

**THIRD SEMESTER - M.Sc. PSYCHOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

ORGANIZATIONAL BEHAVIOUR

Q.P. Code: 1941

Answers should be specific to the Questions asked.
Draw neat & labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number		Marks
1a. Describe challenges of globalization and diversity to organizational behavior.		
	Or	15
1b. What are corporate ethics programs. Explain.		
2a. Evaluate employees intelligence on their performances.		
	Or	15
2b. Describe bodily responses to organizational stress and how to reduce stress.		
3a. Give an account of factors affecting decisions in organization.		
	Or	15
3b. Evaluate techniques of group decisions.		
4a. Describe any two contingency theories of leadership.		
	Or	15
4b. Write an essay on leadership development.		
Write short notes on any Four of the following		4 X 5 = 20

5. Creating an organizational culture.
6. Model of decision making process.
7. Stressors in organization.
8. Individual differences in organization
9. Personality measurement.
10. Corporate social responsibility.

**THIRD SEMESTER – M.Sc. IN BIOTECHNOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

VIROLOGY & VACCINOLOGY

Q.P. Code: 1547

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.

Question Number

Marks

LONG ESSAY QUESTIONS (Answer Any TWO):

2 X 15 = 30

1. Write in detail about child immunization program.
2. Explain role of recombinant DNA technology. Explain hybridoma technology.
3. Explain the virus host cell damage. Briefly explain cytopathic effects.

SHORT ESSAY QUESTIONS (Answer any FIVE):

5 X 10 = 50

4. What are viruses? Explain cultivation of viruses using hamster ovary cell line.
5. What is replication of plus stranded RNA virus. Briefly explain.
6. Write a role of growth hormone and erythropoietin in medicine.
7. What are subunit vaccines and therapeutic vaccines? Explain.
8. Explain the role of adjuvant in vaccine.
9. What are therapeutic vaccines? Explain.
10. Write a note on RNA viruses.

**THIRD SEMESTER - MASTER OF PUBLIC HEALTH
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

PLANNING AND MANEGEMENT

Q.P. Code:1807

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. Define objectives. Discuss the steps in planning cycle.
2. Write in detail about Alma Atta Declaration. How do you see the need to revisit to Alma Atta with respect to current primary Healthcare.

SHORT ESSAY QUESTIONS:

5 X 10 = 50

3. Explain in detail about span of control with an example.
4. Discuss modern management techniques.
5. Types of Budget. Write a note on Budget Allocation.
6. Write a note on Time Management.
7. Define audit. Explain different types of auditing with example.

**THIRD SEMESTER - MASTER OF HOSPITAL ADMINISTRATION
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

**PAPER – I: HEALTH MANAGEMENT INFORMATION SYSTEM & MATERIAL
MANAGEMENT IN HEALTHCARE**

Q.P. Code: 1707

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.

Question Number

Marks

LONG ESSAY QUESTIONS (All are compulsory):

4 X 15 = 60

1. Discuss vendor analysis and vendor development.
2. Discuss store management in detail.
3. Describe the use of computers in HMIS.
4. Describe the use of HMIS in Surveillance of disease.

SHORT ESSAY QUESTIONS (Answer any TWO):

2 X 10 = 20

5. Discuss the synergy of HMIS and information technology.
6. Discuss the constitution and functioning of the Condemning board. Discuss the transportation and disposal of condemned articles.
7. Discuss the principles, policies and procedures for material management.
8. Describe the role of HMIS in medical research.

**THIRD SEMESTER - M.Sc. NUTRITION AND DIETETICS
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

FOOD SERVICE MANAGEMENT

Q.P. Code: 1958

Answers should be specific to the Questions asked.
Draw neat & labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. a) Explain the factors to be considered to run a hospital canteen. (10+5)
b) What are the safety and sanitation standards to be followed in the hospital canteen.
2. a) Explain the managerial skills necessary to run a food industry. (10+5)
b) How can pricing and cost control be efficiently managed in a food service unit.

