

P. Pages : 2

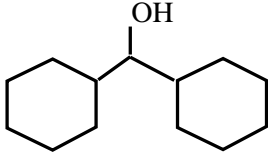
Time : Three Hours

**GUG/S/18/5719**

Max. Marks : 80

Notes : 1. All questions are compulsory and carry equal marks.

1. a) Write a note on 8
 i) Aldol condensation ii) Benzoin condensation
- b) What happen when the following compound react with 'Methyl magnesium bromide' 8
 i) Carbon dioxide
 ii) $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{OC}_2\text{H}_5$
 iii) Epoxide
 iv) $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{NH}_2$
- OR**
- c) Write a note on Favorskii reaction. 4
 d) Write a note on Alkylation of enolates. 4
 e) Write the product of the reaction when the following compound react with methyl Lithium. 4
 i) CO_2
 ii) $\text{CH}_3 - \text{CH}_2 - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_3$
- f) Discuss the synthetic application of organolithium compound. 4
2. a) Discuss with suitable example. 8
 i) Suzuki coupling reaction. ii) Kumada reaction.
- b) Discuss 8
 i) Reformatsky reaction ii) Simmon-Smith reaction
- OR**
- c) Explain the role of organomercury reagent in organic synthesis. 4
 d) Write a note on Stille coupling reaction. 4
 e) Write a note on oxidative addition of transition metal. 4

- f) Write the application of Gilman's reagent in organic synthesis with suitable example. 4
3. a) Discuss protection and deprotection of carboxylic acid and amino group. 8
- b) Explain with suitable example. 8
- i) Felkin Anh rule ii) Cram's rule.
- OR**
- c) Write a note on asymmetric synthesis with suitable example. 4
- d) Explain Re-Si face concept. 4
- e) Discuss protection and deprotection of hydroxyl group. 4
- f) Write a note on solid phase peptide synthesis. 4
4. a) Discuss regioselectivity of alcohol and carbonyl compound in one group C-C disconnection reaction. 8
- b) Explain two group C-C disconnection in 8
- i) Diel's Alder reaction. ii) Michael addition reaction.
- OR**
- c) Explain two group C-X and one group C-X disconnection with suitable example. 4
- d) Give the retrosynthetic analysis of 4
- i) $\text{CH}_3 - \text{CH}_2 - \underset{\text{OH}}{\text{CH}} - \text{CH}_3$
- ii) 
- e) Discuss use of acetylene and aliphatic nitro compounds in organic synthesis. 4
- f) Explain Amine synthesis with suitable example. 4
5. a) Write one synthetic application of organomagnesium compound. 2
- b) Give one example of base catalyzed halogenation of ketone. 2
- c) Give one application of organocadmium in organic synthesis. 2
- d) Explain the term insertion with example. 2
- e) Give one example of asymmetric hydrogenation. 2
- f) Give one method of protection of carbonyl group. 2
- g) Write one example of cyclisation reaction. 2
- h) Write a note on synthetic equivalent. 2
