



K17U 1950

Reg. No. : .....

Name : .....

III Semester B.Sc. Degree (CBCSS – Reg./Sup./Imp.) Examination,  
November 2017

(2014 Admn. Onwards)

CORE COURSE IN CHEMISTRY

3B 04CHE : Organic Chemistry – I

Time : 3 Hours

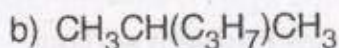
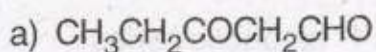
Total Marks : 40

**Instruction :** Answer all questions in **English only**.

SECTION – A

Objective type. **Each** carries 1 mark. Answer **all 4** questions.

1. Give the IUPAC names of the following :



2. Write the structural formula of the following :

a) 5-chloropent-1-yne

b) Pent-4-en-1-ol

3. What is the product obtained when glycerol is treated with  $\text{KHSO}_4$  ?

4. Explain any acetic acid is weaker than formic acid.

(4×1=4)

SECTION – B

Short answer type. **Each** carries 2 marks. Answer **7** questions out of 10.

5. Give a method for the preparation of 1, 2 dihalides from acetylene.

6. o-nitro phenol has a lower boiling point than phenol. Why ?

7. What is catechol ? Give one method for its preparation.

8. How is phenol synthesized from cumene ?

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9. What is the product of hydration of acetylene ? Give equation.
10. How is anthracene prepared from benzylchloride ?
11. Explain Kharasch effect with a suitable example.
12. How is tertiary butyl alcohol prepared using  $\text{CH}_3\text{MgBr}$  ?
13. How is  $\text{CH}_3\text{COCH}_3$  differentiated from  $\text{CH}_3\text{CH}_2\text{COCH}_2\text{CH}_3$  ?
14. What are the products formed when glycerol is oxidised with (a) nitric acid  
(b) acid  $\text{KMnO}_4$ . (7×2=14)

#### SECTION – C

Short essay/problem type. **Each** carries **3** marks. Answer **4** questions out of 6.

15. Give any two synthetic routes to cycloalkanes.
16. Why is 1, 3-butadiene more stable than 1, 4-pentadiene ?
17. Compare the acid strength of o-, m-, p- nitrophenols.
18. Give the mechanism of pinacol pinacolone rearrangement.
19. Outline one method each for the ascent and descent in  $1^\circ$  alcoholic series.
20. Which is the major product formed when 2-iodopentane is treated with sodium methoxide ? Explain. (4×3=12)

#### SECTION – D

Long essay type. **Each** carries **5** marks. Answer **2** questions out of 4.

21. Outline the synthesis of glycerol from fats/oils. How does it react with (a) HI and (b)  $\text{HNO}_3$  ?
22. What are carbocations ? Discuss the formation structure and factors that govern the stability of these intermediates.
23. Discuss the mechanism, kinetics and stereochemistry of  $\text{S}_\text{n}1$  and  $\text{S}_\text{n}2$  reactions of alkyl halides.
24. a) Outline Haworth synthesis of naphthalene.  
b) Discuss the 1, 2 and 1, 4 addition to 1, 3-butadiene.  
c) Explain Fries rearrangement with a suitable example. (2×5=10)