks: **50**

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 questions:

- a) Define 'cognition'. What are the various components of Cognition? [CO-1; L-1]
- b) Define 'behavior'. What is behavioral learning? [CO-1; L-1]
- c) What do you understand by constructivist Learning? [CO-1; L-1]
- d) Write the names of seven steps of problem design. [CO-1; L-1]
- e) What are the grading criteria in PBL? [CO-1; L-1] **2x5**

**PART-A**

Q.2 Differentiate between traditional and cognitive Learning. [CO-1; L-1] **10**

Q.3 How does the role of tutor enhances the clinical decision making in PBL? [CO-3; L-2] **10**

Q.4 What are the various Steps of problem design? Explain all in detail with suitable examples. [CO-4; L-5] **10**

**PART-B**

Q.5 Explain in detail about Gestalt theory. How does it help the students in problem solving? [CO-4; L-5] **10**

Q.6 Name various types of cognitive theories. Explain the concept of Deconditioning. [CO-1; L-1] **10**

Q.7 Online problem-based learning is in demand these days. Describe it in your words and share your view point. [CO-4; L-6] **10**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Sixth Semester  
**NEUROLOGY AND NEUROLOGY-SURGERY (BPT-DS-601/BPT-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.

Q.1 Answer the following:

- a) Discuss types of tremor.
- b) Define Uhthoff's phenomenon.
- c) Describe the lobes of brain and two functions of each lobe.
- d) Write a short note on 'Hoehn Yahr Classification of disability in Parkinson's disease'.
- e) What are the levels of consciousness?
- f) Name the cranial nerves and their function.
- g) Explain Brunnstrom classification of hemiplegia.
- h) Enumerate the ascending tracts.
- i) Write short note on shunts.
- j) Describe Gower's sign.

**2x10**

**PART-A**

- Q.2 Discuss in detail about the diseases of cerebellum and their features. Write note on ataxia [CO-1] [L-3] **20**
- Q.3 Explain in detail about multiple sclerosis, its types and management. [CO-3] [L-2] **20**
- Q.4 Discuss the anatomy of spinal cord. Elaborate various neural tube diseases and their management. [CO-2] [L-3] **20**

**PART-B**

- Q.5 Describe GBS in detail, its types and management. [CO-2] [L-3] **20**
- Q.6 Explain in detail about the preoperative management following shunting. Discuss in detail about types of shunting. [CO-4] [L-4] **20**
- Q.7 Discuss in detail both operative and non-operative management of spasticity. [CO-2] [L-3] **20**

**End Semester Examination, May 2022**  
**Bachelor of Physiotherapy – Sixth Semester**  
**NEUROLOGY AND PAEDIATRIC PHYSIOTHERAPY (BPT-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 Answer in brief:
- a) Define 'PEM'.
  - b) Discuss kernig's sign.
  - c) Describe GCS scale in detail
  - d) Write a short note on 'RLA Classification of head injury'.
  - e) What is Lhermitte's sign?
  - f) Explain ATNR and STNR.
  - g) Write a short note on 'global developmental delay'.
  - h) How to measure scoliosis?
  - i) Describe gower's sign.
  - j) Write a short note on 'epilepsy'.
- 2x10**

**PART-A**

- Q.2 Discuss in detail the laws of growth, factors affecting growth and GDD.[CO-1] [L-3] **20**
- Q.3 Define 'CVA'. Explain its types and physiotherapy management of the same.  
[CO-3] [L-2] **20**
- Q.4 Enumerate types of CP and its detailed PT management. [CO-2] [L-3] **20**

**PART-B**

- Q.5 Enumerate various cord syndromes. Discuss in detail the assessment of spinal cord injury.  
[CO-2] [L-3] **20**
- Q.6 Explain in detail about the ICU management of an individual with head injury.  
[CO-4] [L-4] **20**
- Q.7 Discuss in detail about muscular dystrophy and PT management. [CO-2] [L-3] **20**

**End Semester Examination, May 2022**  
**Bachelor of Physiotherapy - Sixth Semester**  
**RESEARCH METHODOLOGY AND BIOSTATISTICS**  
**(BPT-604/BPT-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 in brief:

- a) Define 'research designs'.
- b) Methods of collecting qualitative data.
- c) What is primary and secondary data?
- d) Enlist the methods of data representation.
- e) Define 'median'.
- f) Define 'positive co-relation'.
- g) What is open and closed questionnaire.
- h) Define 'confounding variables'.
- i) Differentiate between 'samples' and 'population'.
- j) Mention two measures of variability in distribution.

**2x10**

**PART-A**

Q.2 Compare and contrast between qualitative and quantitative study designs. Examine their advantages and disadvantages of each. (L5/L3; 2) **20**

Q.3 Describe the various factors which threaten the internal validity of a research study. (L2;3) **20**

Q.4 Calculate mean, median and mode of the following data:

Marks Range	No. of Students
0-5	7
5-10	10
10-15	16
15-20	30
20-25	24
25-30	17
30-35	10
35-40	5
40-45	1

(L3/L5;1) **20**

**PART-B**

Q.5 Design a research proposal for your study on a topic of your choice. (L6; 2) **20**

Q.6 Describe the characteristics of a hypothesis. Classify different types of hypothesis. Justify the significance of p-value. (L2/L4/L5; 1) **20**

Q.7 Summarize the various ethical principles to be followed in clinical research. Describe



**End Semester Examination, May 2022**  
Bachelor of Physiotherapy – Sixth Semester  
**BASICS OF MANUAL THERAPY (BPT-DS-604)**

Time: 2 hrs.