SHORT ESSAY QUESTIONS:

5 X 10 = 50

3. Standard recipe and cyclic menu.
4. Quality control in food preparation and cooking.
5. Explain the different records to be maintained in food service units.
6. Explain organization of kitchen and service space for efficient and quick service.
7. Need for staff training in food service units.

**THIRD SEMESTER - M.Sc. MEDICAL IN ANATOMY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

PAPER I: ANATOMY

Q.P. Code: 1407

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

20 X 2 = 40

1. Describe the femoral triagle under following heading a)Boundaries b) contents c) applied anatomy.
2. Describe the axilla under the following a) Boundaries b) Contents c) applied anatomy

SHORT ESSAY QUESTIONS:

6 X 10 = 60

3. Describe the boundaries and contents of popliteal fossa.
4. Name the structures under cover of gluteus maximus muscle. Describe in detail about gluteus maximus muscle.
5. Describe the supination and pronation of forearm and muscles producing it.
6. Describe the venous drainage of lower limb with their applied anatomy.
7. Write the lymphatic drainage and applied anatomy of Mammary gland.
8. Describe the quadrangular and triangular intermuscular spaces of arm.

**THIRD SEMESTER - M.Sc. MEDICAL IN BIOCHEMISTRY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

**PAPER I: BIOCHEMISTRY
(Enzymology and Biology of Free Radicals and Antioxidants)**

Q.P. Code: 1411

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All the questions are compulsory.

Question Number	Marks
LONG ESSAY QUESTIONS:	20 X 2 = 40
1. a) Clarify enzymes according to IVB system with suitable examples .	(6)
b) Describe the mechanism of action of enzymes.	(8)
c) Write a note on therapeutic uses of enzymes.	(6)
2. a) What are the different types of enzyme inhibition and explain with suitable examples.	(10)
b) Define isoenzymes? What are the salient features of an isoenzymes? Add a note on diagnostic enzymes of liver and heart disorders	(10)
SHORT ESSAY QUESTIONS:	6 X 10 = 60
3. What are free radicles and mention its role in various disorders.	
4. Write a note on immobilized enzymes.	
5. What are enzymes and mention its importances.	
6. Write a note on active site of an enzymes.	
7. Explain enzymes as laboratory reagents.	
8. Name the co-enzymes of B-complex vitamins and mention its significance.	

**THIRD SEMESTER - M.Sc. MEDICAL IN MICROBIOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

**PAPER I: MICROBIOLOGY
(General Bacteriology)**

Q.P. Code: 1413

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number	Marks
LONG ESSAY QUESTIONS:	2 X 20 = 40
1. Describe the morphological classification of bacteria with all the medically important bacteria in each group. Discuss the direct methods for identification of bacteria in detail.	(8+12)
2. Discuss bacterial physiology. Describe the growth requirements for bacteria. Write in detail about the bacterial growth curve and significance of each phase in diagnostic microbiology.	(6+6+8)
SHORT ESSAY QUESTIONS:	6 X 10 = 60
3. Define and classify sterilization. Describe plasma sterilization and its uses in health care facilities.	
4. Describe the precautions for various clinical specimen collection. Add a note on specimen packing and transport.	
5. Describe various bacterial drug resistance mechanism with examples.	
6. Classify culture media. Discuss selective media and their uses in diagnostic tests.	
7. Discuss bacterial spore, write their structure, functions and significance in microbial identification.	
8. Explain the methods of gene transfer in bacteria. Add a note on transduction.	

**FIFTH SEMESTER - M.Sc. MEDICAL IN BIOCHEMISTRY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

**PAPER I: BIOCHEMISTRY
(Molecular Biology & Techniques)**

Q.P. Code: 1427

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All the questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 20 = 40

1. Describe the steps of polymerase chain reaction. Explain different types of PCR and its applications. (10+10)
2. Outline the principle of translation in eukaryotes. Add a note on post translational modifications. (10+10)

SHORT ESSAY QUESTIONS:

6 X 10 = 60

3. Explain different types of damages to DNA. Add a note on various DNA repair mechanisms.
4. Enlist various DNA markers. Explain restriction fragment length polymorphism in detail.
5. Explain post transcriptional modifications with a note on inhibitors of transcription.
6. What is human genome project? What are the outcomes of it? Add a note on its applications.
7. What is hybridoma technology? Gibe an account of hybridoma technique with its applicability.
8. Enumerate various eukaryotic DNA polymerases with their role in replication.

