

V Semester B.Sc. Examination, Nov./Dec. 2014
CHEMISTRY - V
(NS) (2013-14 and Onwards)
(Organic Chemistry)

Time : 3 Hours

Max. Marks : 70

- Instructions:** 1) The question paper has **two** Parts.
2) Answer **both** the Parts.

PART - A

Answer **any eight** of the following questions. **Each** question carries **two** marks.

(8x2=16)

Write the structure of a compound containing two stereogenic centres.

Which of the following compounds exhibit geometrical isomerism ?

- Propene
- 2-butene
- 2-methylpropene

Write the structures of optical isomers of lactic acid.

How is pyrrole prepared from acetylene ?

Write the Haworth structure of α -maltose.

What is chemical shift ?

Write the structure of alizarin.

Mention one use each of menthol and camphor.

What is Hofmann's bromamide reaction ? Give an example.

What is TMS ? Mention its use in NMR spectroscopy.

How do you show that citral contains two carbon-carbon double bonds ?

Give any two principles of green chemistry.

Answer **any nine** of the following questions. **Each** question carries **six** marks.

13. a) Explain the optical activity of biphenyl systems.
b) Using a chemical reaction show that maleic acid is cis isomer and fumaric acid is trans isomer.
14. a) Write E and Z configurations of 2-bromopent-2-ene.
b) Write syn and anti configurations of benzaldoxime.
c) What is racemisation ?
15. a) Describe the chemical method of resolution of racemic mixture.
b) Write the structure of cocaine.
16. a) How is the ring size of glucose established ?
b) What is anomeric effect ?
17. a) How is glucose converted into fructose ?
b) What is mutarotation ?
18. a) How is benzene diazonium chloride converted into
i) phenyl hydrazine ii) phenol ?
b) How does aniline react with acetyl chloride ?
19. a) Describe the synthesis of α -citral.
b) State isoprene rule.
20. a) Write the structure of nicotine. Mention the heterocyclic rings present in it.
b) Give one electrophilic substitution reaction of indole.
21. a) Describe the Skraup's synthesis of quinoline.
b) What are diastereomers ?
22. a) Explain the aromaticity of furan on the basis of resonance theory.
b) What is finger print region in IR spectroscopy ?
23. a) Explain bathochromic and hypsochromic shifts with an example.
b) What is nuclear shielding effect ?
24. a) Describe the synthesis of congo-red.
b) Mention the number of signals and multiplicity of the signals in the NMR spectrum of Cl_2CHCHO .
25. a) Describe the synthesis of paracetamol.
b) What are vat dyes ? Give an example.