

FACULTY OF SCIENCE**B.Sc. V-Semester (CBCS) Examination, November / December 2019****Subject : Chemistry****Paper – V (DSC)****Time : 3 Hours****Max. Marks: 60****PART – A (5 x 3 = 15 Marks)****(Short Answer Type)****Note : Answer any five of the following questions.**

- 1 Cupric sulphate is blue on heating strongly it become colourless why? Explain.
- 2 What are boranes and carboranes? Give one example each.
- 3 What is Carbyl Amine reaction? Write its use.
- 4 How do you prepare diazonium salt? Write its equation.
- 5 What is half life period? A first order reaction is found to have rate constant K of $7.39 \times 10^{-5} \text{ sec}^{-1}$. Calculate the half life period of the reaction.
- 6 What are consecutive reactions? Give one example.
- 7 Explain about batho chromic and hypso chromic shifts.
- 8 Define phosphorescence and fluorescence. Explain with diagram.

PART – B (45 Marks)**(Essay Answer Type)****Note: Answer ALL from the questions.**

- 9 (a) Explain diagrammatically splitting pattern of d-orbitals in square planar complexes by taking one example. (11)
OR
(b) Explain the determination of magnetism moment (μ) of magnetic by Gouy's method Experimentally.
- 10 (a) Explain with mechanism of following reactions. (11)
(i) Bromination (ii) Nitration of Aromatic Amines
OR
(b) Explain the electrophilic substitution reactions of Furan, thiophene and pyrrole.
- 11 (a) What is a rate of reaction? Explain the factors influencing rate of reaction. (11)
OR
(b) How do you determine order of reaction by Ostwald's isolation methods.
- 12 (a) Explain the following photo chemical laws. (12)
(i) Grothus – Draper law
(ii) Stark Einstein's law of photochemical equivalence
OR
(b) Explain the modes of vibrations in poly atomic molecules by taking H_2O and CO_2 molecules as an example.