

E 6145



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Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, SEPTEMBER 2024

Sixth Semester

Core Course—APPLIED INORGANIC CHEMISTRY

(2009—2012 Admissions)

[Common for B.Sc. Chemistry Model 1 and Model 2, B.Sc. Petrochemicals and
B.Sc. Chemistry Environment and Water Management]

Time : Three Hours

Maximum Weight : 25

Section A

Answer all questions.

Choose the Correct answers.

*A bunch of **four** questions carries a weight of 1.*

- I. 1 Stellar energy is due to :
- a) Nuclear fission reaction.
 - b) Nuclear fusion reaction.
 - c) Nuclear fission and fusion together.
 - d) None of the above.
- 2 Structure of XeF_2 is :
- a) Linear.
 - b) Octahedral.
 - c) Triangular.
 - d) Tetrahedral.
- 3 Chalcogens are :
- a) Elements of Group 16 of the Periodic table.
 - b) Elements of Group 2 of the Periodic table.
 - c) Elements of Group 14 of the Periodic table.
 - d) Elements of Group 3 of the Periodic table.

Turn over





- 4 Moderator used in Nuclear reactor is usually :
- a) Water and heavy water. b) Water and HCl.
c) NaOH solution. d) NaCl solution.
- II. 5 Spot test of Nickel is done using :
- a) Potassium ferricyanide.
b) Ammoniacal solution of Dimethyl glyoxime.
c) Ammonium thiosulphate solution.
d) Magneson reagent.
- 6 Glass transition temperature is :
- a) Same as Melting Point.
b) Occurs in non amorphous polymer.
c) Involve a Phase change.
d) Does not involve a phase change.
- 7 Liquid SO_2 is a :
- a) Protic solvent. b) Aprotic solvent.
c) Aqueous solvent. d) Not a solvent.
- 8 Compound in which Iodine is electropositive :
- a) IF_7 . b) HI.
c) KI. d) CaI_2 .
- III. Fill in the Blanks :
- 9 General formula of Closo Carboranes is _____.
- 10 Rf value is defined as _____.
- 11 _____ is one Oxy acid of Halogen
- 12 Silicon Rubbers are made up of _____.
- IV. 13 _____ is a phosphorous based Polymer.
- 14 Electrometallurgy is used in the Extraction of _____ metal.





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- 15 Fullerenes are made up of _____.
- 16 One Nuclear fission reaction is _____.

(4 × 1 = 4)

Section B

*Answer any **five** questions.
Each question carries a weight of 1.*

- 17 What is Radial paper Chromatography ? Explain.
- 18 Discuss the Structure of B_4H_{10} .
- 19 Explain the Principle of HPLC ?
- 20 Describe the Sol - Gel of Preparation of Nanomaterials ?
- 21 What are Breeder Reactors ?
- 22 Give one method for the preparation of Chalcogenic Glass ?
- 23 What is Zone refining Explain ?
- 24 What are pseudo halogens ? Explain with an example.

(5 × 1 = 5)

Section C

*Answer any **four** questions.
Each question carries a weight of 2.*

- 25 Write one method of preparation of Diborane and Discuss on the Structure of Diborane ?
- 26 What is Glass ? How is it prepared ? How are Glasses classified ? Explain.
- 27 Discuss the principle of TGA ? And Explain the TGA of Calcium Oxalate monohydrate ?
- 28 Give a short account of Properties and applications of Nanotubes ?
- 29 Discuss in detail the metallurgical operation of Uranium from its Ore ?
- 30 What is Ion exchange Chromatography ? Explain in detail.

(4 × 2 = 8)

Turn over





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Section D

*Answer any **two** questions.*

Each question carries a weight of 4.

- 31 Discuss in detail the different steps involved in Column Chromatography ? also explain some of its applications.
32. a) Discuss the role of Common ion effect and Solubility product In intergroup separation of cations.
- b) Write briefly on refractory Carbides.
33. a) Describe :
- 1 Oxidative refining of metals ; and
 - 2 Ion Exchange method of Refining of metals.
- b) Write briefly on Applications of Radioactivity.

(2 × 4 = 8)

