

No. of Printed Pages : 8

MCH-017

M. SC. (CHEMISTRY)/

M. SC. (ANALYTICAL CHEMISTRY)

(MSCCHEM/MSCANCHEM)

Term-End Examination

December, 2025

MCH-017 : ORGANIC CHEMISTRY-II

Time : 2 Hours

Maximum Marks : 50

Note : *There are two Parts. Answer questions from each Part according to the instructions given for them.*

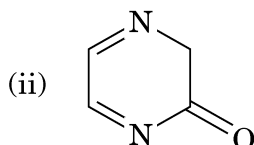
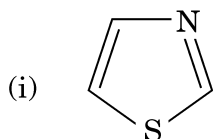
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P. T. O.

Part—A

Note : Answer any **one** of the following questions.

1. (a) Write the names of the following compounds according to Hantzsch-Widman system : 2



- (b) Write the structures of the following compounds : 3

(i) 6H-1, 3-oxazine

(ii) Thiacyclopentane

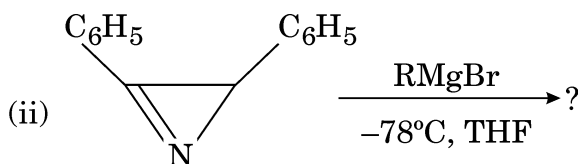
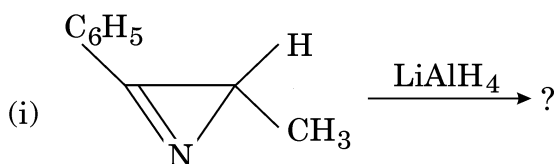
(iii) 1-thia-4-azacyclohexa-2, 5-diene

Or

2. Discuss the formation of 3-formyl iodides from indole using Vilsmeier reaction. Also give the mechanism of the reaction. 5

Note : Answer any **five** of the following questions.

3. (a) Draw *two* isomeric forms of azirine and name them. 2
- (b) Write the products of the following reactions : 2



4. Explain *two* methods of synthesis of thietanes from 1, 3-dihaloalkanes. 4
5. How can you synthesize the following ? 2+2
- (i) Indazole from toluidine
 - (ii) 2-arylbenzoxazole from ortho-bromoaniline. Write the reactions involved.
6. Discuss Fischer synthesis of purine giving the sequence of reactions involved. 4
7. Give the products formed in the following reactions of isoquinoline : 4
- (a) Nitration under different conditions
 - (b) Reduction using :
 - (i) H_2 | Catalyst
 - (ii) Na, C_2H_5OH

8. (a) Draw the structure of benzo[d]thiepine.

1

(b) Why does 2, 7-di-t-butyl thiepine not extrude sulphur whereas thiepine extrudes it ? Write the reaction involved for thiepine.

2

(c) What are porphyrins ?

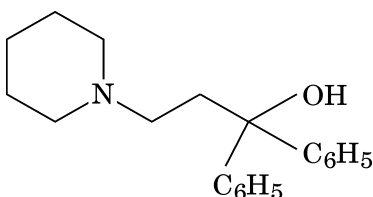
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Part—B

Note : Answer any **one** of the following questions.

9. Write the disconnections for the muscle relaxant pirindol having the following structure :

5



Write the synthons involved and the reagents to be used for its synthesis.

Or

10. With the help of suitable examples, explain why relatively acidic compounds have wider applications in organic synthesis. 5

Note : Answer any **five** of the following questions.

11. Explain the important aspects of Heck reaction. 4

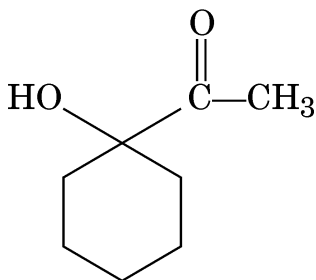
12. (a) Briefly explain partial reduction of internal alkynes using Birch reduction. 2

- (b) What is DIBAL-H ? Give its structure and use. 2

13. Write the structure of ceric ammonium nitrate. How is it prepared ? Which type of organic compounds can be oxidised with it ?

Illustrate giving *two* examples. 1+1+2

14. What are metalated enol derivatives ? How would you prepare the following compound using such reagent ? 4



15. By taking a suitable example, write extraction mechanism for PTC process. 4

16. What is meant by chiral amplification ? How is the catalyst controlled method different from chiral auxillary method of asymmetric synthesis ? 4

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