Max Marks: **50**

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:

- a) Define 'derangement syndrome'. (CO-2, L-1)
- b) What is the ideal patient position for back massage? (CO-1, L-2)
- c) What are the indications for SNAG and NAG? (CO-3, L-3)
- d) Write a short note on the 'use of shoulder mobilisation'. (CO-2, L-1)
- e) What are the grades of mobilization? (CO-2, L-2) **2x5**

**PART A**

- Q.2 Discuss the use of massage therapy techniques for a worker lifting weight having limited ROM of back and radiating pain to the left leg. (CO-3, L-5) **10**
- Q.3 Highlight the physiological effects of massage therapy on neurological and musculoskeletal system. (CO-2, L-2) **10**
- Q.4 Give the scientific rationale for the principles of mobilisation given by Maitland. Discuss the indications of various grades given by Maitland. (CO-3, L-2) **10**

**PART A**

- Q.5 Give the diagrammatic representation of upper limb tension test for radial nerve. (CO-1, L-2) **10**
- Q.6 Which are the best neural tension tests to be used for the diagnosis of a patient having neck pain radiating to left arm? Give reasons. (CO-3, L-6) **10**
- Q.7 Describe the indications, techniques and contraindications of McKenzie technique of musculoskeletal diagnosis. (CO-2,3, L-2) **10**

**End Semester Examination, May 2022**  
**M.Sc. (Nutrition & Dietetics) – Third Semester**  
**CRITICAL ISSUE IN PUBLIC HEALTH NUTRITION (MN&D-308)**

Time: 2 hrs.

Max Marks: **50**

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 Discuss the method of assessment of the nutritional status of the community, to determine various health problems. [CO1][L2] **10**

**PART-A**

- Q.2 A clinical sign of "Bitot Spot" was identified among children under 5 years of age. Identify the deficiency. Discuss its aetiology, prevention and management at community level. [CO2][L4] **10**

- Q.3 Discuss the role of population dynamics factors in determining health conditions of a country. [CO4][L2] **10**

- Q.4 Obesity is a leading risk factor of various non-communicable diseases. Discuss the aetiology, biochemical and metabolic changes occurred due to it. List the non-communicable diseases. [CO3] [L4] **10**

**PART-B**

- Q.5 Discuss the public health implications of Anemia, deficiency of vitamin B6 and vitamin B12. [CO1][L2] **10**

- Q.6 GDP and Malnutrition are interrelated, elaborate the statement. [CO2][L3] **10**

- Q.7 Discuss various socioeconomic factors causing inequalities in nutritional outcome. [CO2][L3] **10**

**End Semester Examination, May 2022**  
**M. Sc. (Nutrition and Dietetics) – Third Semester**  
**SPORTS NUTRITION FOR DISABLED (MN&D-GE-07)**

Time: 2 hrs.

Max Marks: **50**

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 What is the role and responsibilities of IPC? [CO-1][L-3] **10**

**PART-A**

Q.2 What is an AHSN committee responsibility? [CO-1][L-2] **10**

Q.3 What is the role of sports science committee? [CO-2][L-3] **10**

Q.4 Define "Anti-doping Committee". [CO-2][L-3] **10**

**PART-B**

Q.5 Discuss about nutritional requirement for disability in sports. [CO-3][L-2] **10**

Q.6 Comments on benefits of fitness program. [CO-3][L-3] **10**

Q.7 What are the common medical problems in disabled athletes? [CO-3][L-2] **10**

**End Semester Examination, May 2022**  
M.Sc. (N&D) – Second Semester  
**STATISTICS METHODS FOR APPLIED SCIENCES (MND-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 Explain the different steps involved in research proposal formation. What are the characteristics of a good researcher **20**

**PART-A**

- Q.2 Define the sampling methods. Discuss probability sampling methods in detail. [CO2] [L-1] **20**

- Q.3 Define and calculate mean, median and mode of the following data. Discuss the advantages of each measure.

Marks	Number of Students
0-10	17
10-20	20
20-30	34
30-40	22
40-50	7

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

- Q.4 Define different types of hypothesis using an appropriate example. [CO-4] [L-2] **20**

**PART-B**

- Q.5 Suppose a researcher wishes to estimate the prevalence of vitamin D among middle aged population. The anticipated prevalence of vitamin D is 80%. What should be the sample size for this investigation when simple random sampling is used at 95% level of confidence? Describe types of error in detail and how they facilitate in sample size calculation. [CO-2] [L-4] **20**

- Q.6 Describe the steps to conduct a paired t-test and Chi-Square in SPSS. [CO-4] [L-2] **20**

- Q.7 A student was interested in knowing the effect of different type of salads eating lead to a more positive outlook on life. People were split into 4 groups and then given a plate of food. The four groups consumed: A plate of salad, salad with vinegar dressing, salad with white eggs, salad with whole egg. After the program a blood sample was taken and serotonin levels measured (remember more serotonin means more happy!).

