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Roll No.

Total Pages : 3

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Dec. 2021

B.Sc. (Chem) V SEMESTER

Organic Chemistry - IV (BCH 501)

Time : 90 Minutes]

[Max. Marks : 25

Instructions :

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART - A

1. (a) Write the structural relationship between the GDP and AMP. (1)
(b) How the release of Lys and Arg can be done from intact peptide, Glu-Cys-Asn-Met-Lys, Met-Glu-Thr-Arg-Trp ? (1)
(c) What is acid value and write its significance? (1)
(d) What are essential and non-essential amino acid and give *nvo* examples in each category? (1)

- (c) What are the purine bases preset in RNA and pyrimidine bases present in DNA? (1)
- (f) How many ATP equivalents are produced from complete oxidation of one pyruvate to three CO_2 ? (1)
- (g) Explain the difference between the coenzyme and cofactor? (1)
- (h) What is the significance of iodine value and arrange the iodine value of drying, non-drying and semidrying oils in increasing order? (1)
- (i) Under anaerobic conditions what are the products obtained from pyruvic acid in muscles and in presence of yeast? (1)
- (j) Explain the forces that stabilizes the DNA-Double helix? (1)

PART - B

2. (a) Name the products obtained on complete hydrolysis of DNA. Enumerate the structural difference between the DNA and RNA. (3)
- (b) In What way a nucleotide is different from the nucleoside? Illustrate with examples. (2)
3. (a) What is ATP? Why we call it universal currency of cellular energy? (2)

- (b) Discuss ATP produced/consumed in glycolysis and Krebs cycle of carbohydrate metabolism with reactions? (3)

4. Discuss the Merrifield solid phase synthesis of peptides. What are its advantages over the conventional methods used for the peptide synthesis? (5)
5. (a) In an electric field, towards which electrode, would an amino acid migrate at 9 (i) $\text{pH} < \text{pI}$, (ii) $\text{pH} > \text{pI}$ and (iii) $\text{pH} = \text{pI}$. Explain. (3)
- (b) Using benzyloxycarbonyl chloride as the N-protecting agent sketch the synthesis of the following peptides : (i) Phe-Ala; (ii) Ala-Gly. (2)
6. (a) What are the calorific value of the major food substituents? Name *two* artificial antioxidants used in food stuffs. (2)
- (b) Discuss the competitive, non-competitive and allosteric inhibitors with examples. (3)