(PAGES: 2)

D5BCH2201 **Reg. No.....**

Name: .....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2024
(Regular/improvement/Supplementary)
CHEMISTRY
GCHE5B06T: INORGANIC CHEMISTRY III

Time: 2 Hours **Maximum Marks: 60**

SECTION A: Answer the following questions. Each carries *two* marks.
(Ceiling 20 marks)

1. Strong acid like HNO_3 as well as weak acid like CH_3COOH behave as a base in liquid HF. Justify the statement.
2. What are pseudo-halogen compounds? Give an example.
3. During cation analysis, group1 cations get precipitated as halides upon the addition of precipitating agent while other group cation halides remains in solution. Give reason.
4. Give the structures of two cyclochlorophosphazenes.
5. What are orthosilicates? Write the formula of orthosilicate.
6. State the Pearson's concept of hard and soft acids. Give examples.
7. Discuss Lux-flood definition of acids and bases.
8. What is the principle behind the zone refining of metals?
9. What are the major sources of pollution by the oxides of Sulphur? Write two harmful effects of the pollution by the oxides of Sulphur.
10. Write the structure of (i) XeF_2 and (ii) $XeOF_4$.
11. The reduction of cuprous oxide can be carried out using carbon (coke). Why?
12. Explain giving reasons why noble gases are monoatomic.

SECTION B: Answer the following questions. Each carries *five* marks.
(Ceiling 30 marks)

13. Explain Hall-Heroult process of aluminum smelting.
14. What is an alloy? Give the composition and applications of German silver.
15. How is S_2N_2 prepared? Discuss its structure and mention one application.
16. Discuss the properties of cyanogen and halogens.

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17. What are intramedullary rods? Discuss their application.
18. What are differentiating and levelling solvents? Explain with examples.
19. Explain charcoal adsorption method for the isolation of noble gas mixture from dry air.

SECTION C: Answer any *one* question. The question carries *ten* marks.

20. Answer the following:
    (a) Explain the applications of common ion effect and solubility product in separation and identification of cations.
    (b) Explain how oxalate, fluoride and borate radicals interfere organic qualitative analysis. Discuss one method each to eliminate these radicals.
21. What are biomedical wastes? Discuss the different methods for the disposal of medical waste.

(1 x 10 = 10 Marks)