

BSc DEGREE EXAMINATION DECEMBER 2017
(Second Semester)

Branch - CHEMISTRY

GENERAL CHEMISTRY-II

Time ; Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

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

- 1 List out the reason for anomalous behavior of Li.
- 2 Zero group elements are also called as inert gases. Give reason.
- 3 Distinguish between intensive and extensive properties.
- 4 What do you mean by enthalpy of neutralization? Give an example.
- 5 Give Debye-Scherrer equation and explain the terms involved in it.
- 6 Draw the crystal structure of KCl.
- 7 What happens when alkenes are oxidized with KMnO_4 ?
- 8 Give the diels-alder reaction with suitable example.
- 9 Draw the Kekule structure of benzene.
- 10 What do you mean by o-p ratio?

SECTION - B (25 Marks!)

Answer ALL Questions

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

- 11 List out the anomalous behavior of Be. Also give the reason for anomalous property.

OR

- b Explain the extraction of Li from any one of its ore.

- 12 a State and explain Hess's law of constant heat summation. Give any two applications of this law.

OR

- b Calculate q , w , ΔU and ΔH for the reversible isothermal expansion of one mole of an ideal gas at 27°C from a volume of 10dm^3 to a volume of 20dm^3 .

- 13 a Derive the Bragg's equation of X-ray crystallography.

OR

- b Compare the properties of amorphous and crystalline solids.

- 14 a Explain Markownikoff rule. Explain it with any two examples.

OR

- b Illustrate the 1,2 and 1,4 addition in reaction in butadiene.

- 15 a Discuss the energy profile diagram for nitration of benzene.

OR

- b Explain the mechanism of Friedel-Craft alkylation reaction.

SECTION - C (30 Marks)

Answer any THREE Questions

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

- 16 a) Explain the diagonal relationship between Li and Mg. (5)
- b) Compare the properties of I-A and II-A elements. (5)
- 17 State and explain the terms: molar heat capacity at constant volume (C_v) and at constant pressure (C_p). Show that for one mole of an ideal gas, $C_p - C_v = R$.
- 18 a) What are miller indices? How are they determined? (5)
- b) Give any five applications of X-ray diffraction. (5)
- 19 Explain the following with example :
 - a) Saytzeff and Hofman rule
 - b) Dieles-Alder reaction
 - c) Metal-ammonia reduction (4+3+3)
- 20 What do you mean by aromaticity? State Huckel's rule and explain the stability of C_7H_7^+ cation and C_5H_5^- anion.

Z-Z-Z

END