

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*

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

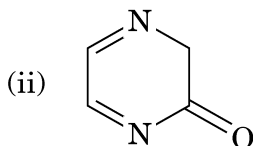
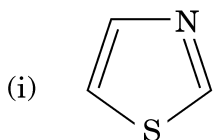
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**Part—A**

**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

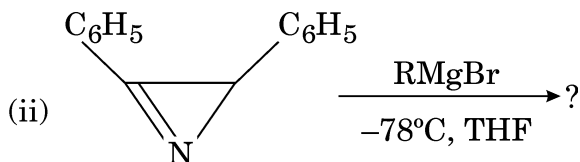
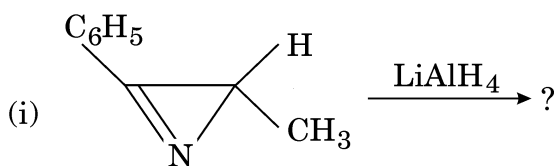
(iii) 1-thia-4-azacyclohexa-2, 5-diene

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 ?

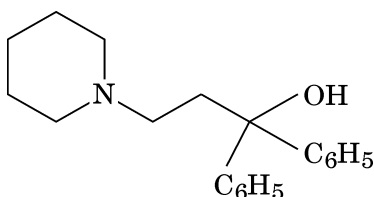
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### Part—B

*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.*

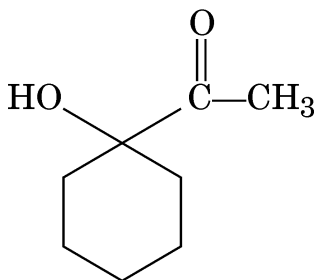
11. Explain the important aspects of Heck reaction. 4

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 auxiliary method of asymmetric synthesis ? 4

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