

B.Sc-M. Sc-INTEGRATED PROGRAMME
SCHOOL OF CHEMICAL AND LIFE SCIENCES
SEMESTER V EXAMINATION 2019
PAPER TITLE: BIOMOLECULES (ORGANI CHEMISTRY-IV)
PAPER CODE: BCH-CC11TH

(Write your roll no. at the top immediately after receipt of this question paper.)

Time: 3h

Max Marks: 75

Attempt all the questions. All parts of a question must be attempted in continuation.
Start answer of a fresh question on a new page.

Q1: Attempt ALL of the following:

15 x 1 = 15

- A. In general, natural amino acids exist in which configuration?
- B. Give the name of two basic amino acids.
- C. Define the isoelectric point of an amino acid?
- D. What is ninhydrin reagent?
- E. What is the optimum pH of pepsin?
- F. If temperature is reduced to near or below freezing point, enzymes only get _____ but not _____.
- G. Some enzymes act on only one isomer of the two optical isomers and other is not affected by these enzymes. It is called _____.
- H. What do you mean to say substrate specificity?
- I. Write the structure of paracetamol.
- J. Penicillin generally deactivate the bacterial enzyme _____ which builds and repairs the bacterial wall.
- K. Write the name of any steroidal anti-inflammatory drug.
- L. Fat provides the energy more than twice calories per unit weight as compared to carbohydrate and protein. (True/False)
- M. The hydrogenation increases the keeping quality of oils (longer shelf life). (True/False)
- N. The number of calories you expend depends on _____ and your _____.
- O. What are narcotic analgesics?

Q2. Attempt ANY THREE of the following:

3 x 5 = 15

- A. Explain the classification of amino acids on the basis of their chemical nature.
- B. What does DCC stand for? What role it does it play in the formation of peptide linkages?
- C. How would you synthesize amino acid through Strecker synthesis?
- D. Write a note on groups used for blocking amino group during the synthesis of polypeptides.
- E. Give any one method used for identification of N-terminal residue of polypeptides.

Q3. Attempt ANY THREE of the following:

3 x 5 = 15

- A. Explain the following
- | | | | |
|-------|-------------|------|------------|
| (i) | Holoenzymes | (ii) | Apoenzymes |
| (iii) | Zymogen | (iv) | Coenzymes |
- B. Differentiate between Lock and key model and Induced fit model of enzyme activity.
- C. What is an inhibitor? Explain the competitive inhibition.
- D. Write a short note on the mode of action of trypsin.
- E. What are the effects of enzyme concentration and substrate concentration on the rate of the enzyme-catalyzed reaction?

Q4. Attempt ANY THREE of the following:

3 x 5 = 15

- A. How would analyze the quality of fats and oils?
- B. What are fatty acids? Classify them and give the structure of any omega-6 fatty acid.
- C. What is metabolism? Explain the catabolism and anabolism.
- D. Why ATP is called as universal currency of cellular energy? Explain.
- E. Give brief idea about agents for transfer of electrons in biological system.

Q5. Attempt ANY THREE of the following:

3 x 5 = 15

- A. Write a short note on the medicinal values of Vitamin C.
- B. What are Nonsteroidal Anti-inflammatory Drugs (NSAIDs)? Give the synthesis of clinically being used any anti-inflammatory drug.
- C. What are antibiotics? Give a detailed synthesis of chloramphenicol.
- D. Discuss on the medicinal values of turmeric. Give the structures of its chief constituents.
- E. What are antimalarials? Give a detailed synthesis of chloroquine.

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