**FIFTH SEMESTER - M.Sc. MEDICAL IN MICROBIOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

**PAPER I: MICROBIOLOGY
(General Virology)**

Q.P. Code: 1429

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All the questions are compulsory.

Question Number	Marks
LONG ESSAY QUESTIONS:	2 X 20 = 40
1. Describe the morphology, pathogenesis and laboratory diagnosis of Hepatitis B virus infection. Add a note on Hepatitis B vaccine.	(4+4+8+4)
2. Classify influenza viruses. Describe the morphology, pathogenesis and laboratory diagnosis of COVID-19. Write a brief note on COVID vaccines.	(2+3+3+8+4)
SHORT ESSAY QUESTIONS:	6 X 10 = 60
3. Discuss the laboratory diagnosis of dengue fever. Add a note on its complications.	
4. Discuss the immunoprophylaxis of Polio.	
5. Enumerate oncogenic viruses. Add a note on the role of Human papilloma virus in oncogenesis.	
6. Describe the methods used for viral cultivation.	
7. Discuss the role of serological/immunological tests in viral disease diagnosis.	
8. Draw a labeled diagram of HIV and describe its laboratory diagnosis.	

**THIRD SEMESTER - M.Sc. BIostatistics
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

DESIGN OF EXPERIMENTS

Q.P. Code: 1609

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All the questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS (Answer any TWO):

2 X 20 = 40

1. Describe randomized block design (RBD) and statistical analysis of RBD for one observation per experimental unit.
2. Describe replication, randomization and local control along with their advantage.
3. Define the Latin Square Design (LSD). And its layout for 4 X 4 LSD along with advantages and disadvantages.

SHORT ESSAY QUESTIONS (Answer any FIVE):

5 X 8 = 40

4. Define the meaning of 2^4 -Factorial experiment.
5. Define basic principles of the design of experiment.
6. Describe the Randomized Block Design.
7. Define experiment, treatments and experimental unit briefly.
8. Describe the efficiency of a design.
9. What do you mean by factorial design?
10. Describe Cross-over Design along with suitable example.

**THIRD SEMESTER M.Sc. ECHOCARDIOGRAPHY DEGREE
EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

**PAPER – I
ECHO IN SPECIAL CASES**

Q.P. Code: 1305/A

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. Describe the echo features in tricuspid stenosis and tricuspid regurgitation.
2. Discuss the role of echocardiography in cardiac resynchronization therapy (CRT).

SHORT ESSAY QUESTIONS:

5 X 10 = 50

3. Echo assessment of prosthetic heart valves.
4. Echo findings in pericardial effusion.
5. Left atrial myxoma.
6. Echo in postoperative follow up.
7. Discuss role of Doppler echocardiography in peripheral vascular disease.

**THIRD SEMESTER M.Sc. PERFUSION TECHNOLOGY
EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

PAPER – I

Q.P. Code: 1307

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. What are the Indications of Extracorporeal Membrane Oxygenation (ECMO) support? Write in details circuit preparation, conduct and crisis management of V-A ECMO (Veno-Arterial ECMO)
2. Write a note on components of Intra-aortic balloon counter pulsation devices (IABP). Explain the indications and procedure of IABP placement.

SHORT ESSAY QUESTIONS:

5 X 10 = 50

3. Write in short the conduct of CPB for undergoing VSD closure.
4. Write a note of circuit designing and crisis management of veno venous ECMO.
5. Write a note on ultrafiltration during conduct of CPB in pediatric surgery.
6. Specific consideration in priming the CPB circuit in cyanotic congenital heart for cardiac surgery.
7. What are the indication of leftventricular Assist Device (LVAD). What are the different modalities available for assisting left heart.