Find out which group of people was happier than others at 95% confidence interval.

Salad with whole egg	Salad with white eggs	Salad with vinegar dressing	Salad
11	4	4	7
7	8	3	7
8	6	2	5
14	11	2	4

**End Semester Examination, May 2022**  
**M. Sc. (Nutrition and Dietetics) – Second Semester**  
**TECHNIQUES IN FOOD ANALYSIS (MND-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**. Each question carries equal marks.

Q.1 What is Henderson-Hasselbalch equation? What is the significance of pH indicators? **20**

**PART-A**

Q.2 a) Buffer is an important aspect in food analysis. Elaborate it. [CO-1][L-2] **10**  
b) What is salt? Explain properties of salt in detail. [CO-1][L-2] **10**

Q.3 a) Discuss the principle and working of a spectrophotometer. [CO-3][L-4] **10**  
b) Explain physiochemical analysis with suitable examples. [CO-3][L-4] **10**

Q.4 Write short notes on:  
a) Colorimetry.  
b) Photometry. [CO-2][L-5] **10×2**

**PART-B**

Q.5 What is Beer-Lambert's law? Explain the principle and working of GLC. [CO-4][L-1] **20**

Q.6 Write short notes on:  
a) RIA.  
b) NMR. [CO-2][L-6] **10×2**

Q.7 What is ELISA? Explain its significance in hematology in detail. [CO-3][L-5] **20**

**End Semester Examination, May 2022**  
M. Sc. – Second Semester  
**INSTITUTIONAL FOOD SERVICE MANAGEMENT**  
**(MND-DS-203)**

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 Explain the functions of management with respect to food service organization by taking a suitable example. **20**

**PART A**

- Q.2 What are the different types of menu? Explain with suitable examples. What are steps involved in menu planning? [CO-2][L-3] **20**
- Q.3 List and explain different styles of food service. Design any two types of menu cards. [CO-1] [L-5] **20**
- Q.4 Explain the role of personnel manager. How employee benefits can help in achieving goals of an organization? [CO-4][L-4] **20**

**PART B**

- Q.5 Describe the concept of work simplification with respect to planning of service areas in food service unit. [L-2][CO-3] **20**
- Q.6 Explain the importance of hygiene and sanitation in food service unit. What are the current initiatives taken by the government to ensure hygienic food available to the masses? [CO-3][L-5] **20**
- Q.7 Describe the principles of effective purchasing. Explain the concept of Maslow's theory. [CO-2] [L-1] **20**

**End Semester Examination, May 2022**  
**M. Sc. (Nutrition and Dietetics) – Second Semester**  
**NUTRITION IN HEALTH AND DISEASE (MND-DS-204)**

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 Plan a nutrition care process (NCP) for 40 years old male who is suffering with Hyperlipidemia. His weight is 80 kg and height 155cm. He is a non-vegetarian and occasionally drinks. [CO-3][L-6] **20**

**PART-A**

- Q.2 Describe the therapeutic adaptation of the normal diet and different modes of feeding. [CO-2][L-2] **20**
- Q.3 Differentiate between 'under-weight' and 'over-weight'. Give the classification of BMI and its relation with obesity. [CO-4][L-3] **20**
- Q.4 Describe the pathophysiology and nutritional management of ulcerative colitis in detail. [CO-4][L-3] **20**

**PART-B**

- Q.5 Discuss the etiology of atherosclerosis and describe the dietary modification required to prevent it. [CO-1][L-3] **20**
- Q.6 Describe the complications related to diabetes in detail. [CO-3][L-2] **20**
- Q.7 Give the suitable dietary modification required for hyperglycemic patient with emphasis on carbohydrate modification. [CO-4][L-5] **20**

**End Semester Examination, May 2022**  
M. Sc. (Nutrition and Dietetics) – Second Semester  
**NUTRACEUTICALS AND FUNCTIONAL FOODS (THEORY) (MND-DS-205)**

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 Illustrate the role of nutraceuticals in reducing the risk of:

- a) Diabetes.
- b) Coronary heart disease.

[CO-4][L-2] **20**

**PART-A**

Q.2 Throw some light on role of nutraceuticals in traditional health sciences. [CO-4][L-3] **20**

Q.3 How will you classify nutraceuticals on the basis of food sources? [CO-2][L-1] **20**

Q.4 Nutraceuticals and functional foods both have health promoting action but are different in terms of food sources. Justify your reason by giving five suitable examples. [CO-1,2][L-5] **20**

**PART-B**

Q.5 Yogurt, a fermented milk is most research surpassed probiotic product. Associate the functional properties of yogurt with the health effects. [CO-3][L-5] **20**

Q.6 How five approaches of production of functional food can be utilized to convert a simple food into a functional one? Illustrate with suitable examples. [CO-2][L-1] **20**

Q.7 Categorize health claims and give their significance in the field of functional foods. [CO-1,4][L-4] **20**



**End Semester Examination, May 2022**  
**M. Sc. (Nutrition and Dietetics) – Second Semester**  
**NUTRITION FOR ELDERLY (MND-DS-206)**

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 What do you mean by multifaceted aspects of aging and how do you apply nutritional knowledge for health care to the elderly? [CO-2][L-3] **20**

