Reg. No ..... Name **20P3020**

MSc DEGREE END SEMESTER EXAMINATION - OCT/NOV 2020: JAN 2021

SEMESTER 3 : CHEMISTRY / PHARMACEUTICAL CHEMISTRY

COURSE : **16P3CHET10 / 16P3CPHT10 : ORGANIC SYNTHESES**

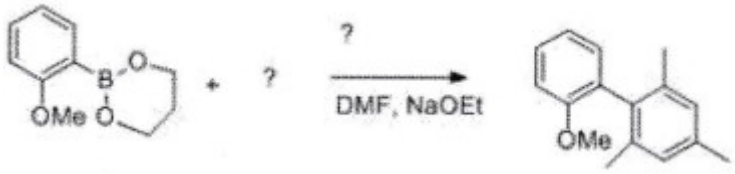
(For Regular - 2019 Admission and Supplementary - 2016/2017/2018 Admissions)

Time : Three Hours Max. Marks: 75

PART A

Answer any 10 (2 marks each)

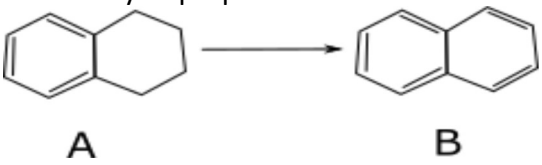
1. Complete the following reaction?



2. Complete the reaction

$$R^2X + R' - SnCl_3 \longrightarrow ?$$

3. How can you prepare B from A



4. Compare the basicity of pyrrole with conventional amines.
5. Thiophene does not exhibit the properties seen for conventional thioethers. Why?
6. Explain the role of protecting groups in organic synthesis.
7. Explain how the following product is made from the given starting material.

$$RCOOH \longrightarrow R - \overset{O}{\overset{\|}{C}} - OCH_2CH_3 \longrightarrow RCOOH.$$

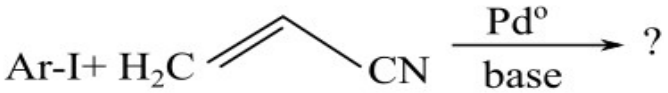
8. Illustrate the method of functional group interconversion (FGI) with a suitable example.
9. Write briefly on the applications of cyclodextrins.
10. Discuss the stereochemistry of p-tert-butyl calix[4]arene.
11. What is Jacobsen epoxidation
12. What is Shi epoxidation
13. What is Birch Reduction ?

(2 x 10 = 20)

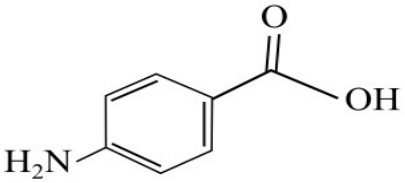
PART B

Answer any 5 (5 marks each)

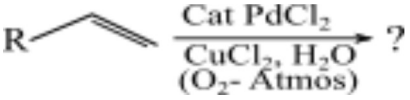
14. Write the intermediates, the product and explain the mechanism of the following reaction?



15. Discuss any two methods for the synthesis of 6-membered ring compounds.
16. Discuss the amphoteric nature of Imidazole.
17. Write a short on chemo- & regioselective protection and deprotection.
18. Briefly discuss the applications of umpolung equivalents in organic synthesis.
19. Devise a synthetic strategy for the following compound applying retrosynthetic analysis.



20. Convert and write the mechanism



21. Discuss the mechanism and synthetic applications of MPV reduction.

(5 x 5 = 25)

PART C

Answer any 2 (15 marks each)

22. Write short notes on NBS, DDQ, DCC and Gilman reagent?
23. a) Write a note on the salient features and advantages of solid phase peptide synthesis.
    b) Outline the steps in the synthesis of Gly-Ala-Val using the SPPS procedure.
24. What are the various forces and interactions involved in molecular recognition. Explain with suitable examples
25. Write brief notes on the reducing properties and synthetic applications of the following reagents.
    i). Selectrides ii). Trialkylsilanes iii). Trialkylstannanes

(15 x 2 = 30)