

**B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH 2015****Sixth Semester****Core Course—APPLIED INORGANIC CHEMISTRY**

[Common for B.Sc. Model I, Model II, B.Sc. Petrochemical and B.Sc. Chemistry Environment and Water Management]

Time : Three Hours

Maximum Weight : 25

**Section A***Answer all questions.**Each bunch of four questions carries a weight of 1.*

I. Choose the correct answer :

1 The addition of HCl will not suppress the ionization of :

- (a)  $\text{CH}_3\text{COOH}$ . (b)  $\text{H}_2\text{S}$ .  
(c)  $\text{C}_6\text{H}_5\text{COOH}$ . (d)  $\text{H}_2\text{SO}_4$ .

2 Parke's process is used for refining :

- (a) Hg. (b) Pb.  
(c) Cd. (d) Ca.

3  $^{60}\text{Co}$  is the source of :

- (a)  $\alpha$ -ray. (b)  $\beta$ -ray.  
(c)  $\gamma$ -ray. (d) Cosmic ray.

4 Which of the following is a network polymer ?

- (a) Polyphosphazone. (b) Polymetaphosphate.  
(c) Phosphorous pentoxide. (d) None of these.

II. 5 "Quantum dots" is a property of :

- (a) CdS. (b) CaO.  
(c)  $\text{BaSO}_4$ . (d)  $\text{SeO}_2$ .

6 The following is an example for intercalation compound :

- (a)  $\text{S}_8$ . (b)  $\text{C}_8\text{C}_5$ .  
(c)  $\text{C}_6\text{H}_{12}$ . (d) None of these.

**Turn over**

7 One of the following is an example for aprotic solvent :

- (a)  $\text{CCl}_4$ . (b) HF.  
(c)  $\text{H}_2\text{O}$ . (d) Hydrazine.

8 Inorganic benzene is :

- (a) Graphite. (b) Borazine.  
(c) Boric acid. (d) Borane.

III. Fill in the blanks :

- 9 One application of HPLC is \_\_\_\_\_.  
10 Anion exchange resins contain \_\_\_\_\_ functional group.  
11 Silicon carbide is known as \_\_\_\_\_.  
12 Cyanogen is an example of \_\_\_\_\_.  
IV. 13 The Van Arkel de Boer process is based on \_\_\_\_\_.  
14 \_\_\_\_\_ is used for the preparation of silicone resin.  
15 The structure of  $\text{XeOF}_4$  is \_\_\_\_\_.  
16 \_\_\_\_\_ is known as oil of vitriol.

(4 × 1 = 4)

### Section B

Answer any five questions.

Each question carries a weight of 1.

- 17 What is meant by common ion effect ?  
18 What is the principle of hydrometallurgy ?  
19 What is rock dating ? How is it done ?  
20 What are chalcogenic glasses ? Give one use.  
21 What are fullerenes ?  
22 What are refractory materials ? Give one example.  
23 Write the auto ionisation of liquid ammonia.  
24 How is boron nitride prepared ?

(5 × 1 = 5)

### Section C

Answer any four questions.

Each question carries a weight of 2.

- 25 Discuss the principle and application of differential scanning calorimetry.  
26 Give one method of preparation of Borazine and explain its important properties.

- 27 Explain ion exchange method of refining with a suitable example.
- 28 Distinguish between Organic and Inorganic polymers.
- 29 Explain the properties of intercalation compounds of alkali metals.
- 30 How is solubility product principle effected in the separation of II group cation and IV group cation ? Explain.

(4 × 2 = 8)

#### Section D

*Answer any two questions.*

*Each question carries a weight of 4.*

- 31 (a) Discuss the various process used in the concentration of ores.  
(b) Explain any two important refining methods used in metallurgy.
- 32 Discuss briefly on Gas chromatographic principle, experimental technique and applications.
- 33 Write briefly on :
  - (a) Sulphur based polymers.
  - (b) Intercalation compounds of graphite with metal halide.

(2 × 4 = 8)