

Name:  
Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Theory Examination, May 2023**

**Course: Biochemistry**  
**Program: B. Pharm**  
**Course Code: BP 203T**

**Semester: II**  
**Time 03 hrs.**  
**Max. Marks: 75**

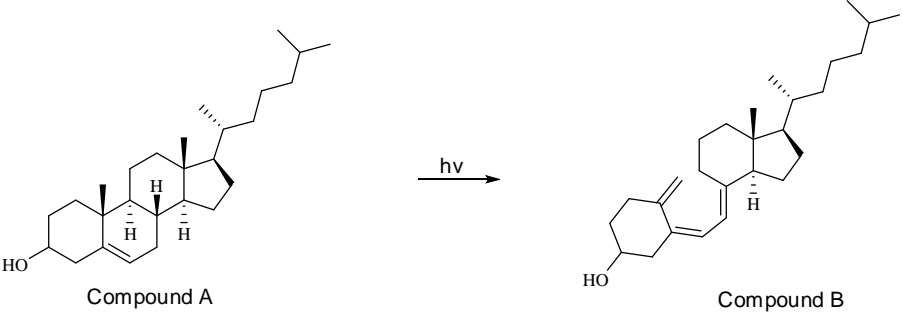
**Instructions: Read the Question Paper Carefully. All Sections are Compulsory**

**SECTION A**

S. No.	CO		Marks
Q1			20
1	CO1	A metabolic reaction that results in the formation of ATP or GTP by conversion of a higher energy substrate into a lower energy product is known as	1
2	CO1	Which lipoprotein carries exogenous triglycerides from food to tissues a. VLDL b. HDL c. LDL d. Chylomicrons	1
3	CO1	Name one glucogenic amino acid.	1
4	CO1	Tyrosine is an aromatic amino acid. True/False	1
5	CO3	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>12</sub> CH <sub>2</sub> CH <sub>2</sub> COOH is a. Stearic acid b. Oleic acid c. Palmitic acid d. $\alpha$ -Linolenic acid	1
6	CO1	Which of the following is an example of $\omega$ -3 fatty acid a. $\alpha$ -linolenic b. Eicosapentaenoic acid c. Docosahexaenoic acid d. All of the above	1
7	CO2	Palmitic acid is metabolized by beta oxidation to produce _____ acetyl CoA molecules a. 7 b. 6 c. 2 d. 8	1
8	CO2	Formation of glucose from lactate can be done through which biochemical process a. Glycolysis under aerobic conditions b. Glycogenolysis c. Gluconeogenesis	1

		d. Glycolysis under anaerobic conditions	
9	CO2	Write one role of dopamine	1
10	CO2	Name the enzyme involved in unzipping the double helix DNA chain.	1
11	CO3	Which of the following is a ketone body a. Acetaldehyde b. Alpha - Ketoglutarate c. Beta - Hydroxybutyrate d. Pyruvic acid	1
12	CO3	Disorder in the metabolism of Phenyl alanine to tyrosine is a. Phenylketonuria b. Albinism c. Alkeptonuria d. Tyrosinemia	1
13	CO3	Give one role of ketone bodies	1
14	CO4	Draw structure of glucose	1
15	CO4	Which of the following is true about SARS-CoV-2 a. It is crown shaped virus b. Contains RNA c. It has spike proteins d. All are true	1
16	CO4	Name any amino acid used in the synthesis of adenine	1
17	CO4	Which of the following is not a pyrimidine nucleotide a. Uracil b. Thymine c. Cytosine d. Guanine	1
18	CO5	Thiamine is also known as vitamin ____	1

19	CO5	Which of the following is true a. Apoenzyme = Holoenzyme + Prosthetic group b. Holoenzyme = Apoenzyme + Prosthetic group c. Prosthetic group = Holoenzyme + Apoenzyme d. None	1
20	CO5	Enzymes do not show specificity. True/ False	1
SECTION B			
Attempt any two out of three, 10 marks each			
Q2			20
	CO2	Draw glycolysis pathway. In which part of the cell glycolysis occurs. How many ATPs are produced through glycolysis pathway.	10
	CO3	Write about different types of lipoproteins along with their role.	10
	CO4	a. Write Michaelis-Menten equation. Write its significance. b. Discuss competitive inhibition of enzymes with suitable diagram	10
SECTION C			
Attempt any 7 out of 9 (7X5 = 35)			
Q3			35
1	CO2	a. Number of ATP produced from NADH molecule. b. What is ketosis	5
2	CO2	a. Discuss any two metabolic disorder of tyrosine metabolism b. Name two important products generated in HMP shunt pa	5
3	CO1	a. Give biological role of lipids b. Give biological role of cholesterol c. Name one basic amino acid	5
4	CO3	Write about electron transport chain and its significance	5
5	CO5	Draw Urea cycle. Give its significance	5
6	CO5	What are different steps of amino acid metabolism. Give suitable examples	5
7	CO1	a. Define i. Epimers ii. Write Michaelis Menten equation iii. What are reducing sugars give example iv. Draw structure of Pyruvic acid v. Give one example of enzyme which is used therapeutically	5

8	CO3	<p>Give answers to the questions related to the following reaction</p>  <p>Compound A <math>\xrightarrow{h\nu}</math> Compound B</p> <p>a. Name compound A and B  b. Name some hormones whose starting material is compound A  c. Write any disorder related to compound A</p> <p>[Hint: Compound B is an important water in-soluble vitamin]</p>	5						
9	CO5	<p>a. Give significance of dopamine</p> <p>b. Match the following</p> <table border="1" data-bbox="321 892 1422 1008"> <tr> <td>a. Alpha ketoglutarate</td> <td>i. Transfer of formyl group</td> </tr> <tr> <td>b. Serotonin</td> <td>ii. Transamination reactions</td> </tr> <tr> <td>c. cofactor of folic acid</td> <td>iii. Mood</td> </tr> </table>	a. Alpha ketoglutarate	i. Transfer of formyl group	b. Serotonin	ii. Transamination reactions	c. cofactor of folic acid	iii. Mood	5
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