**PART-A**

- Q.2 Discuss the historical review of health care for the elderly. [CO-1][L-2] **20**
- Q.3 Define "Aging". Describe the physiological, psychological and social processes of aging. [CO-2][L-3] **20**
- Q.4 What is geriatric care? Explain the philosophy and scope of geriatric care. [CO-3][L-3] **20**

**PART-B**

- Q.5 Discuss the name and functions of National and International agencies working for the welfare of elderly. [CO-2][L-4] **20**
- Q.6 Describe the nutritional requirement and recommended dietary allowances for elderly. [CO-3][L-5] **20**
- Q.7 What factors influencing food intake of elderly? Discuss the points with suitable example. [CO-4][L-4] **20**

**End Semester Examination, May 2022**  
**M. Sc. (Nutrition and Dietetics) – Second Semester**  
**SCIENTIFIC WRITING AND COMMUNICATION SKILLS (MND-DS-207)**

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 Identify one research problem in the community and develop research proposal. [CO-4][L-3] **20**

**PART-A**

- Q.2 Discuss in details of the introduction of research methodology. [CO-1][L-2] **20**
- Q.3 Write four research design purpose and definition. [CO-2][L-2] **20**
- Q.4 Write steps in the development of a health systems research proposal and define objectives. [CO-2][L-3] **20**

**PART-B**

- Q.5 Discuss about the good methodology develop plan. [CO-3][L-2] **20**
- Q.6 How to formulate a good results in the research? [CO-4][L-4] **20**
- Q.7 Define "variables and hypothesis" in detail. [CO-4][L-3] **20**

**End Semester Examination May 2022**  
**M.Sc. (Nutrition and Dietetics) – Fourth Semester**  
**NUTRITION AND HEALTH PROMOTION (MND-DS-402)**

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**. Each question carries equal marks.*

Q.1 Discuss the individual and environmental factors which determines the food choices.

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

**PART-A**

Q.2 Explain Bangkok Charter for health promotion in a globalized world.

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

Q.3 Design suitable intervention for promotion of oral health program, giving suitable examples.

[CO 4] [L 5] **20**

Q.4 Illustrate how the study of health promotion helps in describing socio-cultural value for determination of health promotion?

[CO 4] [L 4] **20**

**PART-B**

Q.5 Critically analyze the current national dietary guidelines.

[CO 1] [L 5] **20**

Q.6 Throw some light on Ottawa charter for health promotion in a globalized world.

[CO 3] [L 3] **20**

Q.7 Describe the theories of health behavior. Comment on the ethics in nutrition and health communication.

[CO 4] [L 2] **20**

**End Semester Examination, May 2022**  
**M. Sc. (Nutrition and Dietetics) – Third Semester**  
**DIETETIC TECHNIQUES AND COUNSELING (MNDC-303)**

Time: 3 hrs.

Max Marks: **50**

*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**. Each question carries equal marks.*

Q.1 Define "counseling". Also elaborate its scopes and limits in detail. [CO-1][L-2] **10**

**PART-A**

Q.2 Discuss the role of a nutritionist in the medical team and in outreach services. [CO-1][L-2] **10**

Q.3 "Counseling theories are expansive". Comment on it. [CO-2][L-4] **10**

Q.4 Describe the steps involved in the counseling process using suitable examples. [CO-3][L-3] **10**

**PART-B**

Q.5 What are the pre-requisite qualities a counselor should possess? [CO-4][L-3] **10**

Q.6 Demarcate the role of counseling resources and aids for educating the masses. [CO-3][L-2] **10**

Q.7 Why evaluating a follow up result is so important after a counseling session? [CO-2][L-3] **10**

**End Semester Examination, May 2022**  
**M.Sc. (Nutrition and Dietetics) – Fourth Semester**  
**NUTRITION IN EMERGENCIES AND DISASTERS (MNDC-401)**

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**. Each question carries equal marks.*

- Q.1 What are the main functions of national nutrition programme in emergencies? Explain the monitoring of food adequacy, access and intake in detail. **20**

**PART-A**

- Q.2 Highlight the Causes of malnutrition in emergency situations. **20**
- Q.3 Explain the nutritional problems which occur in vulnerable group .Discuss the causes of malnutrition in emergency situation. **20**
- Q.4 Describe the indicators of malnutrition and how it is important in rapid nutritional surveys and individual screening during disasters. **20**

**PART-B**

- Q.5 What are the strategies for Food distribution to the sufferers for nutritional relief and rehabilitation? **20**
- Q.6 What are the measures taken during transportation and storage of food. **20**
- Q.7 Write short notes on:  
a) Health information system.  
b) Control of communicable diseases during emergencies. **10x2**

**End Semester Examination May 2022**  
M.Sc. (N&D) – Fourth Semester  
**NUTRITION IN EMERGENCY (MNDC-DS-401)**

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**. Each question carries equal marks.

