Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, Dec 2022

Course: Organic Chemistry IV **Semester: V**
Program: B.Sc. (H) Chemistry **Time : 03 hrs.**
Course Code: CHEM 3001 **Max. Marks: 100**

Instructions:
1) **Read all the below mentioned instructions carefully and follow them strictly:**
2) **Mention Roll No. at the top of the question paper.**
3) **ATTEMPT ALL THE PARTS OF A QUESTION AT ONE PLACE ONLY.**

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Define the process of replication, transcription and translation.	**4**	**CO1**
Q 2	Elaborate about the general structure and characteristics of amino acids.	**4**	**CO1**
Q 3	Explain the lock and key model for the working of enzymes.	**4**	**CO1**
Q 4 a. b.	How can fats be converted to fatty acids? Write the appropriate reaction also. What is cholesterol and how does lipoproteins help cholesterol in the human body?	**4**	**CO1**
Q 5	Discuss the types of metabolic pathways in detail.	**4**	**CO2**

SECTION B
(4Qx10M= 40 Marks)

Q 6	How do NAD and FAD support the metabolic processes in the biosystem?	**10**	**CO2**
Q 7	Discuss the Watson and crick model for DNA double helical structure.	**10**	**CO2**
Q 8 a. b.	What is iodine number? How is it determined? Explain the different types of rancidity.	**5+5**	**CO1**
Q 9	Write the synthesis of paracetamol with its mechanism of action inside the body. **OR** What are antimalarial drugs? Give its synthesis, mechanism of action, and side effects.	**10**	**CO3**

SECTION-C
(2Qx20M=40 Marks)

Q 10a. b.	Explain the mechanism of protein synthesis from genotype to phenotype. What is glycolysis? Discuss the energy requiring and energy releasing phases during this process in detail. **OR** Why are protecting groups needed in amino acids during peptide synthesis? Discuss the N-terminal, C-terminal and side terminal protecting groups in detail.	**10+10**	**CO2**
Q 11a. b.	Differentiate primary, secondary and tertiary structure of protein. What is electrophoresis? Explain its working and application.	**10+10**	**CO2**