

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2019
(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 How borazole can be prepared?
- 2 Write down the structure of Caro's acid.
- 3 How acrolein is prepared from Glycerol.
- 4 Give the uses of benzoic acid.
- 5 What do you mean by vicinal and geminal dihalides?
- 6 Give the oxidation test for secondary alcohol.
- 7 Define Helmholtz free energy.
- 8 Give the expression for entropy changes in Isothermal expansion.
- 9 Give the principle of Le-Chatelier.
- 10 What is meant by Chemical equilibrium?

SECTION - B (25 Marks)

Answer **ALL** Questions

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

- 11 a How dithionous acid is prepared?
OR
- b How Marshall's acid can be prepared from H_2SO_4 ?
- 12 a Write down the reaction of Benzoic acid involving – COOH group.
OR
- b How vanillin is prepared from guaiacol by Lederer – Manasse reaction.
- 13 a Give the preparation of ethyl chloride.
OR
- b Write down the condensation reaction of phenol with phthalic anhydride.
- 14 a Derive an expression for entropy of mixing of ideal gases.
OR
- b Show that entropy is a function of temperature and volume.
- 15 a Write a note on Van't Hoff reaction isotherm.
OR
- b Define Nernst heat theorem and deduce the equation.

SECTION - C (30 Marks)

Answer any **THREE** Questions

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

- 16 Discuss the structure of diboranes.
- 17 (i) Write down the mechanism of Benzoin condensation. (6 marks)
(ii) Give the preparation of glyoxal. (4 marks)
- 18 Explain the various nucleophilic substitution reactions of alkyl halides.
- 19 Derive Gibbs-Helmholtz equation.