- Q.1 Classify the natural and manmade disasters. What is the role of national and international agencies to overcome with these emergency situations? [CO3] [L3] **20**

**PART-A**

- Q.2 What factors giving rise to emergency situation? Discuss any one case study illustrations using from Indian subcontinent. [CO1] [L1] **20**

- Q.3 Explain the nutritional problems occurring in vulnerable group. Discuss the causes of malnutrition in emergency situation. [CO2] [L2] **20**

- Q.4 What are the causes and consequences of PEM? How we treat PEM in emergency situation? [CO3] [L2] **20**

**PART-B**

- Q.5 How we assess the food need in emergency situations? Discuss the food distribution strategy in detail. [CO4] [L4] **20**

- Q.6 Write short notes on:

- a) Seriously abnormal nutrition situations.
- b) Control of communicable diseases during emergencies. [CO2] [L3] **10x2**

- Q.7 Explain stepwise the key emergency management functions with suitable examples. [CO4] [L4] **20**

**End Semester Examination, May 2022**  
M.Sc. (N&D) – Fourth Semester  
**FOOD PROCESSING AND MICROBIOLOGY (MNDF-DS-401)**

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**. Each question carries equal marks.

Q.1 Write short notes on:

- |                            |            |
|----------------------------|------------|
| a) Obligate anaerobes.     | [CO3] [L1] |
| b) Psychrophiles.          | [CO3] [L1] |
| c) Halophilic bacteria.    | [CO3] [L1] |
| d) Saccharolytic bacteria. | [CO3] [L1] |
| e) Mesophilic bacteria.    | [CO3] [L1] |

**4x5**

**PART-A**

- Q.2 Give detailed view of methods of identification of micro-organism in context to food industry. [CO3] [L2] **20**
- Q.3 Determine the role of micro-organisms in reducing the shelf life of fish and poultry foods. [CO3] [L4] **20**
- Q.4 Summarize the steps involved in preparation of beer. [CO2] [L2] **20**

**PART-B**

- Q.5 Analyze the role of Staphylococcus and Clostridium species in food poisoning. [CO1] [L4] **20**
- Q.6 Justify the importance of secondary metabolites of microbial metabolic pathways in benefits to society. [CO4] [L5] **20**
- Q.7 'National Control agencies has significant impact on ensuring the food quality and safety in India'. Comment on the statement by thorough discussion. [CO4] [L3] **20**

**End Semester Examination May 2022**  
M.Sc. (N&D) – Fourth Semester  
**PUBLIC HEALTH AND MALNUTRITION (MNDP-DS-401)**

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**. Each question carries equal marks.

Q.1 What are the consequences of public health malnutrition in India? [CO 4] [L 3] **20**

**PART-A**

Q.2 Write in details of epidemiology study design and its application. [CO 1] [L 2] **20**

Q.3 Describe protein energy malnutrition etiology, prevention and management. [CO 2] [L 3] **20**

Q.4 Define public health aspects of under nutrition in different stages of lifecycle. [CO 2] [L 3] **20**

**PART-B**

Q.5 Explain implication of Diabetes etiology, prevention and management in context to public health nutrition. [CO 3] [L 2] **20**

Q.6 How the policy options, alleviating the malnutrition in India? [CO 3] [L 3] **20**

Q.7 What is the current malnutrition status in India? [CO 4] [L 3] **20**



**End Semester Examination, May 2022**  
**M.Sc. (Nutrition and Dietetics) - Fourth Semester**  
**RECENT TRENDS IN SPORTS NUTRITION (MNDS-DS-401)**

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**. Each question carries equal marks.

- Q.1 What are the myths related to nutrition in the field of sports? Discuss with examples.  
[CO 1] [L 1] **20**

**PART-A**

- Q.2 Throw some light on food guide pyramid designed for athletes. Discuss it in detail.  
[CO 1] [L 3] **20**
- Q.3 Illustrate with suitable examples about career opportunities in sports management companies for a sports nutrition graduate.  
[CO 3] [L 3] **20**
- Q.4 Diagrammatically explain the of current and proposed Indian Model of Sports Governance.  
[CO 2] [L 4] **20**

**PART-B**

- Q.5 Write short notes on:  
a) ICC  
b) SAI  
[CO 3] [L 2] **10×2**
- Q.6 Justify the role of Sports in Society by enumerating some examples of current scenario.  
[CO 3] [L 5] **20**
- Q.7 Enumerate some important points to be considered while planning and developing a sports drink/supplement.  
[CO 4] [L 2] **20**

**Annual Examination, May 2022**  
Master of Physiotherapy — First Year  
**REVIEW OF BASIC SCIENCES-I (ANATOMY AND PHYSIOLOGY)**  
**(MPT 101)**

Time: 3 hrs.

Max Marks: **80**

No. of pages: **1**

Note: Attempt **SIX** questions in all; from which attempt any **TWO** questions from **PART-A** and **FOUR** questions from **PART-B**. Marks are indicated against each question.

**PART-A**

- Q.1 Explain the effect of exercise on hormones. [CO-2][L-4] **10**
- Q.2 Explain doping, enumerate banned substances like drugs and steroids for sports person. [CO-3][L-4] **10**
- Q.3 Explain briefly the fast and slow twitch fibers. Also write down the effects of exercise on muscles. [CO-5][L-5] **10**

**PART-B**

- Q.4 Write a descriptive note on General Training Principles and adaptations to exercise training. [CO-3][L-4] **15**
- Q.5 Discuss in detail the mechanisms of thermoregulation. [CO-3][L-6] **15**
- Q.6 Discuss the regulation and action of hormones in detail with emphasis on hormone-hormone interaction. [CO-4][L-4] **15**
- Q.7 What is the vital capacity and what is the effect of prolonged exercise on this volume? [CO-2][L-2] **15**
- Q.8 In what ways should the diet of a long distance runner be different from that of a weight lifter? Give reasons for your answer. [CO-1,2][L-3] **15**
- Q.9 What do you understand by the term a-vO<sub>2</sub> diff and why does it increase during exercise? [CO-2,4][L-6] **15**

**Annual Examination, May 2022**  
Master of Physiotherapy — First Year  
**REVIEW OF BASIC SCIENCES II (PATHOLOGY AND PHARMACOLOGY)**  
**(MPT-102)**

Time: 3 hrs.

