

D 51299

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Name.....

Reg. No.....

**THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2018**

(CUCBCSS—UG)

Complementary Course

CHE 3C 03—ORGANIC CHEMISTRY

Time : Three Hours

Maximum : 64 Marks

**Section A**

Answer **all** questions.

Each question carries 1 mark.

1. The IUPAC name of  $(\text{CH}_3)_3\text{C-OH}$  is \_\_\_\_\_.
2. The hybridisation of carbon in carbonyl group is \_\_\_\_\_.
3. Which is a better nucleophile,  $\text{Br}^-$  or  $\text{I}^-$  ?
4. The electrophile in Friedel-Craft's alkylation is \_\_\_\_\_.
5. Draw the structure of indol.
6. Which is more acidic, Phenol or *p*-nitrophenol ?
7. Optical isomers which are mirror images are called \_\_\_\_\_.
8. Methylbromide on treating with metallic sodium in presence of dry ether gives \_\_\_\_\_.
9. Give the name of an alkaloid \_\_\_\_\_.
10. Structural formula of cis 2-butene is \_\_\_\_\_.

(10 × 1 = 10 marks)

**Section B**

Answer any **seven** questions.

Each question carries 2 marks.

11. Explain functional isomerism with one example.
12. Explain the mechanism of nitration in benzene.
13. Briefly compare the basicity of ammonia and methyl amine.
14. Write a method of preparation of benzene diazonium chloride.
15. What is HVZ reaction ?
16. Compare the stability of 1°, 2° and 3° alkyl carbocations. Justify your answer.
17. Differentiate between rectified spirit, absolute alcohol and denatured spirit.
18. Explain the terms racemisation and resolution.
19. State and explain isoprene rule.
20. Explain Huckle's rule by taking a non-benzenoid aromatic compound as example.

(7 × 2 = 14 marks)

**Turn over**

**Section C**

Answer any **four** questions.  
Each question carries 5 marks.

21. Write notes on a) Williamson's synthesis ; and b) Hofmann's bromamide reaction.
22. Discuss the mechanism of  $SN^2$  reaction in alkyl halide.
23. Explain the acid base property of amino acid.
24. Define each of the following nucleoside, nucleotide and nucleic acid.
25. Outline the synthetic applications of Benzene diazonium chloride.
26. Give a note on the primary, secondary and tertiary structure of proteins.

(4 × 5 = 20 marks)

**Section D**

Answer any **two** questions.  
Each question carries 10 marks.

27. Explain why :
  - (i) Methyl amine is more basic than aniline.
  - (ii) Phenol is less acidic compared to *p*-nitrophenol.
  - (iii) Chloro acetic acid is stronger than acetic acid.
28. Explain the double helical structure of DNA.
29. (a) Illustrate the preparation of :
  - (i) Phenol from chlorobenzene ; (ii) Picric acid from phenol.(b) Explain Iodoform test by using proper reactions.
30. Explain :
  - (a) Conformations of ethane and explain their stability.
  - (b) Optical isomerism in tartaric acid and
  - (c) Geometrical isomerism in but-2-ene-1,4-dioic acid.

(2 × 10 = 20 marks)