

M.Sc. - II (Chemistry) (NEP Pattern) Semester-IV
STPG04CHE02 - Major DSC Paper-II Special-IV : Organic Chemistry

P. Pages : 2

Time : Three Hours



GUG/S/25/16327

Max. Marks : 80

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1. a) Explain the “Fischer’s lock and key” model and the “Koshland’s induced fit” model of enzyme substrate interaction. 8
- b) Explain the roles of cofactors, coenzymes and prosthetic groups in enzyme function providing specific examples of each. 8

OR

- c) Explain baker’s yeast catalyzed reactions with mechanism. 4
- d) Describe how an enzyme can utilize both orientation and steric effects to achieve efficient catalysis of a specific reaction. 4
- e) What is the mechanism of enzyme action for Chymotrypsin? 4
- f) Explain the mechanism of the reaction catalyzed by the Vitamin B12. 4
2. a) Discuss structure, synthesis and chemical properties of pyrazole. 8
- b) Discuss structure, synthesis and chemical properties of pyrimidines. 8

OR

- c) Discuss synthesis of imidazole’s. 4
- d) Explain the Fischer Indole synthesis with mechanism. 4
- e) Give any two methods for the synthesis of quinoline. 4
- f) Discuss structure and synthesis of Pyrazines. 4
3. a) Discuss the primary, Secondary, and tertiary structure of DNA. 8
- b) Explain the structure and synthesis of vitamin A. 8

OR

- c) Write a note on fluid mosaic model of membrane structure. 4
- d) Explain the composition and function of lipoproteins. 4
- e) Explain biological function of liposomes. 4
- f) Discuss biosynthesis of vitamin E. 4

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| 4. | a) | What are dyes? Give classification of dyes on the basis of structure and methods of application of dying. | 8 |
| | b) | Explain the term polymerization? Give condensation, addition polymerization with their mechanism. | 8 |

OR

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| c) | Write a note on Indigo dye. | 4 |
| d) | Give synthesis of ciprofloxacin. | 4 |
| e) | Explain Ziegler – Natta polymerization with mechanism. | 4 |
| f) | Write a note on classification of drugs. | 4 |
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| 5. | Attempt any eight . | 16 |
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| a) | What is the active site of an enzyme and why is it important for its function? | |
| b) | Give an example of how an enzyme might use steric hindrance to selectively favor one reaction product over another. | |
| c) | What is the key assumption made by Transition State Theory regarding the activated complex? | |
| d) | Write chemical properties of Isothiazole. | |
| e) | What are diazines? Give any two example of it. | |
| f) | What is Vitamin? Write application of vitamin E. | |
| g) | What is the role of lipoprotein in atherosclerosis? | |
| h) | What are antifungal drugs? Give any two examples. | |
| i) | What are isotactic and atactic polymers? | |
| j) | What is mean by degree of Polymerization? | |