Max Marks: **80**

No. of pages: 1

Note: Attempt **SIX** questions in all; in which attempt any **TWO** questions from **PART-A** and **FOUR** questions from **PART-B**. Marks are indicated against each question.

**PART-A**

- Q.1 Write the uses of NSAIDs in management of musculoskeletal injuries. What points have to be kept in mind while treating a patient with NSAIDs? **10**
- Q.2 Define "Cell Injury". Write its etiology, pathogenesis and morphology in detail. **10**
- Q.3 Write a note on 'myasthenia gravis and muscle atrophy'. **10**

**PART-B**

- Q.4 Discuss the risk factors of atherosclerosis. Write sequential pathological changes and lab diagnosis of myocardial infarction. **15**
- Q.2 Define "Healing". Give the factors that influence healing and write the differences between healing by first and second union. **15**
- Q.3 Discuss classification of congenital heart diseases and give tetralogy of fallot in detail. **15**
- Q.4 Define "Inflammation". Write in detail about granulomatous inflammation. **15**
- Q.5 Discuss the following:  
a) Osteomyelitis.  
b) Osteoporosis.  
c) Osteoarthritis. **5×3**
- Q.6 Discuss the role of local anaesthetics, steroids, NSAIDs and muscle relaxants in treating pain. **15**

**Annual Examination, May 2022**  
**Master of Physiotherapy – First Semester**  
**APPLIED PHYSIOTHERAPY (MPT-103)**

Time: 3 hrs.

Max Marks: **80**

No. of pages: **1**

Note: Attempt **SIX** questions in all; in which attempt any **TWO** questions from **PART-A** and **FOUR** questions from **PART-B**. Marks are indicated against each question.

**PART-A**

- Q.1 Discuss in detail the types resistance training. Plan a resistance training protocol for an athlete after ACL reconstruction. [CO-3][L-6] **10**
- Q.2 Explain pain gate theory along with different modes of TENS and its evidence for usage on pain inhibition. [CO-2][L-3] **10**
- Q.3 Explain LASER. Explain in detail production of LASER along with physiological effect and evidence for indications. [CO-1][L-4] **10**

**PART-B**

- Q.4 Discuss spatial and temporal parameters of gait. [CO-3][L-3] **15**
- Q.5 Explain HVPGS and evidence of usage, its principle of working with indications for HVPGS. [CO-4][L-5] **15**
- Q.6 Discuss the principle of neurodynamic. Explain the neural stretch for Sural nerve and Tibial nerve. [CO-3][L-2] **15**
- Q.7 What are Russian currents classify them and explain evidence protocol for usage of these currents? [CO-2][L-3] **15**
- Q.8 Explain muscle contraction, myostatic contracture and autogenic inhibition. Discuss SAID principle. [CO-3][L-4] **15**

**Annual Examination, May 2022**  
Master of Physiotherapy – First Semester  
**APPLIED BIOMECHANICS AND ERGONOMICS (MPT-104)**

Time: 3 hrs.

Max Marks: **80**

No. of pages: **1**

Note: Attempt **SIX** questions in all; in which attempt any **TWO** questions from **PART-A** and **FOUR** questions from **PART-B**. Marks are indicated against each question.

**PART-A**

- Q.1 Define "Biomechanics". What are the uses of studying Biomechanics in physiotherapy? [CO-1][L-1] **10**
- Q.2 Define "Newton's Laws of motion" with example from human body. [CO-2][L-2] **10**
- Q.3 Differentiate between isometric, isotonic and isokinetic exercises. [CO-4][L-2] **10**

**PART-B**

- Q.4 Define "Stride". Discuss the determinants of GAIT in detail with diagram. [CO-5][L-3] **15**
- Q.5 Write down the biomechanics of Knee joint in detail and write a note on screw home mechanism. [CO-3][L-2] **15**
- Q.6 Discuss the biomechanics of elbow Joint. Add a short note on carrying angle. [CO-3][L-3] **15**
- Q.7 Define "Ergonomics". What advice will be given to computer operator who sits in front of the computer for 7-8 hrs a day? [CO-6][L-6] **15**
- Q.8 a) Give the classification of the equilibrium. [CO-4][L-2] **7½**  
b) Add a note on mechanical advantage of levers. [CO-4][L-2] **7½**
- Q.9 Give classification of muscle according to the fibre arrangement with example. [CO-4] [L-1] **15**

**Annual Examination, May 2022**  
Master of Physiotherapy — First Year  
**BIOSTATISTICS AND RESEARCH METHODOLOGY (MPT-105)**

Time: 3 hrs.

