

No. of Printed Pages : 6

MCH-017

M. SC. (CHEMISTRY)/

M. SC. (ANALYTICAL CHEMISTRY)

(MSCCHEM/MSCANCHEM)

Term-End Examination

June, 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.*

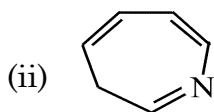
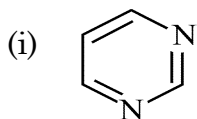
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P. T. O.

Part—A

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

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



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

(i) Benzo [C] thiophene

(ii) Azacyclobutane

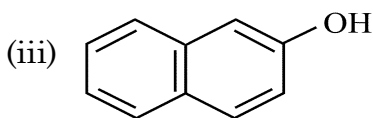
(iii) Oxacyclohexa-2, 5-diene

Or

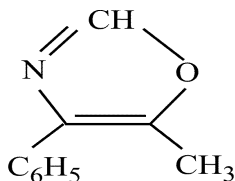
2. Which position of indole is preferred for electrophilic substitution : C - 2 or C - 3 ? Explain. 5

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

3. Write the mechanism of synthesis of thiirane using thiocyanate and an oxirane. Which other two reagents can be used in this reaction ? 4
4. Write the product formed when oxetane reacts with the following reagents : 4×1=4
 - (i) CH_3NH_2
 - (ii) $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$



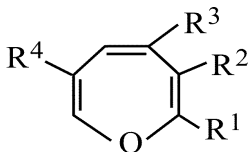
- (iv) CO_2
5. Discuss the synthesis of the following oxazole starting from suitable isocyanide and suitable acid chloride : 4



6. Give the product of the reaction of benzotriazole with the following reagents :

4×1=4

- (i) Conc. $\text{HNO}_3/\text{H}_2\text{SO}_4$
 - (ii) NaOCl , CH_3COOH , H_2SO_4 , room temp.
 - (iii) $\text{C}_6\text{H}_5\text{NCO}$
 - (iv) Trifluoromethane sulphonic anhydride
in dry DCM and dry pyridine
7. Discuss Bischler-Napieralski synthesis of isoquinolines giving the sequence of reactions involved. 4
8. How can you obtain the following substituted oxepine using Diel's-Alder reaction ? 4



Par—B

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

9. Write the disconnections involved for the synthesis of paracetamol. Also write its scheme of synthesis. 5

Or

10. Discuss briefly the factors which control the regioselectivity of enolates. 5

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

11. Explain the sequence of reactions taking place in Sonogashira coupling. 4
12. (a) What is Wilkinson's catalyst ? Write its structure and give its use. 2
- (b) Give the Bayer process of preparation of sodium borohydride. Which products are formed when aldehydes and ketones are reduced using sodium borohydride ? 2

13. How is selenium dioxide prepared ? Which type of organic compounds can be oxidised using selenium dioxide ? 4
14. Discuss the mechanism of Henry and Nef reactions. Name the Umpolung reagent in these reactions. 4
15. Discuss the role of phase transfer catalysts in oxidation reactions with the help of a suitable example. 4
16. By taking a suitable example, explain the Chiron approach of asymmetric synthesis. 4

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