

Question Paper

Exam Date & Time: 22-May-2023 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

BPharm (Second Semester)
End Semester Theory Examination, 2023

Biochemistry [PBT-BP203T-S1]

Marks: 75

Duration: 180 mins.

I Multiple Choice Questions (MCQs)

Answer all the questions.

Section Duration: 30 mins

1) Aspartic acid is represented by the alphabet (1)

- [D](#)
- [E](#)
- [H](#)
- [K](#)

2) Acetyl CoA falls under which class of high energy compound? (1)

- [Enol Phosphate](#)
- [Phosphagens](#)
- [Thioesters](#)
- [Guanidino phosphates](#)

3) Change in randomness of reactants or products is termed as (1)

- [Enthalpy](#)
- [Entropy](#)
- [Free energy](#)
- [Bioenergetics](#)

4) Which of the following is a product of transketolase activity? (1)

- [Ribulose-5- phosphate](#)
- [Xylulose-5-Phosphate](#)
- [Sedoheptulose-7-phosphate](#)
- [Ribose-5-phosphate](#)

5) The reaction mediated by Thiokinase is (1)

- [Pyruvate to Acetyl CoA](#)
- [Glutamate to alpha ketoglutarate](#)
- [Succinyl CoA to succinate](#)
- [Succinate to Fumarate](#)

6) The distance between each base pair in the B form of DNA is (1)

- [0.34](#)

- [nm](#)
- [3.4 nm](#)
- [34 nm](#)
- [34 A](#)

7) The translation enzyme present at the P site of ribosome is (1)

- [Peptidyl synthase](#)
- [Peptidyl transferase](#)
- [Peptidyl acylase](#)
- [Peptidyl transaminase](#)

8) The property of the genetic code by which codons are read continuously in a reading frame is called (1) as

- [Universality](#)
- [Specificity](#)
- [Non-overlapping](#)
- [Degeneracy](#)

9) If the codon sequence on an mRNA is (1)
CGCACGAUGAACCGAGUCUUACAGCGUUUGUCCUAACGUGCG how many amino acids will be formed during its translation?

- [14](#)
- [11](#)
- [9](#)
- [5](#)

10) tRNA are classified as class I and II based on (1)

- [Acceptor arm](#)
- [D arm](#)
- [Anticodon arm](#)
- [Variable arm](#)

11) Which of the following is a translocation inhibitor? (1)

- [Doxorubicin](#)
- [Erythromycin](#)
- [Tetracycline](#)
- [Streptomycin](#)

12) Histones found in the nucleosome octamer are (1)

- [H1, H2, H3, H4](#)
- [H2, H3A, H3B, H4](#)
- [H2A, H2B, H3, H4](#)
- [H2A, H3A, H3B, H4](#)
- [H4](#)

13) The precursor for synthesis of serotonin is (1)

- [Tryptophan](#)
- [Tyrosine](#)
- [Melatonin](#)
- [Phenylalanine](#)

14) The number of ATPs derived from acetyl CoA when Myristic acid, a 14 carbon containing fatty acid (1) undergoes complete oxidation is

- [02](#)
- [96](#)
- [84](#)
- [129](#)

15) The term 'keto' in Phenylketonuria is due to the excretion of the following in excess through urine (1)

- [Acetyl CoA](#)
- [Phenyl Pyruvate](#)
- [Phenyl Glutamine](#)
- [Acetone](#)

16) Linolenic acid contains how many double bonds? (1)

- [03](#)
- [02](#)
- [04](#)
- [01](#)

17) The coenzyme NAD⁺ is derived from vitamin (1)

- [B3](#)
- [B2](#)
- [B6](#)
- [B9](#)

18) In non-competitive inhibition, which of the following is true? (1)

- [Vmax remains unchanged whereas Km increases](#)
- [Km decreases and Vmax increases](#)
- [Vmax and Km are lowered simultaneously](#)
- [Vmax is lowered whereas Km remains unchanged](#)

19) A coenzyme related to B-complex vitamin is (1)

- [FMN](#)
- [ATP](#)
- [UDP](#)
- [SAM](#)

20) The concept of Lock and Key model was attained while working with (1)

- [Lipolytic enzymes](#)
- [Proteolytic enzymes](#)
- [Amylolytic enzymes](#)
- [Glycolytic enzymes](#)

II Long Answers

Answer all the questions.

- 1) Explain the pathway that forms glucose from lactate during starvation. Interpret the following data and comment on the result: PPPG - 176 mg%, FPG - 116 mg% , RPG - 150 mg% (10)
- 2) Explain the following: (10)
 - a. Leading and lagging strands. (3m)
 - b. Termination of transcription. (3m)
 - c. Degradation of purine nucleotides. (4m)

III Short Answers

Answer all the questions.

- 1) a. Give an account on the elemental composition of proteins. (2m) (5)
b. Classify proteins based on their nutritive value. (3m)
- 2) Explain the working of Complex V enzyme of ETC. Write short notes on uncouplers. (5)
- 3) Name the compound belonging to thioester class of high energy compounds that enters mitochondrial matrix to generate energy in the form of ATP. Explain the sequence of reactions occurring in the mitochondrial matrix leading to the complete oxidation of a given fatty acid. (5)
- 4) Sketch the steps involved in Ketolysis. Add a note on the significance of ketone bodies. (5)
- 5) Name the bile pigments. Write the reactions involved in synthesis of stercobilin from a yellow colored bile pigment. (5)
- 6) Give reason for the following: (5)
 - a) Induced fit model is a more acceptable model. (1m)
 - b) Treatment with Disulfiram leads to alcohol avoidance in addicts. (2m)
 - c) Appointment of enzyme commission by IUB. (2m)
- 7) Explain the effect of pH and substrate concentration on enzyme activity. (5)

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