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Total No. of Pages : 02

Total No. of Questions : 19

M.Sc. (Chemistry) PIT (2015 to 2017) (Sem.-3)

**CONNECTION AND DISCONNECTION APPROACH IN ORGANIC
SYNTHESIS**

Subject Code : CHL-504

Paper ID : [74892]

Time : 3 Hrs.

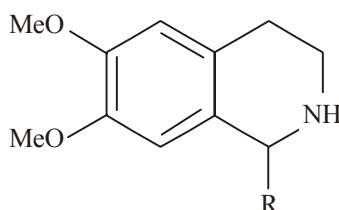
Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

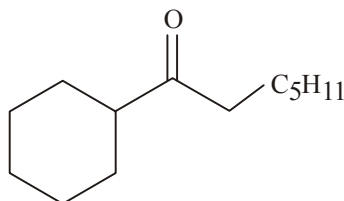
1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying FIVE marks each and students have to attempt ALL questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

- Q1 What do you mean by synthons and synthetic equivalents?
- Q2 Write a retrosynthetic analysis for the protection of hydroxy group.
- Q3 How acetylene is useful for the synthesis of *cis* and *trans* alkenes?
- Q4 What strategies are used for the analysis of disconnection approach?
- Q5 Write an example of retrosynthetic analysis of two-group disconnection of 1,4- difunctionalized compounds.
- Q6 Write the retrosynthetic analysis of following aromatic heterocyclic compound:



- Q7 Write the analysis of one group disconnection approach for the synthesis of following ketone.



- Q8 How the ketens are dimerized?
Q9 What do you understand by chemoselectivity? Give an example.
Q10 How radical reaction is useful for the functionalization of allylic and benzylic positions?

SECTION-B

- Q11 What do you mean by reversal of polarity? Discuss the retrosynthetic approach for halogenation of ketone and acid in case of reversal of polarity.
Q12 Discuss with suitable examples (one each) for 1, 2- and 1, 3-difunctionalized compounds for two group C-X disconnection.
Q13 Illustrate the role of nitromethane and 2-nitropropane in the synthesis of target molecules. Support your answer by drawing retroanalysis and synthesis approaches.
Q14 Write the retrosynthetic analysis and synthesis of Robinson's annelation for two group 1, 5- difunctionalized compounds.
Q15 Discuss the retrosynthesis and synthesis of Pinacol rearrangement.
Q16 Write a short note on analysis and synthesis of Claisen rearrangement in [3,3]sigmatropic shift.

SECTION-C

- Q17 Discuss the various guidelines for order of events with examples of retrosynthetic analysis and synthesis. (10)
Q18 Differentiate stereoselective and stereospecific reactions. Support your answer with retrosynthetic approach. (10)
Q19 (a) Describe the analysis and synthesis of key reaction strategy. Give suitable examples,
(b) Write a short note on retrosynthetic approach of aromatic indole. (6+4)