Max Marks: **80**

No. of pages: **1**

Note: Attempt **SIX** questions in all. Attempt any **TWO** questions from **PART-A** and **FOUR** questions from **PART-B**. Marks are indicated against each question.

**PART-A**

Q.1 Calculate mean, median and mode of the following data:

Marks Range	No. of Students
0-5	7
5-10	10
10-15	16
15-20	30
20-25	24
25-30	17
30-35	10
35-40	5
40-45	1

Also comment on the type of distribution

**10**

Q.2 Describe the various ethical principles to be followed in clinical research. Describe informed consent in detail. Also explain such situations where informed consent cannot be obtained. Also suggest remedial measures for it.

**10**

Q.3 The grades of 36 students in an auditing test are:

Grades	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No. of students	3	4	6	10	6	4	3

Find standard deviation.

**10**

**PART-B**

Q.4 Define 'hypothesis'. What are the different types of hypothesis? Describe the characteristics of a hypothesis. Also explain the significance of a P-value.

**15**

Q.5 Discuss sampling. What are its different types?

**15**

Q.6 Write the properties of a normal distribution curve along with the diagram. Add a note on skewness and kurtosis.

**15**

Q.7 What is the meaning of measurement in research? What difference does it make whether we measure in terms of a nominal, ordinal, interval or ratio scale? Explain with examples.

**15**

Q.8 Differentiate between validity and reliability. Mention their various types.

**15**

Q.9 What are various methods of data collection? Explain with examples.

**15**

**Annual Examination, May 2022**  
Master of Physiotherapy – First Year  
**PROFESSIONAL DEVELOPMENT AND ETHICS (MPT-106)**

Time: 3 hrs.

Max Marks: **80**

*No. of pages: 1*

Note: Attempt **SIX** questions in all; in which attempt any **TWO** questions from **PART-A** and **FOUR** questions from **PART-B**. Marks are indicated against each question.

**PART-A**

- Q.1 Discuss the various services provided by a hospital in India. [CO4][L3] **10**
- Q.2 What is understood by bloom taxonomy? Mention the various domains. [CO3][L2] **10**
- Q.3 Explain the process of decision making. [CO1][L3] **10**

**PART-B**

- Q.4 Explain the teaching learning process in education pedagogy? Highlight important differences between teacher centric and student centric process with examples. [CO2][L4] **15**
- Q.5 Explain the scope of practice for a physiotherapist in India. Discuss the pros and cons of physiotherapist as a first contact practitioner. [CO1][L5] **15**
- Q.6 What is organisation management? Explain the need and essential features of organisation management. [CO4][L3] **15**
- Q.7 Define "Referrals" and its types. Explain in the light of medical services. [CO1][L4] **15**
- Q.8 What is performance appraisal? Add a note on its benefits and types. [CO2][L3] **15**
- Q.9 Discuss the process of monitoring and evaluation in education pedagogy. [CO2][L4] **15**

**End Semester Examination, May 2022**  
Master of Physiotherapy - Second Semester  
**APPLIED CLINICAL NUTRITION (MPT-402/MPT-DS-402)**

Time: 2 hrs.

Max Marks: **50**

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 Describe in detail the ABCD approach used to assess the nutritional status.

[CO3][L4] **10**

**PART-A**

Q.2 Describe the therapeutic adaptation of the normal diet with suitable examples.

[CO2][L2] **10**

Q.3 Differentiate between 'enteral' and 'parenteral' nutrition.

[CO4][L3] **10**

Q.4 Describe the pathophysiology and nutritional management of Gout in detail.

[CO4][L3] **10**

**PART-B**

Q.5 Discuss the dietary modification required for hyperlipidemic patient.

[CO1][L3] **10**

Q.6 Describe the meal management related to Diabetes in detail.

[CO3][L2] **10**

Q.7 Write short notes on **(any two)**:

- a) Gluten enteropathy.
- b) Lactose intolerance.
- c) Phenylketonuria.

[CO-5][L-2] **5x2**



**End Semester Examination, May 2022**  
Master of Physiotherapy – Fourth Semester  
**INTERDISCIPLINARY LEARNING / PEDAGOGY, ADMINISTRATION,  
MANAGEMENT AND ETHICS ISSUES IN PHYSIOTHERAPY**  
**(MPTN/MPTS/MPTM-DS-401)**

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 in brief:

- a) Differentiate between lecture and demonstration method of teaching.
- b) Collective bargaining.
- c) Confidentiality.
- d) Differentiate between projected and non projected AV aids.
- e) Expand WCPT and DCPTOT.
- f) Enumerate agencies of education.
- g) What are different types of referrals?
- h) Discuss problem based method of learning.
- i) Discuss types of teaching aids.
- j) Discuss documentation.

**2x10**

**PART-A**

Q.2 Discuss the functioning of hospitals in Indian healthcare system along with its role and services. **20**

Q.3 Write different principles of standards of professional practice for a physiotherapist. **20**

Q.4 What is performance appraisal? Discuss various methods of appraisal. **20**

**PART-B**

Q.5 Write in detail formal, informal and non-formal education. **20**

Q.6 Define 'curriculum'. Explain in detail with suitable examples the process of curriculum development. **20**

Q.7 Discuss the taxonomy of educational objectives as described by Bloom. **20**

**End Semester Examination, May 2022**  
**OPEN ELECTIVE – COMMON FOR ALL BRANCHES**  
**FOOD TOXICOLOGY (ND-OE-002)**

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 Give definition of following:

- a) Food poisoning.
- b) Anti-nutritional factors.
- c) Microbial toxins.
- d) Food packaging.

