

Paper Code-010301

M.B.B.S. 1<sup>st</sup> professional Annual University Examination

Biochemistry

PAPER-I

Time: 3 Hours

Maximum Marks: 100

Note:

- ❖ The candidates must limit their answers to the answer book (30 Pages) issued to them. No supplementary/Continuation answer sheet shall be provided
- ❖ Attempt all questions sequentially.
- ❖ Attempt Part-A & Part-B in separate answer books and Part-C in OMR sheet. Illustrate your answers with suitable diagrams, graphs and flow charts.
- ❖ OMR sheets shall be collected 20 minutes after starting of examination.

**Section A****Total-40 Marks**

Q1. A 52-year-old male admitted in hospital emergency centre with chest pain which he describes as a pressure behind his breastbone that spreads to the left side of the neck along with nausea and sweating.

**1+5+4=10 Marks**

- a) What is the most likely diagnosis?
- b) What are the different cardiac biomarkers to be estimated on an emergency basis?
- c) What are the investigations advised and the normal range of the performed parameters.

**Q2. Short Notes:****4x5=20 Marks**

- a) Fluid mosaic model
- b) Isoelectric pH ✓
- c) Von Gierk's Disease
- d) Mucopolysaccharides

**Q3. Short Answer Questions :****5x2=10 Marks**

- a) What are the major actions of insulin?
- b) What is Principle of Benedict's test?
- c) Why is mitochondria called the powerhouse of cell?
- d) What are the functions of lysosomes?
- e) What is the difference between glucokinase and hexokinase?

**Section B****Total Marks-40**

**Q1.** A man of 45 who is slightly overweight and has a sedentary job had a health check up and was told that his lipid profile was abnormal.

**2+4+4=10 Marks**

- a) What are the parameters included in lipid profile?
- b) What are the complications of hypercholesterolemia?
- c) What are the life style modifications suggested?

**Q2. Short Notes:**

**4x5=20 Marks**

- a) Role of Carnitine in Fatty Acid Oxidation
- b) Biological actions of prostaglandins.
- c) Lesch-Nyhan syndrome.
- d) Phenylketonuria.

**Q3. Short Answer Questions:**

**5x2=10 Marks**

- a) Explain the functions of Glutathione in the body.
- b) Clinically important transaminases.
- c) What is the mechanism of methotrexate?
- d) What is the significance of Lp(a)? *lipoproteins - cardiac marker*
- e) What is Homocystinuria?

**Section-C****1x20=20 Marks**

**Q1.** What is the function of Golgi complex?

- a. Drug metabolism
- b. Glucose transportation
- c. Glycosylation of proteins
- d. Electron transport chain

**Q2.** All of the following are sulfur containing amino acids, except:

- a. Cysteine
- b. Methionine
- c. Homocysteine
- d. Threonine



**Q3.** Which is a nonreducing sugar?

- a. Maltose
- b. Sucrose
- c. Lactose
- d. Isomaltose

**Q4.** Which of the following is characteristic of untreated diabetes regardless of type?

- a. Hyperglycemia
- b. Ketoacidosis
- c. Obesity
- d. Low HbA1c

**Q5.** Which of the following is a storage form of energy?

- a. Glycogen
- b. Glycerol
- c. AMP
- d. Lactate

**Q6.** The key enzyme in fatty acid synthesis is :

- a. Acetyl-CoA carboxylase
- b. Beta hydroxyacyl dehydratase
- c. Enoyl reductase
- d. Acetyl transacylase

**Q7.** Phagocytosis involves :

- a. Respiratory burst ✓
- b. Lipid peroxidation
- c. Alpha oxidation
- d. Endosmosis

**Q8.** Fluidity of membranes depends on:

- a. Nature of fatty acids
- b. Concentration of proteins
- c. Membrane pumps
- d. Glycosylation of proteins

**Q9.** The main apoprotein present in the LDL is:

- a. A and D
- b. B-100
- c. E2 and C
- d. B-48

**Q10.** Normal serum Creatinine level is:

- a. 0.2-0.4 mg/dL
- b. 0.3-0.6 mg/dL
- c. 0.7-1.4 mg/dL
- d. 1.4-2.8 mg/dL

**Q11.** The chief product of catabolism of purines in human beings is:

- a. Urea
- b. Uric acid
- c. Hypoxanthine
- d. Beta aminoisobutyric

**Q12.** Which tissue is most insulin sensitive?

- a. Brain
- b. Liver
- c. Adipose tissue
- d. Cardiac muscle

**Q13.** Which amino acid will give rise to an inhibitory neurotransmitter?

- a. Histidine
- b. Glutamic acid
- c. Ornithine
- d. Tyrosine

**Q14.** ETC is located in the:

- a. Outer mitochondrial membrane
- b. Inner mitochondrial membrane
- c. Mitochondrial matrix
- d. Nucleus

**Q15.** Which of the electron carriers is soluble and mobile?

- a. CoQ
- b. Cytochrome c
- c. Cytochrome a
- d. Cytochrome b

**Q16.** Serotonin is derived from which amino acid?

- a. Tyrosine
- b. Tryptophan
- c. Glutamic acid
- d. Histidine

**Q17.** Absorbed triglycerides are transported in blood as:

- a. Cholecystitis
- b. Chylomicrons
- c. Globulin
- d. Ferritin

**Q18.** The enzyme:

- a. Reduces the energy of activation
- b. Increases total energy of substance
- c. Increases the equilibrium constant
- d. Increases total energy of the product

**Q19.** All are substrates for gluconeogenesis during starvation, except:

- a. Alanine
- b. Glycerol
- c. Glutamine
- d. Acetyl CoA

**Q20.** The coenzyme which is not a derivative of B complex vitamin?

- a. FAD
- b. NAD
- c. TPP
- d. Carnitine