

Roll No.

21261

**B. Sc. Chemistry (Hons.) 2nd Semester
Examination – May, 2019
INORGANIC CHEMISTRY**

Paper : CH(H)-201

Time : Three Hours] [Maximum Marks : 40

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt **five** questions in all. Question. No. **1** is **compulsory**. Select **one** question from each Section

1. (a) Name the Radioactive element in group-1. $1 \times 8 = 8$
(b) Name the Acid radical which do not reacts with dil. and conc. H_2SO_4 .
(c) Define Solubility product.
(d) Name the Strongest reducing agent in group-1.
(e) Which element shows inert pair effect in group-13 ?
(f) Which element has highest electron affinity in group-17 ?
(g) What is the shape of XeF_2 ?
(h) What is the formula of Diborane ?

SECTION – I

2. (a) Fill in the blanks :
(i) The is the hardest element in group-1 of periodic table.

P. T. O.

- (a) Define inert pair effect with example. What is its cause ?
2, 2, 2, 2
- (b) Explain the acidity order among the group-17 hydrides.
- (c) Explain the basicity order among the group-15 hydrides.
- (d) Explain the anomalous behavior of Nitrogen in Group-15.

SECTION – IV

- (a) Fill in the blanks :
(i) The hybridization of central atom in XeF_2 and XeO_3 is and respectively.
3, 3, 2
- (ii) The C_{60} fullerene contains pentagons hexagons.
- (iii) The silicates contains repeated tetrahedral unit.
- (b) Explain the structure of diborane.
- (c) Why inter-halogen compounds are more reactive than halogens(except fluorine).
- (d) Explain the Neil Bartlett experiment. 2,2,2,2
- (e) Explain the hybridization/shape of :
(i) XeF_4 (ii) XeF_6
- (f) Explain the following with structure :
(i) Cyclic silicates
(ii) Chain silicates
- (g) Explain the order of solubility among the group-18 elements in the periodic table.

(4)

- (ii) The can form peroxide in group-I of periodic table.
- (iii) The Alkaline earth metals have valence shell configuration.
- (iv) The carbonates of and in group- 2 of periodic table are unstable towards heat.
- (b) Why *Be* and *Mg* gives no colour in flame ?
- (c) Explain the order of basicity among group-I hydroxides in the periodic table.
3. (a) Why 1st ionization energy of group-2 elements is higher than group-I elements while 2nd ionization energy of group-I elements is higher than group-2 elements ?
2, 2, 2, 2
- (b) Define diagonal relationship with an example.
- (c) Out of *Be* or *Mg*, which has lowest ionisation energy and why ?
- (d) Why lithium is the strongest reducing in the group-I of periodic table ?

SECTION - II

4. (a) Fill in the blanks :
- (i) The basic radicals in group-IV is/are in inorganic analysis.
- (ii) The group reagent for group-II of basic radicals is in inorganic analysis.

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- (iii) The brown ring test is used for the detection of ion in inorganic analysis.
- (iv) The formula of Nessler's reagent is What is the function of NH_4Cl in group-III basic radicals ?
- (c) Explain the Lime water test of carbonate ion and their reaction.
5. (a) Explain the Ammonium molybdate test of phosphate ion with their reaction. 2, 2.
- (b) What is the function of NH_4OH as group reagent in group-IV of basic radicals ?
- (c) How sulphite ion is detected in presence of thiosulphate ion ?
- (d) Give differences in between post-precipitation and co-precipitation.

SECTION - III

6. (a) Fill in the blanks :
- (i) The boric acid on reaction with gives triethyl borate.
- (ii) The H_2SO_4 is called sulphuric acid while is called Marshall's acid.
- (iii) The never shows positive oxidation state in the periodic table.
- (iv) The shows maximum catenation in group-I 6 of periodic table.
- (v) The is oxidation state of nitrogen in ammonium nitrate.
- (b) Why H_2O is liquid while H_2S is a gas ?

(3)