**THIRD SEMESTER - M.Sc. PSYCHOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

PSYCHOPATHOLOGY

Q.P. Code: 1942

Answers should be specific to the Questions asked.
Draw neat & labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number	Marks
1a. Give an outline of the Models for understanding Psychopathology. Or	15
1b. What are the needs and types of classification of mental disorders? Explain.	
2a. Describe causes and clinical features of obsessive-compulsive disorders. Or	15
2b. Explain the causes and clinical features of phobic disorder.	
3a. Explain the causes and clinical features of Manic disorders. Or	15
3b. Explain the causes, types and clinical features of schizophrenia.	
4a. What are the clinical features and types of personality disorders? Explain. Or	15
4b. Explain the Causes and clinical features of Dementia.	
Write short notes on any Four of the following	4 X 5 = 20
5. Humanistic Approach.	
6. Generalized Anxiety Disorder.	
7. Types of Mood disorder.	
8. Causes of Somatization Disorder.	
9. Mental Retardation.	
10. Substance abuse.	

**THIRD SEMESTER – M.Sc. IN BIOTECHNOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

INTELLECTUAL PROPERTY RIGHTS

Q.P. Code: 1548

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.

Question Number

Marks

LONG ESSAY QUESTIONS (Answer Any TWO):

2 X 15 = 30

1. Define intellectual property rights. Enlist the different types of it and explain the different forms and application fees.
2. Give an account on detail application and patent grant on procedure in India.
3. Give the difference between the Pre-grant Opposition and Post grant Opposition.

SHORT ESSAY QUESTIONS (Answer any FIVE):

5 X 10 = 50

4. Define IPR and write in brief about classification of IPR with examples.
5. Explain Patent Filing Process in India with relevant forms.
6. Describe the Patentability and non-patentability criteria.
7. Define patent. Explain revocation and surrender of patents.
8. Explain international treaties on industrial design.
9. Explain infringement of patent and copyrights.
10. What is copyright? Explain author and ownership of copyrights.

**THIRD SEMESTER - MASTER OF PUBLIC HEALTH
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

**PUBLIC HEALTH LEGISLATION AND PUBLIC HEALTH
INFORMATION SYSTEMS**

Q.P. Code: 1808

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. Enumerate Public health laws related to environment. Discuss on disaster management act 2005. (3+12)
2. Write any five public health laws related to women empowerment and health. Discuss about PCPNDT act 1994 in detail. (5+10)

SHORT ESSAY QUESTIONS:

5 X 10 = 50

3. What do you mean by health information? Write uses of health information.
4. Explain about Medical termination of pregnancy.
5. International health regulations.
6. Write about Universal declaration of Human rights.
7. DIKW Hierarchy.

**THIRD SEMESTER - MASTER OF HOSPITAL ADMINISTRATION
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

**PAPER – II: FINANCIAL MANAGEMENT, COST ACCOUNTING & MANAGEMENT
ACCOUNTING, PRINCIPLE OF ACCOUNTING**

Q.P. Code: 1708

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.

Question Number

Marks

LONG ESSAY QUESTIONS (All are compulsory):

4 X 15 = 60

1. Working Capital Management.
2. Describe Budgeting and Budgetary Control.
3. Define Financial Management. What are the different objectives of Financial Management?
4. Discuss the process of internal control and internal auditing.

SHORT ESSAY QUESTIONS (Answer any TWO):

2 X 10 = 20

5. Define the term Accounting. What are the essential features of Accounting?
6. Write a note on optimum capital structure.
7. Different sources of long term funds.
8. Classification of costs.

**THIRD SEMESTER - M.Sc. NUTRITION AND DIETETICS
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

THERAPEUTIC NUTRITION-I

Q.P. Code: 1959

Answers should be specific to the Questions asked.
Draw neat & labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. What are therapeutic Diets? Write a note on routine hospital diets.
2. Discuss the effects of infections on nutritional status. Outline the MNT in tuberculosis.

SHORT ESSAY QUESTIONS:

5 X 10 = 50

3. What are the health risks of obesity? Discuss the role of psychotherapy in obesity.
4. Discuss the role of a dietician in the hospital and community.
5. What is food allergy? Write a note on Cow's milk protein allergy.
6. Discuss MNT in both constipation and diarrhea.
7. Explain the effects of drugs in nutritional status with specific examples.

