
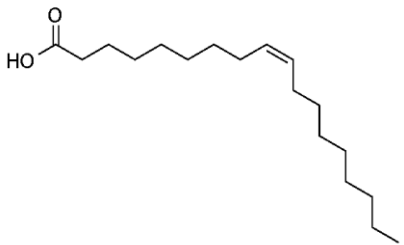
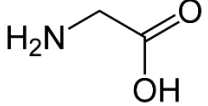
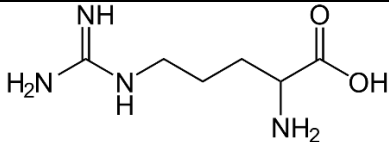
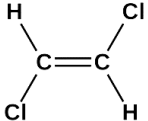


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Supplementary Examination, December 2023			
Course: Biochemistry & Metabolism		Semester: 1 st	
Program: BSc N&D./Integrated BMSc – MB.		Duration: 3 Hours	
Course Code: HSCC1012		Max. Marks: 100	
Instructions: Read all questions carefully.			
S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q			
1	Draw the structure of serine.	1.5	CO 1
2	State any three monosaccharides.	1.5	CO 1
3	List any two biochemical significances of cholesterol.	1.5	CO 1
4	List any two examples of hydroxyl containing amino acids.	1.5	CO 1
5	Define stereoisomerism.	1.5	CO 1
6	Draw the structure of glucose.	1.5	CO 1
7	Draw the structure of lysine.	1.5	CO 1
8	Name the pyrimidine nitrogenous bases.	1.5	CO 1
9	Explain acid value.	1.5	CO 1
10	Sketch the chemical structure of Galactose.	1.5	CO 1
11	Weather the following fatty acid is SFA/MUFA/PUFA? 	1.5	CO 1
12	Ether linkage in carbohydrate chemistry is also known as?	1.5	CO 1
13	Draw the structure of cholesterol.	1.5	CO 2
14	Recognize the molecule. 	1.5	CO 2
15	Recognize the amino acid.	1.5	CO 2

									
16	<p>Identify if the molecule is cis/trans isomer.</p> 	1.5	CO 2						
17	Draw the chemical reaction of osazone formation from glucose.	1.5	CO 3						
18	Draw the structure of sucrose.	1.5	CO 3						
19	Sketch the structure of DNA.	1.5	CO 3						
20	Illustrate the concept of allosteric inhibitors.	1.5	CO 3						
<p>Section B (4Qx5M=20 Marks)</p>									
21	Give brief about the zwitter ion state of amino acids.	5	CO 4						
22	Compare the differences between DNA and RNA.	5	CO 4						
23	Describe the enzyme kinetics at various substrate concentration (along with plot).	5	CO 5						
24	Give supportive evidence of Induced-fit model of enzyme action.	5	CO 5						
<p>Section C (2Qx15M=30 Marks)</p>									
25	<p>A 17-year-old patient is suffering depression, low mood and anxiety, recurrent indigestion problems such as heart burn and stomach ache. The urine test indicates Phenylketonuria.</p> <p>a) List the other symptoms of Phenylketonuria? (5 marks) b) Give biochemical explanation of Phenylketonuria? (5 marks) c) Give structures of Tyrosine and Phenylalanine? (5 marks)</p>	15	CO 2						
26	<p>Early in the morning, 40 years old male patient came with complain of fatigue, weakness and blurred vision. The blood reports are included:</p> <table border="1" data-bbox="412 1667 989 1778"> <thead> <tr> <th>Lab Test</th> <th>Results</th> </tr> </thead> <tbody> <tr> <td>Fasting blood sugar</td> <td>225 mg/dL (High)</td> </tr> <tr> <td>Glycated hemoglobin (A1C)</td> <td>11.5 % (High)</td> </tr> </tbody> </table> <p>a) Which disease is indicated by the blood tests? (5 marks) b) Give biochemical explanation of hyperglycemia? (5 marks) c) What are the chronic complications with hyperglycemia? (5</p>	Lab Test	Results	Fasting blood sugar	225 mg/dL (High)	Glycated hemoglobin (A1C)	11.5 % (High)	15	CO 3
Lab Test	Results								
Fasting blood sugar	225 mg/dL (High)								
Glycated hemoglobin (A1C)	11.5 % (High)								

	marks)		
Section D (2Qx10M=20 Marks)			
27	Critically evaluate the methods available to determine the purity of fat samples.	10	CO 5
28	Describe the stability of secondary structure of proteins with the help of molecular interactions.	10	CO 4