

Name:			
Enrolment No:			
<b>UPES</b> <b>End Semester Examination, December 2023</b>			
<b>Course: Chemistry of Life process and bioactive compounds</b> <b>Program: MSc Chemistry</b> <b>Course Code: CHEM8025P</b>		<b>Semester: III</b> <b>Time: 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>Instructions:</b> Read all the below mentioned instructions carefully and follow them strictly: <ol style="list-style-type: none"> <li>1) Mention Roll No. at the top of the question paper.</li> <li>2) Do not write anything on the question paper except roll number.</li> <li>3) Attempt all the parts of a question at one place only.</li> <li>4) Internal choice is given only in Q 9 and 10.</li> </ol>			
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
S. No.		Marks	CO
Q 1	Differentiate coenzyme and cofactor. How are these species important for a metabolic process? Explain with an example.	4	CO1
Q 2	State the significance of tricarboxylic acid cycle. What happens to pyruvic acid when a person has returned from vigorous exercises for quite a long period of duration?	4	CO2
Q 3	What is the relation between oxaloacetic acid and aspartic acid? How can these be interconvertible to each other?	4	CO2
Q 4	Differentiate DNA and RNA with respect to their composition only.	4	CO2
Q 5	Why do proteins do not act as efficient source of energy for the body?	4	CO2
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b> <b>Question nos. 6, 7 and 8 are compulsory; internal choice is given in Q 9.</b>			
Q 6	a. Write the functions of following coenzymes: <ol style="list-style-type: none"> <li>i. Thiamine pyrophosphate</li> <li>ii. Riboflavin</li> <li>iii. Folic acid</li> <li>iv. Lipoic acid</li> <li>v. Ascorbic acid</li> </ol> b. How is Kreb's cycle linked to gluconeogenesis? Show with the help of just a pictorial representation.	5+5	CO1, CO2

Q 7	How can stearic acid be synthesized from acetyl Co-A? Show with the help of a schematic representation.	10	CO2
Q 8	How do enzymes catalyze the biological reactions? Discuss the function of chymotrypsin with its detailed mechanism.	10	CO2
Q 9	Classify vitamins on the basis of their solubility in water. Write a short note on vitamin C.  <b>OR</b> Why are vitamins important for the body. What can be ill effects of the deficiency of vitamin A and vitamin E?	10	CO3
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b> <b>Internal choice is given in Q 10, while Q 11 is compulsory.</b>			
Q 10	a. What is C <sub>3</sub> cycle? Why is it named so? Draw the complete cycle and state its significance. b. How many types of RNAs are there? Describe clover leaf model of RNA with its salient features.  <b>OR</b> a. How many phases are there in photosynthesis? Discuss the light reaction in detail. b. Discuss the role of genetic errors in causing mutations in the traits of a species.	10+10	CO2
Q 11	a. How does the working of water-soluble and fat-soluble hormones vary? Give an example of each category. b. Draw the structures of nucleotides containing guanine and cytosine in RNA. c. Write a short note on moulting hormones.	10+5+5	CO3, CO2, CO3