**THIRD SEMESTER - M.Sc. MEDICAL IN ANATOMY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

PAPER II: ANATOMY

Q.P. Code: 1408

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

20 X 2 = 40

1. Describe the histology of the liver and gall bladder in detail with functional correlation.
2. Describe the development of aortic arches and their derivatives

SHORT ESSAY QUESTIONS:

6 X 10 = 60

3. Describe the development of palate its congenital anomalies.
4. Explain the Microscopic structure of uterus.
5. Describe the development of pancreas and write a note on its congenital anomalies.
6. Compare the histological features of large and medium sized artery.
7. Describe the development of urinary bladder and write a note on its congenital anomalies.
8. Explain the Microscopic structure of cerebellum.

**THIRD SEMESTER - M.Sc. MEDICAL IN BIOCHEMISTRY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

**PAPER II: BIOCHEMISTRY
(Nutrition)**

Q.P. Code: 1412

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All the questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 20 = 40

1. a) Write the sources, RDA, functions and deficiency manifestations of Vitamin A.
b) Write the sources, RDA, functions and deficiency manifestations of Vitamin D.
2. a) Write the sources, RDA, functions and deficiency manifestations of Calcium.
b) Write the functions and deficiency manifestations of sodium potassium.
c) Name the selenium containing enzymes and write the functions of selenium.

SHORT ESSAY QUESTIONS:

6 X 10 = 60

3. What are dietary fibres? Mention its RDA sources and significance.
4. Write a note on specific dynamic action.
5. Write the functions of following minerals.
a) Zinc b) Iron c) Iodine d) Magnesium
6. What is PEM? Write the differences between marasmus and kwashiorkor.
7. Write the functions and deficiency manifestations of copper.
8. Write a note on vitamins with anti-oxidant property.

**THIRD SEMESTER - M.Sc. MEDICAL IN MICROBIOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

**PAPER II: MICROBIOLOGY
(Immunology)**

Q.P. Code: 1414

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number	Marks
LONG ESSAY QUESTIONS:	2 X 20 = 40
1. Classify antigen-antibody reactions. Discuss precipitation tests with two examples of their application in disease diagnosis.	(2+4+8+6)
2. Define and classify hypersensitivity reactions. Discuss in detail about the immunological mechanisms involved in Type-I hyper sensitivity reactions with two examples.	(2+4+10+4)
SHORT ESSAY QUESTIONS:	6 X 10 = 60
3. What is Graft v/s Host reaction. Discuss the immune mechanisms involved in such reactions with examples.	
4. Classify immunity. Describe passive immunity with two examples.	
5. What are monoclonal antibodies? Discuss their production and uses in detail.	
6. Describe the principle, types and applications of ELISA test.	
7. Discuss the structure and functions of IgM. Add a note tests used for their detection.	
8. Discuss alternate compliment pathway. Write the functions of compliment system in immunity.	

**FIFTH SEMESTER - M.Sc. MEDICAL IN BIOCHEMISTRY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

**PAPER II: BIOCHEMISTRY
(Application of Bio-informatics & Nanotechnology)**

Q.P. Code: 1428

Answers should be specific to the Questions asked.

Draw neat, labeled diagrams wherever necessary.

All the questions are compulsory.

Question Number	Marks
LONG ESSAY QUESTIONS:	2 X 20 = 40
1. Describe the steps of Heme synthesis. Add a note on its regulation.	(10+10)
2. Explain in detail the mechanism of action of Group 1 hormones.	
SHORT ESSAY QUESTIONS:	6 X 10 = 60
3. Biochemical tests done to evaluate infertility.	
4. Compare Humoral immunity with cell mediated immunity.	(3+4+3)
5. Name the important acute phase proteins in the blood with their clinical significance.	(5+5)
6. Cushing's syndrome- Causes, clinical manifestations and diagnostic tests.	(3+3+4)
7. Describe the principle, procedure and interpretation of serum protein electrophoresis.	(3+3+4)
8. Discuss in detail the formation, transport, conjugation and excretion of bilirubin the body.	(2+2+3+3)

