Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Chemistry of Life Processes **Semester: IV**

Program: MSc Chemistry **Time: 03 hrs.**

Course Code: CHEM8060 **Max. Marks: 100**

Instructions: Read all the below mentioned instructions carefully and follow them strictly:

1) Mention Roll No. at the top of the question paper.
2) Do not write anything on the question paper except roll number.
3) Attempt all the parts of a question at one place.

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Generation of one NADH during a reaction is considered to be equivalent to 3 ATP molecules. Justify this statement with suitable discussion.	**4**	**CO2**
Q 2	Name any two coenzymes supporting in H-atom transfer during metabolic processes. Also draw their structures.	**4**	**CO1**
Q 3	Why are proteins not considered as good source of energy?	**4**	**CO2**
Q 4	Differentiate saturated and unsaturated fatty acids. Write the structures of one example of each category.	**4**	**CO2**
Q 5	Describe the function of carboxypeptidase and draw its structure.	**4**	**CO2**
SECTION B **(4Qx10M= 40 Marks)**			
Q 6	Elaborate the process responsible for the conversion of glucose to ribose sugar in the body. Explain with required chemical reactions.	**10**	**CO2**
Q 7	Specify the type of RNA is responsible for transporting the required amino acids for protein synthesis. Discuss its structure.	**10**	**CO2**
Q 8	Which vitamin plays a role in the visual cycle of the body? Draw its structure and explain its specific features.	**10**	**CO3**
Q 9	Define hormones. Classify them with at least one example of each type.	**10**	**CO3**

	OR Discuss the mechanism of hormone action with example.		
SECTION-C **(2Qx20M=40 Marks)**			
Q 10	a. Pyruvic acid is generated as the major product during glycolysis. How can it participate in further metabolic processes in the body under following physiological conditions: i) When body is having limiting supply of oxygen? ii) When body's energy level is high? iii) When body needs energy? iv) When it is present in the yeast? b. Carry out following conversions: i) Acetyl Co-A to acetoacetic acid. ii) Acetyl Co-A to palmitic acid.	**10+10**	**CO2**
Q 11	a. Illustrate the bonding of adenine and thymine bases in DNA. Draw the structures of all the four nucleotides present in DNA. b. Discuss two methods for the conversion of α-amino acids to α-keto acids. **OR** a. What do you understand by genetic coding? Draw codon dictionary for detailed explanation. b. The condition of liver failure is fatal for the body. Justify this statement.	**10+10**	**CO2**