

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) CH_3COOH . (b) H_2S .
(c) $\text{C}_6\text{H}_5\text{COOH}$. (d) H_2SO_4 .

2 Parke's process is used for refining :

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

3 ^{60}Co is the source of :

- (a) α -ray. (b) β -ray.
(c) γ -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) BaSO_4 . (d) SeO_2 .

6 The following is an example for intercalation compound :

- (a) S_8 . (b) C_8C_5 .
(c) C_6H_{12} . (d) None of these.

Turn over

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

- (a) CCl_4 . (b) HF.
(c) H_2O . (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 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 chalcogen 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)