**FIFTH SEMESTER - M.Sc. MEDICAL IN MICROBIOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 100

**PAPER II: MICROBIOLOGY
(Mycology)**

Q.P. Code: 1430

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number	Marks
LONG ESSAY QUESTIONS:	2 X 20 = 40
1. List the dermatophytes. Give an account of laboratory diagnosis of Dermatophytosis.	(10+10)
2. Describe the pathogenesis, laboratory diagnosis of Candida albicans. Add a note on Candida auris.	(8+6+6)
SHORT ESSAY QUESTIONS:	6 X 10 = 60
3. Write a note on Opportunistic mycoses. Add a note on Exophiala.	
4. Classify Dimorphic fungi and draw a neat labeled diagram of Sporothrixschenckii.	
5. Describe Mycotoxins.	
6. Discuss the pathogenesis and laboratory diagnosis of Cryptococcus neoformans.	
7. Describe the pathogenesis and laboratory diagnosis of Aspergillosis.	
8. Describe fungal mycetoma and its laboratory diagnosis.	

THIRD SEMESTER - M.Sc. BIostatistics
DEGREE EXAMINATION – FEBRUARY 2024

Time: 3 Hours

Max. Marks: 80

NON-PARAMETRIC TESTS

Q.P. Code: 1610

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All the questions are compulsory.

LONG ESSAY QUESTIONS (Answer any TWO):

2 X 20 = 20

1. Define the Correlation coefficient for testing the correlation between two variables with a suitable example.
2. Describe the method for testing differences between three or more matched sets of frequencies
3. Explain the Kruskal wallis test with a suitable example.

SHORT ESSAY QUESTIONS (Answer any FIVE):

5 X 8 = 40

4. Explain the difference between parametric and non parametric tests.
5. Define r^{th} order statistics, and derive first-order statistics for uniform distribution
6. Define the condition for using the McNamara test with a suitable example.
7. Define Fishers exact test with a suitable example
8. Discuss the sign test with a suitable example.
9. Write a short note on the Median test.
10. Explain the process used in the chi-square test.

**THIRD SEMESTER M.Sc. ECHOCARDIOGRAPHY DEGREE
EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

**PAPER – II
CURRENT TOPICS & EVOLVING ECHOCARDIOGRAPHIC
TECHNIQUES FOR CARDIAC EVALUATION**

Q.P. Code: 1306/B

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. Write a note on contrast echo principle, protocols, interpretation and clinical application.
2. Describe briefly about 3D echo and its utility for evaluation of structural heart disease.

SHORT ESSAY QUESTIONS:

5 X 10 = 50

3. Write a note on foetal echocardiography.
4. What are the advantages of trans-oesophageal echo over transthoracic echo.
5. Discuss stress echocardiography.
6. Describe TEE views.
7. Discuss complications of contrast echocardiography.

**THIRD SEMESTER M.Sc. PERFUSION TECHNOLOGY
EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

PAPER – II

Q.P. Code: 1308

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. Define the Nosocomial infections. Write a note on causes, spread, investigation and management of nosocomial infections in routine clinical practice.
2. Define hypersensitivity? Classify it and write a note on immediate hypersensitivity.

SHORT ESSAY QUESTIONS:

5 X 10 = 50

3. Write a note on heat sterilization.
4. Write a note on general problems of fungi and classification of fungi. Write common modalities of diagnosis of fungal infections.
5. Write a note on general properties and classification of bacteria.
6. What is infection? Describe routes and spread of infections.
7. What is immune response? Write a note on humoral immunity.

**THIRD SEMESTER - M.Sc. PSYCHOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

PSYCHOLOGICAL THERAPIES

Q.P. Code: 1943

Answers should be specific to the Questions asked.

Draw neat & labeled diagrams wherever necessary.

All the questions are compulsory.

