

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2024

Course: Biochemistry

Semester : II

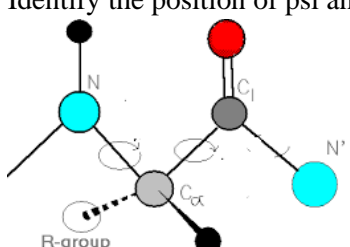
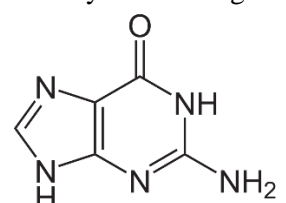
Program: BTech Biotechnology and Food Technology

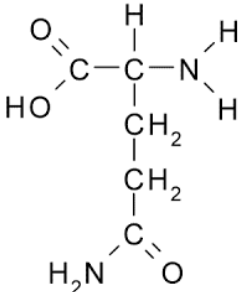
Duration : 3 Hours

Course Code: HSCC1032

Max. Marks: 100

Instructions:

S. No.	Section A Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	Cos
Q 1	Define peptide bond.	1.5	CO1
Q 2	Define isoelectric point (pI).	1.5	CO1
Q 3	Enzymes increase the rates of reactions by: (A) Increasing the free energy of activation (B) Decreasing the energy of activation (C) Changing the equilibrium constant of the reaction (D) Increasing the free energy change of the reaction	1.5	CO1
Q 4	Recall the name of scientist who coined the term enzyme.	1.5	CO1
Q 5	Identify the position of psi and phi bond in the given structure: 	1.5	CO1
Q 6	Define Chargaff's rule.	1.5	CO1
Q 7	Draw the structure of lauric acid (12:0).	1.5	CO1
Q 8	Define amphipathic molecule.	1.5	CO1
Q 9	Write the name of an any enzyme with its cofactor	1.5	CO1
Q 10(name of scientist) who crystalized(name of enzyme) from jack bean extract.	1.5	CO1
Q 11	Recall the Michaelis-Menten equation.	1.5	CO2
Q 12	Define iodine number.	1.5	CO2
Q 13	Identify the below given structure: 	1.5	CO2

Q 14	Discuss the relationship between chain length of fatty acid and its solubility in water.	1.5	CO2
Q 15	Define lipids with example.	1.5	CO2
Q 16	Identify the given below amino acid structure: 	1.5	CO2
Q 17	Define Km.	1.5	CO2
Q 18	Two successive nucleoside residues link together by.....	1.5	CO2
Q 19	Describe why cold-blooded animals have more unsaturated fatty acid?	1.5	CO2
Q 20	Report two properties that make triglyceride better storage molecule	1.5	CO2
Section B (4Qx5M=20 Marks)			
Q 1	State the differences between cofactors and coenzymes.	5	CO1
Q 2	Explain Induced fit model.	5	CO2
Q 3	Explain Watson and Crick model given for DNA double helix.	5	CO3
Q 4	Estimate the distance covered by 136 amino acids long α -helix.	5	CO5
Section C (2Qx15M=30 Marks)			
Q 1	What are enzymes. Explain Gibbs free energy of activation and write the relationship between activation energy and rate of the reaction. How enzyme works (Explain with labeled diagram)?	2+3+3+7	CO3
Q 2	A. Argue the given below given statements are true or false with explanation. Gluconeogenesis is an energy expensive pathway. B. Describe the biochemical engineering of transformation of straight to curly hair. C. Explain Lock and Key hypothesis.	5+5+5	CO5
Section D (2Qx10M=20 Marks)			
Q 1	Write three steps where NADH is produced in TCA cycle.	3+7	CO4
Q 2	Differentiate between primary, secondary and tertiary structures of proteins.	10	CO4