



B.Sc. V Semester Degree Examination, Nov/Dec - 2018

CHEMISTRY - V

Paper - 5.1

(New)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. Section A contains questions from inorganic, organic and physical chemistry.
2. Section B - contains questions from Inorganic chemistry.
Section C - contains questions from Organic chemistry.
Section D - contains questions from physical chemistry.
3. Answer all the four sections A,B,C and D.

Section - A

Answer any ten of the following :

(10×2=20)

1. Define magnetic susceptibility.
2. Write the structure of
 - i) $(\text{NpCl}_2)_4$
 - ii) Borazine
3. What are carboranes.
4. Cu^{+2} ions are coloured while Zn^{+2} ions are colourless, given reason.
5. What is downfield shift?
6. What happens when ethanethiol is treated with NaOH solution.

[P.T.O]

(2)

7. What are non - equivalent protons.
8. What is an amino acid? Give an example.
9. Define induced polarisation.
10. What is a photoinhibitor?
11. Define molar polarization.
12. What is fluorescence.

Section - B

Answer any two of the following :

(2×10=20)

13. a) Determine the term symbols for an electronic configuration of d^2 .
b) How magnetic suggestibility varies with temperature. (6+4)
14. a) How do you determine magnetic susceptibility and magnetic moment by Guoy's method.
b) Explain the types of electronic spectra of complexes. (6+4)
15. a) Give the preparation, properties of $[NiCl_2]_3$.
b) Write a note on structure of silicates. (6+4)

Section - C

Answer any two of the following :

(2×10=20)

16. a) Give any three methods of preparation of Diethyl sulphide.
b) Write a note on iso - electric point of an amino acid. (6+4)
17. a) Describe principle and applications of I.R. spectra.
b) Write a note on spin - spin coupling. (6+4)
18. a) Describe principle and applications of NMR spectra.



- b) Give any two methods of synthesis of α - aminoacids.

(6+4)

Section - D

Answer any two of the following :

(2×10=20)

19. a) What is quantum yield? Give reasons for

i) high quantum yield

ii) low quantum yield.

- b) Explain photo chemical mechanisms of decomposition of HI.

(6+4)

20. a) Write a note on orientation polarization.

- b) Discuss application of dipole moment in elucidating the structure of

i) CO_2 and

ii) H_2O

(6+4)

21. a) State and explain Lamberts law

- b) Explain

i) Chemiluminescences.

ii) Photo inhibition.

(6+4)