

M.Sc. - I (Chemistry) (CBCS Pattern) Semester-II
PSCCHT06 - Organic Chemistry

P. Pages : 2

Time : Three Hours



GUG/S/25/11229

Max. Marks : 80

Notes : All questions are compulsory and carry equal marks.

1. a) Explain the following reactions with mechanisms. 8
i) Hydrogenation of alkene.
ii) Michael reaction.
- b) Explain the addition of Grignard reaction and the organozinc compound to saturated and unsaturated carbonyl compounds. 8

OR

- c) Write a note on:
i) Hydrolysis of and ammonolysis of ester. 4
- d) Write a short note on hydroboration of alkene. 4
- e) Explain the terms regioselectivity and chemo selectivity. 4
- f) Write the note on metal hydride reduction of unsaturated carbonyl compounds with suitable example. 4
2. a) Explain the following rearrangement reactions with mechanisms. 8
i) Hoffman rearrangement
ii) Pinacol-Pinacolone rearrangement.
- b) What do you mean by free radicals. Give free radical substitution mechanism of an aromatic substrate. 8

OR

- c) What is the role of attacking reagent in free radical reaction. 4
- d) Explain reactivity of free radical at bridgehead position. 4
- e) Explain Favorski rearrangement. 4
- f) Give difference between Curtis and Schmidt rearrangements. 4
3. a) Discuss the Saytzeff's and Hoffman's rules in elimination reactions in details. 8
- b) Explain: 8
a) Coupling of alkenes
b) Arylation of aromatic compound by diazonium salt

OR

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| c) | Give the mechanism of E2 reaction. | 4 |
| d) | Explain in brief: | 4 |
| | i) Reed reaction | |
| | ii) Fenton's reagent. | |
| e) | Discuss the effect of attacking base and leaving group on elimination reactions. | 4 |
| f) | Write note on Sandmeyer reaction. | 4 |
| 4. | a) Discuss the following reactions in brief. | 8 |
| | i) Biginelli reaction | |
| | ii) Passerine reaction | |
| | b) Explains the green synthesis of | 8 |
| | i) Paracetamol | |
| | ii) Ibuprofen | |

OR

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|-----------|--|---|
| c) | Explain the basic principles of green chemistry. | 4 |
| d) | Write a short note on nano chemistry in organic synthesis. | 4 |
| e) | Explain biocatalysts in organic synthesis. | 4 |
| f) | Explain in short need of green chemistry. | 4 |
| 5. | a) Write the product of Cross Cannizaro's Reaction of formaldehyde and Benzaldehyde. | 2 |
| | b) Action of Grignard reagent on water and Alcohol, write reactions. | 2 |
| | c) Quote the examples of neighbouring group participation. | 2 |
| | d) Just write the reactions | 2 |
| | i) Tiffenev-Demjnov ring expansion | |
| | ii) Benzilbenzilic acid rearrangement | |
| | e) Explain auto-oxidation | 2 |
| | f) Explain halogenation at an allylic carbon. | 2 |
| | g) Explain Zeolites. | 2 |
| | h) Explain choice of solvent in green chemistry. | 2 |
