

# Question Paper

Exam Date & Time: 17-May-2023 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

BIOCHEMISTRY and CLINICAL PATHOLOGY [PBT-ER20-23T-S3]

Marks: 80

Duration: 180 mins.

### MCQs

Answer all the questions.

Section Duration: 30 mins

20 Q x 1 mark = 20 marks

- 1) The cellular organelles called suicide bags are (1)  
[Lysosomes](#)  
[Ribosomes](#)  
[Nucleolus](#)  
[Golgi bodies](#)
- 2) The sugar found in milk is (1)  
[Fructose](#)  
[Glucose](#)  
[Sucrose](#)  
[Lactose](#)
- 3) An example of aromatic amino acid is (1)  
[Aspartate](#)  
[Tyrosine](#)  
[Methionine](#)  
[Asparagine](#)
- 4) Which of the following structure is not common in all proteins? (1)  
[Primary structure](#)  
[Secondary structure](#)  
[Tertiary structure](#)  
[Quaternary structure](#)
- 5) Which of the following lipoprotein is required to transport cholesterol from the liver to other tissues? (1)  
[HDL](#)  
[LDL](#)  
[VLDL](#)  
[Chylomicrons](#)
- 6) Which of the following types of RNA is a component of the ribosome? (1)  
[mRNA](#)  
[rRNA](#)  
[snRNA](#)  
[tRNA](#)

- 7) The deficiency of vitamin B1 causes (1)
- [Scurvy](#)
  - [Pellagra](#)
  - [Xerophthalmia](#)
  - [Beri beri](#)
- 8) Deficiency of iodine leads to (1)
- [Anemia](#)
  - [Fibrosis](#)
  - [Goiter](#)
  - [All of the above](#)
- 9) Body water is regulated by the hormone (1)
- [ADH](#)
  - [ACTH](#)
  - [FSH](#)
  - [Epinephrine](#)
- 10) Which of the following test is used to assess renal function? (1)
- [Clearance test](#)
  - [ALT](#)
  - [AST](#)
  - [Lipid profile](#)
- 11) Which of the following T cells actively destroy infected cells? (1)
- [Helper T cells](#)
  - [Cytotoxic T cells](#)
  - [Regulatory T cells](#)
  - [Memory T cells](#)
- 12) Which of the following is **not** the clinical significance of Platelets? (1)
- [Blood clotting](#)
  - [Healing wound](#)
  - [Homeostatic mechanisms](#)
  - [Antibody formation](#)
- 13) Rothera's test is used for the detection of -----in urine (1)
- [Ketone bodies](#)
  - [Proteins](#)
  - [Sugars](#)
  - [Lipids](#)
- 14) Depending on the length of the hydrocarbon chain, medium-chain fatty acids consist of (1)
- [1 to 2 carbon atoms](#)
  - [2 to 6 carbon atoms](#)
  - [8 to 14 carbon atoms](#)
  - [6 to 22 carbon](#)

- [atoms](#)
- 15) The optimum temperature at which enzyme activity is maximum is (1)
- [20-25° C](#)  
[15-20° C](#)  
[50-55° C](#)  
[40-45° C](#)
- 16) Non-competitive inhibition is a type of (1)
- [Irreversible inhibition](#)  
[Allosteric inhibition](#)  
[Reversible inhibition](#)  
[Suicide Inhibition](#)
- 17) Enzymes that catalyze the joining of two molecules are termed as (1)
- [Ligases](#)  
[Transferases](#)  
[Hydrolases](#)  
[Lyases](#)
- 18) An example of a true ketone is (1)
- [HMG CoA](#)  
[Acetoacetyl CoA](#)  
[Acetyl CoA](#)  
[Acetone](#)
- 19) Rotenone is a (1)
- [Barbiturate drug](#)  
[Antibiotic](#)  
[Antidote](#)  
[Fish Poison](#)
- 20) Binding change model for ATP generation is also referred to as (1)
- [Engine driving model](#)  
[Chemical coupling hypothesis](#)  
[Chemiosmotic hypothesis](#)  
[Carnitine shuttle system](#)

### Long Answers

**Answer all the questions.**

6 Q x 5 marks = 30 marks

- 1) Write a note on protein-energy malnutrition (PEM) and its treatment. (5)
- 2) Draw the general structures of steroids and explain the functions of cholesterol. (5)
- 3) Describe the physiological role and deficiency symptoms of vitamin E. (5)
- 4) What are Lymphocytes? Write a note on their clinical significance. (5)
- 5) What are enzyme inhibitors? Write briefly on competitive inhibition. (5)
- 6) Enlist any four salient features of the Embden Meyerhof pathway and elaborate on the energy investment phase associated with the pathway. (5)

### Short Answers

Answer all the questions.

10 Q x 3 mark = 30 marks

- 1) Write a note on Lactose. (3)
- 2) What are the functions of DNA and RNA? (3)
- 3) Describe the deficiency diseases of calcium. (3)
- 4) What is dehydration? Explain the causes, symptoms, and treatment of dehydration. (3)
- 5) Write a note functions of the Liver. (3)
- 6) Write the differences between prokaryotic and eukaryotic cells. (3)
- 7) Write the steps involved in the formation of acetyl CoA from  $\beta$ -hydroxy butyrate. (3)
- 8) Write the steps involved in activation and transport associated with  $\beta$ -oxidation of Palmitic acid. (3)
- 9) Write the steps involved in Krebs Henseleit cycle. (3)
- 10) Write short notes on Phenylketonuria. (3)

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