Question Number	Marks
1a. Define Psychotherapy. Explain the personal characteristics of therapist. Or	15
1b. Discuss the Yoga and Buddhistic traditions in Psychotherapy.	
2a. Elaborate on psychoanalytical therapies and their therapeutic application. Or	15
2b. Give an outline of current status and critical evaluation of Ego analytical therapies.	
3a. Discuss Gestalt therapy. Or	15
3b. Evaluate the need and applications of Group therapy.	
4a. Describe Behaviour Therapies. Or	15
4b. What is community based intervention? Explain.	
Write short notes on any Four of the following	4 X 5 = 20
5. Psychotherapy in India.	
6. Neo Freudian approaches.	
7. General types of Group therapy.	
8. Techniques based on operant condition.	
9. Mental Retardation.	
10. School problem of children.	

**THIRD SEMESTER – M.Sc. IN BIOTECHNOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

INDUSTRIAL BIOTECHNOLOGY

Q.P. Code: 1549/B

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.

Question Number

Marks

LONG ESSAY QUESTIONS (Answer Any TWO):

2 X 15 = 30

1. Describe the economics and scale for microbial product fermentation.
2. Describe in detail the process of manufacturing glycerol and its applications.
3. Explain in detail the application of recombinant systems for strain improvements.

SHORT ESSAY QUESTIONS (Answer any FIVE):

5 X 10 = 50

4. What are the sources of carbon used in media preparation?
5. Describe batch growth kinetics of a bacterial cell.
6. Describe the economics and scale for microbial product fermentation.
7. Explain the fed batch culture system and why is it efficient?
8. Describe the temperature control and measurement systems used in the fermenter.
9. Describe the process of storing industrially important microbes at reduced temperature.
10. How is wine manufactured on a large scale?

**THIRD SEMESTER - MASTER OF PUBLIC HEALTH
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

OCCUPATIONAL AND ENVIRONMENTAL HEALTH SCIENCES

Q.P. Code:1809

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. Define disaster. Explain disaster cycle with neat diagram.
2. What are the laws to protect factory workers. Explain in detail the benefits for factory workers under factories act-1948.

SHORT ESSAY QUESTIONS (All are compulsory):

5 X 10 = 50

3. Nuclear hazards one public health problem – Justify?
4. Define ergonomics. How ergonomics is a part of occupational hazard.
5. Occupational Cancers.
6. Discuss on public health aspects of extreme hot and cold environment.
7. Explain in brief any two methods of excreta disposal.

**THIRD SEMESTER - MASTER OF HOSPITAL ADMINISTRATION
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

**PAPER – III:
MANAGEMENT OF HUMAN RESOURCES AND INDUSTRIAL RELATIONS**

Q.P. Code: 1709

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.

Question Number

Marks

LONG ESSAY QUESTIONS (All are compulsory):

4 X 15 = 60

1. Describe the process and techniques of performance appraisal system in a hospital.
2. Explain the need for training of nurses in hospital. What are the techniques that can be used?
3. How can we improve the occupational health of employees?
4. Examine the various types of compensation plans.

SHORT ESSAY QUESTIONS (Answer any TWO):

2 X 10 = 20

5. Role of a labor lawyer.
6. Types of consent.
7. Disciplinary process.
8. Orientation of employees.

**THIRD SEMESTER - M.Sc. NUTRITION AND DIETETICS
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

COMMUNITY NUTRITION

Q.P. Code: 1960

Answers should be specific to the Questions asked.

Draw neat & labeled diagrams wherever necessary.

All the questions are compulsory.

Question Number

Marks

LONG ESSAY QUESTIONS:

2 X 15 = 30

1. Explain the strategies initiated by the Government to combat public nutrition problems.
2. a) What are the objectives of nutritional assessment. (5)
b) How do clinical assessment and biochemical assessment help in assessing the nutritional status. (10)

SHORT ESSAY QUESTIONS:

5 X 10 = 50

3. Briefly write about nutrient deficiency control programmes.
4. Explain the role of public nutritionists in health care delivery.
5. Write a note on ICDS.
6. How does fertility behavior affect nutrition and quality of life.
7. Explain population structure.

**THIRD SEMESTER - M.Sc. BIostatistics
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

EPIDEMIOLOGICAL AND RESEARCH METHODOLOGY

Q.P. Code: 1611

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All the questions are compulsory.

