



**MANIPAL COLLEGE
OF PHARMACEUTICAL SCIENCES**
MANIPAL
(A constituent unit of MAHE, Manipal)

BPharm Semester II – Make up Examination November/Decemer-2021

PBT-BP203T. BIOCHEMISTRY

Date: 03.12.2021 Duration: 3h Max. Marks: 75

ANSWER ALL THE QUESTIONS. DRAW NEAT LABELED DIAGRAM WHEREVER NECESSARY

Section A: MULTIPLE CHOICE QUESTIONS		[20x1=20]
Q No	Question	Mention the correct answer
1.	Compounds that possess sufficient free energy to liberate atleast 7 calories per molecule at pH 7.0 is/are known as a) Isoenzymes b) Diagnostic enzymes c) High energy compounds d) Redox pairs	
2.	An example of a high energy compound under the class thioesters is: a) ATP b) 1,3-BPG c) Phosphoenol pyruvate d) Acetyl CoA	
3.	The energy actually available to do work is known as a) Enthalpy b) Free energy c) Biochemical thermodynamics d) Entropy	
4.	Which of the following is a ketohexose? a) Glucose b) Fructose c) Galactose d) Mannose	
5.	Which of the following is NOT a substrate for gluconeogenesis? a) Pyruvate b) Lactate c) Glycerol d) Guanine	
6.	Which of the following is a true ketone body? a) HMG CoA b) Acetone c) Acetyl CoA d) β -Hydroxy Butyrate	
7.	The number of carbons that Arachidonic acid possesses is a) 16 b) 02 c) 24 d) 20	
8.	The number of Acetyl CoA generated when Palmitic acid undergoes complete oxidation is a) 00 b) 04 c) 08 d) 16	
9.	Cholesterol possesses how many cyclopentane rings? a) 01 b) 02 c) 03 d) 27	
10.	Urea is the end product of a) Lipid metabolism b) Carbohydrate metabolism c) Protein metabolism d) Mineral metabolism	



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11.	A disorder associated with Tyrosine metabolism is a) Alkaptonuria b) Citrullinemia c) Hyperargininemia d) Jaundice	
12.	The number of ATP's generated from ornithine cycle is a) 02 b) 04 c) 00 d) 16	
13.	The term 'Keto' is present in Phenylketonuria due to which of the following? a) Phenyl lactate b) Phenyl Pyruvate c) Phenyl Glutamine d) Phenyl Acetate	
14.	Ketone bodies are not utilized in the liver because of the absence of the enzyme a) HMG CoA synthase b) Thiophorase c) β -hydroxybutyrate dehydrogenase d) HMG CoA lyase	
15.	Molar equivalence of DNA bases was explained by a) Watson b) Crick c) Chargaff d) Boyer	
16.	Which arm of tRNA is responsible for matching with mRNA? a) Acceptor arm b) D arm c) Variable arm d) Anticodon arm	
17.	A specialized form of irreversible inhibition is a) Competitive inhibition b) Non-competitive inhibition c) Allosteric inhibition d) Suicide inhibition	
18.	The enzymes that hold metal ions tightly are commonly known as a) Metalloenzymes b) Isoenzymes c) Holoenzymes d) Metal activated enzymes	
19.	The non-protein part of an enzyme is referred to as a) Apoenzyme b) Coenzyme c) Holoenzyme d) Isozyme	
20.	Substrate concentration to produce half maximum velocity in an enzyme catalyzed reaction is a) Enzyme kinetics b) Line weaver burk plot c) Co-substrates d) Michaelis Menten constant	



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Section B : Long Answers		[2x10=20]
1.	Explain how glucose undergoes oxidation in the cytosol under aerobic conditions to produce pyruvate. Add a note on its energetics.	
2.	With the help of a neat labelled diagram explain DNA replication process.	
Section C: Short Answers		[7x5=35]
3.	Sketch the ATP-ADP cycle and mention why is ATP regarded as the most unique and important high energy compound? Add a note on cAMP.	
4.	Explain the shuttle pathway functional in cardiac muscles that help transport of reducing equivalents to mitochondria.	
5.	Palmitic acid is a saturated fatty acid with 16 carbons. Derive the number of ATP's generated when one molecule of the said acid undergoes complete oxidation. Mention through reactions, the role of water and coenzymes during the oxidation of Palmitic acid in the stage III of β -oxidation.	
6.	Write briefly on Phenylketonuria with emphasis on the enzyme involved, Biochemical manifestations, diagnosis and treatment.	
7.	Explain the 'initiation step' of transcription process, with suitable diagram.	
8.	Write short notes on transition state analogs. Draw a graph with temperature on X-axis and rate of reaction on Y-axis for the enzyme muscle adenylate kinase and compare it with enzymes that possess maximum activity at 45°C.	
9.	A three month young child and his mother, on intake of milk, complained of symptoms that included diarrhea, nausea, bloating and gas. From the given data, analyse the condition they are suffering from and mention a specific test each for the diagnosis of the same in mother and child.	

