

POST GRADUATE EXAMINATION, APRIL - 2019

**MD BIOCHEMISTRY
(PAPER ONE)**

GENERAL BIOCHEMISTRY, BIOCHEMICAL TECHNIQUES AND BIostatISTICS

[Time allotted: Three hours]

[Max Marks: 100]

Note: Attempt all questions.
Illustrate with suitable diagrams.

- Q. 1.** Describe substrate level phosphorylation and oxidative phosphorylation. Describe mitochondrial F_0-F_1 ATPase. Enumerate and explain the inhibitors of oxidative phosphorylation. (20)
- Q. 2.** Describe major plasma proteins with their functions. Explain different separation techniques to separate them. (20)
- Q. 3. Describe briefly:** (3 x 10 = 30)
- Structure and functions of biological cell membranes
 - Principle and applications of ISE
 - Classify amino acids on the basis of side chain, polarity, metabolic fate and nutritional basis
- Q. 4. Write short notes on:** (5 x 6 = 30)
- Experimental and clinical methods of GIT investigation
 - K_m of enzymes
 - Make an SOP of a colorimetry technique
 - Non-parametric statistical tests of significance
 - Structure and function of hemoglobin

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**MD BIOCHEMISTRY
(PAPER TWO)**

METABOLISM, ENDOCRINOLOGY AND NUTRITION

[Time allotted: Three hours]

[Max Marks: 100]

Note: Attempt all questions.
Illustrate with suitable diagrams.

Q. 1. Describe in detail role of the various lipoproteins in lipid metabolism and its aberrations in diabetes mellitus. Add a detailed note on the hyperlipidemias and how they can be treated. **(20)**

Q. 2. Discuss one carbon metabolism with examples. What is folate trap? How is folate metabolism related to cell multiplication? **(20)**

Q. 3. Describe briefly: **(3 x 10 = 30)**
a. Role of dolichol in metabolism
b. Refsum's disease
c. Iron metabolism

Q. 4. Write short notes on: **(5 x 6 = 30)**
a. Cytochrome p450 and cytochrome a
b. Second messenger roles of cAMP and cGMP
c. Carbamoyl phosphate synthase I and II
d. Mitochondrial and cytosolic isoforms of HMG CoA reductase
e. Carboxylation reactions catalyzed by biotin and vitamin K

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**MD BIOCHEMISTRY
(PAPER THREE)**

GENETICS, MOLECULAR DIAGNOSTICS, CANCER AND IMMUNOLOGY

[Time allotted: Three hours]

[Max Marks: 100]

Note: Attempt all questions.
Illustrate with suitable diagrams.

- Q. 1.** What is Warburg effect? Describe its relevance in carcinogenesis. Discuss the roles of oncogenes 'Ras' and 'Src' in malignant transformation. (20)
- Q. 2.** Draw different structure of various immunoglobulins, write their functions. How does class switching occur during immune response? (20)
- Q. 3. Describe briefly:** (3 x 10 = 30)
- a. Microarrays
 - b. Restricted fragment length polymorphism
 - c. In situ hybridization
- Q. 4. Write short notes on:** (5 x 6 = 30)
- a. Oncogenes
 - b. Reverse transcription
 - c. Restriction enzyme
 - d. Stem cell therapy
 - e. Hypersensitivity

POST GRADUATE EXAMINATION, APRIL - 2019

**MD BIOCHEMISTRY
(PAPER FOUR)**

CLINICAL & SYSTEMIC BIOCHEMISTRY & RECENT ADVANCES IN BIOCHEMISTRY

[Time allotted: Three hours]

[Max Marks: 100]

Note: Attempt all questions
Illustrate with suitable diagrams.

- Q. 1.** Describe the recent concept of gene expression in eukaryotes. How do various epigenetic factors influence the gene expression? **(20)**
- Q. 2.** Discuss the role of telomerase in ageing & cancer biochemistry. Add a note on analytical methodology for detection of telomerase activity
- Q. 3. Describe briefly :** **(3 x 10 = 30)**
- a. Cryo-electron microscopy and its advantages
 - b. Fatty liver- its causes and treatment
 - c. Autophagy in health and disease
- Q. 4. Write short notes on:** **(5 x 6 = 30)**
- a. Microalbuminuria
 - b. Leptin and adiponectin
 - c. hsCRP
 - d. HbA1c vs Glycated albumin
 - e. Dry chemistry vs Wet chemistry analysis

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