LONG ESSAY QUESTIONS (Answer any TWO):

2 X 20 = 40

1. What is the minimum required sample size? Write the formula for sample size in prevalence studies and intervention studies for comparison of two groups.
2. Describe the scientific procedure of writing the introduction. Material and methods and discussion in the dissertation.
3. Define relative risk and odds ratio along with examples. Also describe the advantages and disadvantages of the Case-control study.

SHORT ESSAY QUESTIONS (Answer any FIVE):

5 X 8 = 40

4. Write the formula for relative risk and its confidence interval.
5. Describe the retrospective study design briefly.
6. How to validate the data collection tool (questionnaire)?
7. Write short note on the prescribed format for dissertation writing.
8. Define FINER in thesis writing with suitable examples.
9. Write the formula for sample size used in prevalence-based studies for comparison of two groups.
10. Describe the cluster sampling techniques with an example.

**THIRD SEMESTER - M.Sc. PSYCHOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

POSITIVE PSYCHOLOGY

Q.P. Code: 1944

Answers should be specific to the Questions asked.
Draw neat & labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number	Marks
1a. Explain Broaden and Build Theory of emotions. Or	15
1b. Elucidate basis areas of positive psychology.	
2a. Examine the contectidance and consequences of happiness. Or	15
2b. Discuss happiness and well being in Indian culture.	
3a. Define gratitude. Discuss the role of gratitude in enhancing meaningful relationships. Or	15
3b. Explain the role of religion and spirituality in maintaining subjective well-being.	
4a. Delineate the positive psychology approaches to virtues. Or	15
4b. Elucidate the Resiliency skills.	
Write short notes on any Four of the following	4 X 5 = 20
5. Trauma.	
6. Positive Parenting.	
7. Kindness.	
8. Classification of character strengths.	
9. Delirvinants of happiness.	
10. Positive psychology at work place.	

**THIRD SEMESTER – M.Sc. IN BIOTECHNOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

ENVIRONMENTAL BIOTECHNOLOGY

Q.P. Code: 1550/B

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.

Question Number

Marks

LONG ESSAY QUESTIONS (Answer Any TWO):

2 X 15 = 30

1. Write a note on non-degradable material and ways to management.
2. Explain the process of Bioaugmentation with examples.
3. What is integrated pest management? Explain various methods of pest management?

SHORT ESSAY QUESTIONS (Answer any FIVE):

5 X 10 = 50

4. Write a note on Bioassessment of environmental quality.
5. What are Vesicular arbuscular mycorrhiza (VAM). Explain.
6. How microbes play role in mine leaching. Explain.
7. What are methanogens? Write its significance in biogas production.
8. Write differences between Renewable and non-renewable energy resources.
9. What is bioremediation? Explain with example.
10. What is vermicomposting? Explain stepwise procedure of vermicomposting technique.

**THIRD SEMESTER – M.Sc. IN BIOTECHNOLOGY
DEGREE EXAMINATION – FEBRUARY 2024**

Time: 3 Hours

Max. Marks: 80

BIOPROCESS ENGINEERING

Q.P. Code: 1550/C

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.

Question Number

Marks

LONG ESSAY QUESTIONS (Answer Any TWO):

2 X 15 = 30

1. Define bioprocess engineering? Add a note on upstream process and what is importance of industrial microbes.
2. Define process cycle in industrial process and add a note on media used in bioprocess cycles.
3. Define bioreactor and critically describe the importance and structural designing of specialized bioreactors.

SHORT ESSAY QUESTIONS (Answer any FIVE):

5 X 10 = 50

4. Write in detail about pulsed filled and photo bioreactor.
5. Define a fermenter? Explain the design and working of typical fermenter.
6. Define fluidized bed bioreactor and explain the process of its working model.
7. Write in detail analysis of mixed microbial populations in bioprocess experiment.
8. Define and explain Kinetics of microbial growth and death.
9. What is single cell protein (SCP). Explain in detail its applications.
10. Explain in detail about food spoilage and its preservation process.
