



UN - 342

V Semester B.Sc. Examination, Nov./Dec. 2015

(NS) (2013-14 and Onwards)

CHEMISTRY - V
Organic Chemistry

Time : 3 Hours

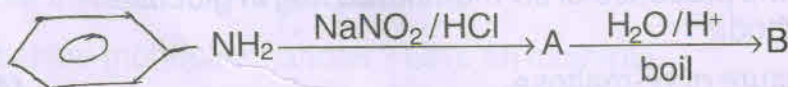
Max. Marks : 70

Instructions : 1) The question paper has **two Parts**.2) Answer **both Parts**.3) **Structure and chemical equations** are to be given **wherever necessary**.

PART - A

Answer **any eight** of the following questions. **Each** question carries **two** marks : **(8×2=16)**

1. Explain centre of symmetry with an example.
2. Write the geometrical isomers of 2-butene.
3. Identify A and B in the following reaction :



4. Aniline is less basic than ammonia. Give reason.
5. How is thiophene prepared from acetylene ?
6. What happens when furan is treated with acetylnitrate ? Give reaction.
7. Give the structure and one use of limonene.
8. Write the Haworth structure of lactose.
9. Give one use of ephedrine and atropine.
10. What are vat dyes ? Give an example.
11. Give any one use of chloramphenicol and sulphanilamide.
12. Mention the number of signals in the NMR spectra of $\text{CH}_3\text{CH}_2\text{Cl}$.

PART - B

Answer **any nine** of the following. **Each** question carries **six** marks : **(9×6=54)**

13. a) Explain the chemical method of resolution of a racemic mixture.
- b) Write the E and Z configurations of 1-bromo-1-chloro ethene. **(4+2)**

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14. a) How do you determine the configuration of maleic acid and fumaric acid by cyclisation method ?
b) Write the R and S configurations of 2-chlorobutane.
c) Give any two principles of green chemistry. (2+2+2)
15. a) What are erythro and threo isomers ? Write the structures of erythro and threo isomers of tartaric acid.
b) Explain a reaction to show the presence of double bonds in zingiberene. (4+2)
16. a) How are the following conversions affected ?
i) Acetamide to methylamine
ii) Acetaldehyde to ethylamine.
b) Explain the effect of solvation on the basic nature of amines. (4+2)
17. a) Write a note on 'optical isomerism in diphenyl systems.'
b) Give the structure of diclofenac and mention its uses. (3+3)
18. a) Discuss the basic strength of pyrrole, pyridine and piperidine.
b) Give the Fischer's synthesis of Indole. (3+3)
19. a) How do you determine the presence of six membered ring in glucose ? Using periodic acid method.
b) Write the Haworth structure of α -maltose. (4+2)
20. a) How is glucose converted into fructose ?
b) What are auxochromes ? Give examples. (4+2)
21. a) Outline the synthesis of α -citral from methyl heptenone.
b) How do you distinguish primary, secondary and tertiary amines using Hinsberg's test ? (4+2)
22. a) What is chemical shift ? Why is TMS used as a reference compound in NMR spectroscopy ?
b) Define spin-spin coupling. (4+2)
23. a) Explain blue shift and red shift with an example.
b) What is nuclear shielding ? (4+2)
24. a) Outline the synthesis of nicotine.
b) What is finger print region in IR spectroscopy ? (4+2)
25. a) Give the synthesis of alizarin.
b) Mention two applications of NMR-spectroscopy. (4+2)