

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2019
(Second Semester)

Branch - CHEMISTRY

GENERAL CHEMISTRY - II


Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- 1 _____ elements are called 'S' block elements.
(i) Group 1 and 3 (ii) Group 1 and 2
(iii) Group 2 and 3 (iv) Group 3 and 4
- 2 _____ is example for noble gases.
(i) Al (ii) Zn
(iii) Kr (iv) Cu
- 3 The enthalpy of a system is defined by the relation _____.
(i) $H=E+PV$ (ii) $H=E-PV$
(iii) $E=H+PV$ (iv) $PV+E-H$
- 4 The change in enthalpy of system when one mole of the substance is completely burnt in excess of air (or) oxygen is called _____.
(i) heat of reaction (ii) heat of formation
(iii) heat of oxidation (iv) heat of combustion
- 5 The co-ordination number of body centered cubic lattice is _____.
(i) 2 (ii) 4
(iii) 6 (iv) 8
- 6 NaCl and CsCl are the example for _____.
(i) Cubic crystal system (ii) tetragonal crystal system
(iii) orthorhombic crystal system (iv) rhombohedral crystal system
- 7 A double bond in an alkene consists of _____.
(i) Two sigma bond (ii) two pi bonds
(iii) One sigma and one pi bond (iv) one sigma and two pi bond
- 8 Grignard reagent react with carbonyl groups to produce _____.
(i) Alkenes (ii) Alkynes
(iii) Alcohols (iv) Aldehydes
- 9 Characteristics reactions of aromatic hydrocarbons are initiated by _____.
(i) Electrophiles (ii) Nucleophiles
(iii) free radicals (iv) unchanged
- 10 Which of the following compound is aromatic
(i) CCD (ii) 0
(iii)  (iv) $O \nu S >$

Cont, ..

SECTION - B (25 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 x 5 = 25)

11 a Explain diagonal relationship between Li and Mg.

OR

b Which are Zero group elements and mention the position of noble gas in the periodic table.

12 a (i) State first law of thermodynamics.

(ii) Define internal energy.

(iii) Define heat capacity.

OR

b Derive Kirchoff's equation.

13 a Explain Miller indices.

OR

b Discuss crystal structure of NaCl.

14 a Explain the mechanism of electrophilic addition reaction with example.

OR

b Define peroxide effect with example.

15 a Define aromaticity with the help of Huckle rule.

OR

b Mention Friedel-Craft alkylation and acetylation.

SECTION -C (40 Marks!)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 x 8 = 40)

16 a Extraction of Be and Ca.

OR

b Discuss the separation of noble gases.

17 a Discuss Joule-Thomson co-efficient and inversion temperature.

OR

b Define Hess's law and explain the application of Hess's law.

18 a Derive Bragg's equation.

OR

b Discuss the crystal structure of diamond.

19 a Mention any five general chemical properties of alkenes.

OR

b Account the following:

(i) Polymerization of butadiene

(ii) 1,2 addition of butadiene

(iii) Diels-Alder reaction.

20 a Discuss energy profile diagram.

OR

b Explain the mechanism of nitration and halogenation of alkynes.