

M.Sc. [Medical Biochemistry]

BF/2007/11

Molecular Biology

[Paper - I]

M.M. : 100

Time : 3 Hours

Note : Attempt all questions.

1. How is recombinant DNA synthesized in laboratory? What role the technology has in the biomedical field? [25]
 2. **Explain briefly:**
 - a. Hybridoma technique. [8]
 - b. Gene therapy. [8]
 - c. Restriction fragment length polymorphism. [9]
 3. **Discuss:**
 - a. Principle and application of Polymerase Chain Reaction[PCR]. [9]
 - b. Mechanism of DNA repair. [8]
 - c. Comparative features of Prokaryotic and Eukaryotic promoters. [8]
 4. **Write short notes on the following:**
 - a. Replisome. [6]
 - b. Eukaryotic DNA replication. [7]
 - c. Replication of lagging strand. [6]
 - d. Wobbling in Codon recognition. [6]
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Immunochemistry

[Paper - II]

M.M. : 100

Time : 3 Hours

Note : Attempt any TEN questions.

1. Write short notes on: [2x5=10]
 - a. Apoptosis
 - b. Hapten.
2. Write short notes on: [2x5=10]
 - a. Opsonisation.
 - b. Complement system deficiencies.
3. Write short notes on: [2x5=10]
 - a. Small G proteins [Small GTP-binding proteins].
 - b. Immuno-electrophoresis.
4. Write an essay on Acquired Immunodeficiency Syndrome. [10]
5. Describe the structure of an Immunoglobulin molecule. [10]
6. Describe the applications of Genetic engineering in relation to disease. [10]
7. Write a note on Interferons. [10]
8. Describe the different types of Hypersensitivity reactions in brief. [10]
9. Write a note on Acute Phase proteins. [10]
10. Describe briefly 'the mediators of inflammation'. [10]
11. Compare and contrast the development and functions of B1, B2 and marginal subsets of B cells. [10]
12. Write short notes on: [2x5=10]
 - a. Role of adjuvants in vaccines.
 - b. Association of HLA type with disease.

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Nutrition & Dietetics

[Paper - III]

M.M. : 100

Time : 3 Hours

Note : Attempt all questions.

1.
 - a. Discuss the sources, RDA, metabolism, functions of Iron in the body. Add a note on anaemia. [10]
 - b. Importance of Biotin. [8]
 - c. Positive Nitrogen balance. [7]
 2.
 - a. Write briefly on nutritional requirements of an elderly person. [10]
 - b. Protein Malnutrition. [8]
 - c. Food preservations. [7]
 3.
 - a. Discuss biochemical function of Vitamin D. [10]
 - b. Prescribe a diet for a diabetic patient. [8]
 - c. Good quality protein. [7]
 4. **Write notes on:** [5x5=25]
 - a. Scurvy.
 - b. Vitamin E.
 - c. Biochemical functions of Zinc.
 - d. Glycemic index.
 - e. Essential fatty acids.
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Clinical Biochemistry and Medical Statistics

[Paper - IV]

M.M. : 100

Time : 3 Hours

Note : Attempt all questions.

- 1a. Classify adrenal hormones and describe the metabolism of Catecholamines. Discuss the biochemical basis of evaluation and management of Pheochromocytoma. [15]
 - 1b. Explain the biochemical basis of anemia in chronic kidney diseases. [5]
 - 1c. Describe diabetic non-ketotic hyper osmolar state biochemically. [5]
 2. **Write briefly on:**
 - a. Blood group substances. [7]
 - b. Nuclear receptors. [6]
 - c. Clinical importance of haptoglobin. [6]
 - d. Vitamin C dependent hydroxylases. [6]
 3. **Describe briefly :**
 - a. Principle and importance of pCO₂ measurement in acid base disorders. [7]
 - b. Hyper-triglyceridemia. [6]
 - c. Enzymopathies leading to renal stones. [6]
 - d. Ca⁺⁺ channel disorders. [6]
 4. **Briefly discuss:**
 - a. Recent understanding of iron absorption and its regulation. [7]
 - b. Reference interval and medical decision limit. [6]
 - c. Hormone transport proteins. [6]
 - d. ENCODE-PROJECT. [6]
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