D 11175 (Pages : 2) Name.....

Reg. No.....

FIFTH SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2016

(CUCBCSS–UG)

Chemistry/Polymer Chemistry

CHE 5B 06—INORGANIC CHEMISTRY—III

Time : Three Hours Maximum : 80 Marks

Section A

Answer **all** *questions.*
Each question carries 1 *mark.*

1. Give any one property which resembles hydrogen with halogen.
2. Why are the carbonates of alkali metals highly stable to heat ?
3. What is the formula of Plaster of Paris ?
4. Nitrogen cannot form pentahalide, why.
5. Which element of group 16 is associated with xerography ?
6. Name any two common air pollutants.
7. The most abundant element in the universe is ————.
8. Indicator type silica gel used as a dehumidifer contains ———— ions.
9. Borazole is known as ————.
10. The closeness of a measurement to the true value is called ————.

(10 × 1 = 10 marks)

Section B

Answer any **ten** *questions.*
Each question carries 2 *marks.*

11. What is meant by biodegradability ?
12. What are different types of indeterminate errors ?
13. With a suitable example, explain common ion effect.
14. What are interhalogen compounds ? Give examples.
15. How is photochemical smog formed ?
16. What are pseudo halogen compounds ? Give an example.
17. How does COD differ from BOD ?
18. HF is a liquid while HCl is a gas. Explain.

Turn over

19. What is glass transition temperature of polymer ? Why is it called so ?

20. BF_3 is a weaker Lewis acid than BCl_3 and BBr_3. Why ?

21. What are different types of phosphorus based chain polymers ?

22. Strong oxidising agents do not exist in liq.NH_3. Why ?

(10 × 2 = 20 marks)

Section C

Answer any **five** *questions.*
Each question carries 6 *marks.*

23. Write a note on the sources and consequences of radioactive pollution.

24. Give the structure of oxy acids of phosphorous. Compare their acidity.

25. Explain the terms ionization energy, catenation and electronegativity.

26. Give the methods of preparation, properties and uses of diborane.

27. Explain the terms co-precipitation and post-precipitation. Suggest methods to avoid these.

28. What are the chemical reactions of liquid ammonia ?

29. Write a note on noise pollution.

30. Write a brief description of fluorides of krypton and radon.

(5 × 6 = 30 marks)

Section D

Answer any **two** *questions.*
Each question carries 10 *marks.*

31. Discuss the variation in properties of group 13 elements with reference to :

(i) Oxidation state. (ii) Catenation.

(iii) Electronegativity. (iv) Metallic character.

(v) Ionisation energy ?

(5 × 2 = 10 marks)

32. (a) Discuss pollution of water with respect to source effects and prevention. (6 marks)

(b) What are the different between classical smog and photochemical smog ? (4 marks)

33. (a) Describe the structure of pyrosilicates and three dimensional silicates.

(b) Describe the structure and uses of any two phosphorous based polymers.

34. (a) Name the important oxyacids of chlorine and give their molecular formula. (3 marks)

(b) Write the characteristics of solutions of alkali metals in liq.NH_3. (4 marks)

(c) Explain the geometry of XeF_2 and $XeOF_2$ based on the hybridization. (3 marks)

[2 × 10 = 20 marks]