

FACULTY OF SCIENCE
M.Sc. III-Semester (CBCS) Examination, March 2021

Sub: Biochemistry
Paper – I : Gene Regulation and Genetic Engineering

Time: 2 Hours

Max.Marks:80

PART – A

Answer any five questions.

(5x7=35 Marks)

- 1 Explain the negative and positive controls in Lac-Operon.
- 2 Explain the mechanism associated with sporulation gene expression
- 3 Describe the histone modification.
- 4 What is RNA stability? Explain the RNA editing.
- 5 Strategies involved in Screening (+ve) libraries.
- 6 Construct a genomic DNA library with suitable examples.
- 7 What are the roles of single-nucleotide polymorphisms (SNP) in cancer biology?
- 8 Explain about the RFLP.

PART – B

Answer any three questions.

(3x15=45 Marks)

- 9 Explain the Lytic / lysogenic cycles in lambda phage.
- 10 Explain the types of Ribosomes and ribosome switch.
- 11 What is gene Silencing? Explain differential Gene expression.
- 12 Enumerate Antigenic variation in Trypanosoma.
- 13 What is DNA Pyrosequencing. Explain the tools Solexa, SoLiD, Helicos. SMaRT, Ion Torrent with suitable example.
- 14 Explain the vectors with BAC, YAC diagram.
- 15 How yeast 2 hybrid system is useful in identification protein expression studies?
- 16 Discuss in detail about heterologous expression in mammalian cells.

FACULTY OF SCIENCE
M.Sc. III-Semester (CBCS) Examination, March 2021

Sub: Biochemistry
Paper – II : Immunology and Immunotechnology

Time: 2 Hours

Max.Marks:80

PART – A

Answer any five questions.

(5x7=35 Marks)

- 1 What are the differences between primary and secondary immune response? Add a note on memory cells.
- 2 Secondary lymphoid organs.
- 3 What are the consequences of complement fixation?
- 4 Cell mediated immunity.
- 5 immunogenicity and antigenicity.
- 6 Describe different tests used for diagnosis of hypersensitivity.
- 7 Differentiate precipitation reaction from agglutination reaction with suitable examples.
- 8 Radio Immuno Assay.

PART – B

Answer any three questions.

(3x15=45 Marks)

- 9 What are the distinguishing features of cells involved in adaptive system? Add a note on clonal selection theory.
- 10 Describe various theories related to antibody formation. Add a note on antibody diversity.
- 11 Describe different mechanisms used by pathogens to evade or subverting normal host defenses.
- 12 How are B and T cells activated? What happens when both T and B cells are activated?
- 13 What is immune deficiency? Add a note on disorders associated with immune deficiency.
- 14 Describe in detail about auto immune disorder with suitable examples.
- 15 Give an account of the different types of vaccines available today. How do m-RNA vaccines work? Highlight their advantages and disadvantages?
- 16 Describe various methods used for antigen and antibody binding analysis. Add a note on the applications of monoclonal antibodies.

FACULTY OF SCIENCE
M.Sc. III-Semester (CBCS) Examination, March/April 2021

Sub: Biochemistry
Paper – III : Nutrition and Clinical Biochemistry

Time: 2 Hours

Max.Marks:80

PART – A

Answer any five questions.

(5x7=35 Marks)

- 1 Hepatitis
- 2 Factors affecting BMR
- 3 Food additives
- 4 Prebiotics and Probiotics
- 5 Complete Blood picture
- 6 Acidosis and alkalosis
- 7 Urea and Insulin clearance tests
- 8 Pregnancy tests

PART – B

Answer any three questions.

(3x15=45 Marks)

- 9 What is balanced diet? Explain about Macro and Micro Nutrients. Add a note on caloric values of carbohydrates, proteins and lipids.
- 10 Discuss on various organs and enzymes involved in digestion.
- 11 Explain about nutrient contents of cereals, pulses, nuts and fibre.
- 12 What are the various reasons for food spoilage and how to preserve the food?
- 13 Write in details about Hemoglobinopathies.
- 14 Explain about Water and Electrolyte balance. How to assess the levels of Na⁺, K⁺ and Cl⁻ levels in the body.
- 15 What are the biochemical tests available for the diagnosis of heart diseases?
- 16 Add a note on liver function tests and discuss about various enzymes involved in liver diseases?

FACULTY OF SCIENCE
M.Sc. III-Semester (CBCS) Examination, July 2021

Sub: Biochemistry
Paper – IV : Physiology and Xenobiotics

Time: 2 Hours

Max.Marks:80

PART – A

Answer any five questions.

(5x7=35 Marks)

- 1 Regeneration of nerve fibres
- 2 Comparison between vision, olfaction and gustation
- 3 Cytochalasins
- 4 Myasthenia gravis
- 5 Menopause
- 6 Cordbanking
- 7 Drug receptor interactions
- 8 Aflatoxins

PART – B

Answer any three questions.

(3x15=45 Marks)

- 9 Discuss the different neurotransmitters and explain the signaling mechanism.
- 10 Write briefly about : (a) Types of neuronal cells (b) Electrical synapse
- 11 Explain the role of actin and myosin in non-muscle cells.
- 12 How is muscle gene expression regulated at transcriptional and post transcriptional level? Explain.
- 13 Explain the natural and assisted methods of gametogenesis and fertilization.
- 14 How is placenta useful as source of stem cells? Write a note on ART.
- 15 Discuss the pharmacopeia of drug deposition and their detoxification mechanisms in the liver.
- 16 Explain : (a) pharmacodynamics (b) nutrient drug interactions
