

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2018
(Third Semester)

Branch - CHEMISTRY

GENERAL CHEMISTRY - III

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 ■ Give the structure of ClF_3 .
- 2 Give the structure of borazole.
- 3 Give the uses of crotonaldehyde.
- 4 Give the uses of benzoic acid.
- 5 Write down the oxidation reaction of chloroform.
- 6 What happens when phenol is refluxed with mercuric acetate?
- 7 Write the difference between Helmholtz free energy and Gibbs free energy.
- 8 Define entropy.
- 9 Write down the need for the third law of thermodynamics.
- 10 Give the effect of pressure on equilibrium constant.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a. Give the preparation, properties and structure of IF_5 .
OR
b How borazole can be prepared? Give the structure of permono sulphuric acid.
- 12 a Give the reactions of cinnamic acid.
OR
b Write down the Claisen- Schmidt condensation of benzaldehyde.
- 13 a Give the preparation, properties and uses of CCl_4 .
OR
b How are primary alcohols prepared from Grignard reagent?
- 14 a Show that entropy as a function of pressure and temperature.
OR
b Write any two statements of second law of thermodynamics. State Carnot's theorem.
- 15 a Derive Gibbs - Duhem equation.
OR
b What is Le-chateleur's principle? Explain with examples.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 i) Write down the preparation and properties and structure of silicones. (8)
ii) Give the uses of polymetaphosphate. (2)
- 17 How is tartaric acid synthesized from ethylene? Write down the oxidation reactions of tartaric acid.
- 18 Write down the reactions of glycerol. Give its important uses.