2017

Full Marks : 50

Time : 3 hours

The questions are of equal value

Answer **five** questions, selecting not more than **two** from any Group

Group—A

1. *(a)* Discuss uncertainty principle.

   (b) A cricket ball weighs 200 g. If the uncertainty in its possession is 5 pm, what is the uncertainty in the velocity of the ball?

2. *(a)* Explain the following terms :

   (i) Double salts

   (ii) Coordination compounds.

   (b) Write a note on EAN rule.

3. *(a)* Write the IUPAC name of the following compounds :

   (i) $[Pt(NH_3)_2Cl_2]$

   (ii) $K_2[HgI_4]$

(Turn Over)

   (b) Write the formula of the following compounds :

   (i) Hexaaqua iron

   (ii) Sulphate

   (iii) Diamminedichloroplatinum.

4. Explain the following :

   (a) When alkali metals are dissolved in liquid ammonia, the solution becomes blue and the dilute solution of alkali metals in liquid ammonia is paramagnetic.

   (b) Give examples of following reactions in liquid SO_2 :

   (i) Acid base reaction

   (ii) Precipitation reaction.

Group—B

5. Write notes on *any two* of the following :

   (a) Noble gas compounds

   (b) Polyhalides

   (c) IF_7.

(Continued)

6. Discuss *d*-block elements in the following respects :

   (a) Complex compounds formation

   (b) Magnetic properties

   (c) Variable oxidation states.

7. Answer *any two* with giving reasons :

   (a) The salts of scandium group elements are colorless and diamagnetic.

   (b) Scandium group elements undergo hydrolysis readily.

   (c) Scandium forms complexes easily.

8. Discuss the position of nickel in the periodic table and important oxidation states in its compounds.

Group—C

9. Discuss the chemistry involved in the production of steel.

10. Discuss the application of following organic reagents in inorganic analysis :

    (a) Dimethylglyoxime

    (b) Oxine.

(Turn Over)

11. What do you mean by pollution? Explain the role of chemicals in polluting the environments.

12. Discuss the theory involved in qualitative separation of cations in inorganic analysis.

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