MD BIOCHEMISTRY PRE-UNIVERSITY EXAMINATION,
MAY - JUNE 2016
PAPER - 1
CELL AND MOLECULAR BIOLOGY, IMMUNOLOGY, CANCER

Time: 3 HOURS] **[M. Marks:** 100

Note:- Attempt all question. All parts are compulsory.

Q1. Enumerate the types of hypersensitivity? Enlist their key features. Explain the mechanism of type I hypersensitivity. 10

Q2. Write briefly on 5×4=20

1. SCID
2. Lysosomal storage diseases
3. Protein Sorting
4. FISH

Q3. Discuss 5×6=30

1. Post Translational modification
2. Gene Dosage effect
3. Mutation Detection Techniques
4. Application of monoclonal antibodies
5. Cell cycle regulation
6. Antigen presentation

Q4. Explain why 5×3=15

1. The third base of codon is non stringent
2. Primary mRNA is polyadenylated at 3' end and is attached at 5' terminus by 7-methyl GTP.
3. IgM is the major mucosal antibody

Q5. Give a brief account of 5×5=25

1. Uses of Plasmid
2. Hormone response elements
3. Mitochondrial diseases
4. Molecular scissors
5. Carcinoembryonic antigen

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PAPER - 2

BIOENERGETICS, GENERAL BIOCHEMISTRY, METABOLISM, NUTRITION, VITAMINS AND HORMONES

Time: 3 HOURS] **[M. Marks:** 100

Note:- Attempt all question. All parts are compulsory.

Q1. Describe the metabolism of ethanol in humans. Enumerate the effects of regular ethanol consumption with their complete biochemical basis. 10

Q2. Write short notes on: 5×4=20

a) Wald's visual cycle
b) Syndrome X
c) Newborn screening of PKU
d) Oxidative phosphorylation

Q3. Write the biochemical basis for symptoms of: 5×6=30

a) Porphyria cutanea tarda
b) Kwashiorkar
c) Cooley's Anemia
d) Hepatic Encephalopathy
e) Diabetic neuropathy
f) Beri beri cardiomyopathy

Q4. Explain why? 5×3=15

a) Regular consumption of fruit juice is not advisable as compared to whole fruit.
b) Histidine and Arginine are called semi essential amino acids.
c) Cataract develops early in long standing poorly controlled diabetics

Q5. Describe briefly: 5×5=25

a) Laboratory assessment of a case of pruritic icterus
b) Laboratory diagnostic parameters of nutritional anemia
c) Blood glucose regulation
d) Hormones of adipose tissue
e) Lesch Nyhan Syndrome

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PAPER - 3

ENZYMOLOGY, CLINICAL BIOCHEMISTRY AND BIOSTATISTICS

Time: 3 HOURS] **[M. Marks:** 100

Note:- Attempt all question. All parts are compulsory.

Q1. What are the factors influencing enzyme activity? Explain lineweaver burk plot in detail with examples. **10**

Q2. Write short notes on: **5×4=20**

a. Isoenzymes of Creatine Kinase
b. BRCA gene
c. Heparin as anticoagulant
d. Coefficient of correlation

Q3. Describe briefly: **5×6=30**

a. Cardiac Biomarkers
b. ANOVA
c. Markers of acute pancreatitis
d. Advanced glycation end products
e. Serum electrophoresis picture
f. Prolactin assay

Q4. Explain why: **5×3=15**

a. Urinary albumin levels are monitored in patients of Diabetes Mellitus.
b. Folic acid supplementation helps in atherosclerosis prophylaxis.
c. Heparin is the only anticoagulant used for sample collection for blood gas analysis.

Q5. Explain the following: **5×5=25**

a. Lab diagnosis of Gestational Diabetes Mellitus
b. Role of serine proteases
c. Role of BNP in cardiac diagnosis
d. IQAS
e. Thiamine as coenzyme

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PAPER – 4

TECHNIQUES IN EXPERIMENTAL BIOCHEMISTRY, METABOLIC MEDICINE, RECENT ADVANCES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Time: 3 HOURS] **[M. Marks:** 100

Note:- Attempt all question. All parts are compulsory.

Q1. Explain the steps of xenobiotic metabolism in human? 10

Q2. Write briefly on 5×4=20

1. DNA footprinting
2. Proteomics
3. Molar Extinction Coefficient
4. Principle of colorimeter

Q3. Discuss 5×6=30

1. ORS
2. Newborn Screening
3. Radioactive isotopes in clinical diagnosis
4. DNA microarray
5. Leptin
6. Diabetic Neuropathy

Q4. Explain why 5×3=15

1. RNA is generally separated in 2% agarose while DNA in 1%.
2. DNA purity checking after isolation cannot be done using colorimeter
3. pH meter bulb is prevented from getting dry.

Q5. Enumerate differences between 5×5=25

1. Cosmid and Plasmid
2. Ion exchange and Size exclusion chromatography
3. Direct and Sandwich ELISA
4. SDS PAGE and Agarose gel Electrophoresis
5. Direct and Indirect Coombs test

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