[CO-1] [L-1] **5x4**

**PART-A**

Q.2 Summarize about food poisoning its types and its causative factors. [CO-1] [L-5] **20**

Q.3 Discuss in detail about Natural food toxins, its harmful effects and methods of removal. [CO-2] [L-2] **20**

Q.4 Comment on microbial toxins and food intoxications its various sources of contamination.

[CO-2] [L-3] **20**

**PART-B**

Q.5 Discuss in detail about residual effects of heavy metals, when present in our food chain. [CO-2] [L-4] **20**

Q.6 Give an overview of Indian foods laws and standards and their role in controlling quality of foods. [CO-4] [L-4] **20**

Q.7 Illustrate with examples about purpose of packaging and types of packaging materials. [CO-3] [L-2] **20**

**End Semester Examination, May 2022**  
Bachelor of Physiotherapy— Fourth Semester  
**ETHICS AND ADMINISTRATION (BPT-DS-404)**

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 the following:

- a) Expand DCPTOT and WCPT.
- b) Affiliation.
- c) Confidentiality.
- d) Define 'staffing'.
- e) Define 'CPA'.
- f) Types of referral.
- g) Filing.
- h) Types of correspondence.
- i) Importance of documentation.
- j) SWOT analysis.

**2×10**

**PART-A**

Q.2 Discuss various laws applicable to medical practice in India.

(L2;1) **20**

Q.3 Examine the relationship of physiotherapist with:

- a) Patient
- b) Other therapist.
- c) Other medical professional.

(L3;2) **20**

Q.4 How do you plan for setting up to a new clinic of physiotherapy? Explain in detail.

(L6;3) **20**

**PART-B**

Q.5 Define 'planning'. Explain in detail about planning cycle. Give suitable examples.

(L1/2;3) **20**

Q.6 Prepare a plan for:

- a) First interview.
- b) Career development.
- c) Time management.

(L5;1) **20**

Q.7 What standards of professional conduct a physiotherapist should follow? Elaborate.

(L3;2) **20**

**End Semester Examination, May 2022**  
**OPEN ELECTIVE - COMMON FOR ALL BRANCHES**  
**INTRODUCTION TO COMMUNITY HEALTH (PT-OE-001)**

Time: 2 hrs.

Max Marks: **50**

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 a) Define 'public health'. (CO-1,2,L-1)  
b) Differentiate between 'communicable' and 'non-communicable' diseases. (CO-1,L-2)  
c) What is the importance of exercise in community health? (CO-1,L-3,4)  
d) Define 'social medicine'. (CO-3,L-1,2)  
e) Explain health promotion. (CO-2,L-1)**2x5**

**PART-A**

- Q.2 How cultural and language differences act as a barrier to provision of quality care by the health workforce? (CO-1,2,L-2)**10**
- Q.3 Write down the important aspects of health belief model. (CO-2,L-1,2)**10**
- Q.4 Discuss Food insecurity and nutritional access in present day scenario. (CO-3,L-6)**10**

**PART-B**

- Q.5 What do you understand by Social determinants of health? Present your views. (CO-1,2,L-5)**10**
- Q.6 Elaborate the different theoretical construction of health belief model. (CO-2,L-2)**10**
- Q.7 How does the lack of healthcare access affect population health and patient well-being in a community? (CO-3,L-3)**10**

**End Semester Examination, May 2022**  
**OPEN ELECTIVE - COMMON FOR ALL BRANCHES**  
**PHILOSOPHY AND PHYSIOLOGY OF YOGA (PT-OE-004)**

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 in brief:
- a) Define 'yoga'. (CO-2, L-2)
  - b) Describe the importance of yoga in your daily life. (CO-4, L-1)
  - c) What is the importance of sitting asanas? (CO-3, L-4)
  - d) What is the physiological effect of yoga on heart? (CO-5, L-1)
  - e) Describe the four poses of Yoga. (CO-1, L-2)
  - f) Define 'health'. (CO-2, L-2)
  - g) What is the difference between Hatha Yoga and Jnana Yoga? (CO-3, L-2)
  - h) Enumerate three planes of human body. (CO-4, L-3)
  - i) What is deep breathing? (CO-5, L-2)
  - j) Elaborate the principle of Pantanjali Yoga. (CO-1, L-2)
- 2×10**

**PART-A**

- Q.2 What are the effect of yoga on different body system? (CO-2,4, L-2) **20**
- Q.3 Elaborate five limbs of Yoga. (CO-1,6, L-3) **20**
- Q.4 Describe the four streams of yoga and its importance. (CO-5, L-2) **20**

**PART-B**

- Q.5 What is the importance of meditation? Discuss the different breathing techniques. (CO-6, L-2) **20**
- Q.6 Classify muscles based on structure and properties. What is the use of anaerobic and aerobic training for different muscles? (CO-4, L-5) **20**
- Q.7 What is the effect of Hatha yoga on nervous system? State the benefits and contraindications of Bhujangasana in the context of diabetes. (CO-2,4, L-5) **20**