MAR IVANIOS COLLEGE (AUTONOMOUS) THIRUVANANTHAPURAM

Reg. No. :……………… Name :………………

First Semester B.Sc. Degree Examination, November 2014
First Degree Programme under CBCSS
Core Course: Chemistry – I
AUCH141: Inorganic Chemistry

Time: **3** Hours Max. Marks: **80**

SECTION – A

Answer ALL questions in a word or one or two sentences.

1. Diffraction of electrons by crystals shows the _____ nature of electrons.

2. Which element has maximum electron affinity ?

3. The ligand denticity of EDTA is _____.

4. An indicator that can be used in weak acid Vs. strong base titration is _____.

5. Name the reagent used to precipitate nickel in gravimetric estimation.

6. What is coprecipitation ?

7. Ozone gas is found mainly in _____ region of atmosphere.

8. What are the main air pollutants emitted by automobiles ?

9. BOD stands for _____.

10. What do you mean by disinfection of water ?

(10 x 1 = 10 Marks)

SECTION – B

Answer any EIGHT questions, not exceeding a paragraph.

11. State and explain Hund's rule of maximum multiplicity.

12. Distinguish between iodometry and iodimetry.

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13. Calculate the uncertainty in the momentum of a particle whose uncertainty in position is of the order of 1Å. ($h = 6.6 \times 10^{-34}$ Js).

14. What is meant by primary standard in volumetric analysis ?

15. Which chromatographic method is used for the separation of lanthanides and why it is used ?

16. Explain 'digestion' in gravimetric analysis.

17. Name the major segments of environment.

18. Define R_f value, how is it useful in the identification of a compound.

19. What is green house effect ?

20. Comment on biomagnification.

21. Give one method to control water pollution caused by fertilizers.

22. What do you mean by deionized water ?

(8 x 2 = 16 Marks)

SECTION – C

*Short essay type : Answer any **SIX** questions.*

23. Comment on radial probability distribution curves.

24. Illustrate diagonal relationship with suitable examples.

25. What is the significance of common ion effect in the separation of cations in qualitative analysis ?

26. Discuss briefly the working principle of paper chromatography. Mention its applications.

27. Explain the purpose of 'ignition' in gravimetric analysis. Give example.

28. Comment on adsorption chromatography and its applications.

29. What are the main industrial effluents that cause water pollution ?

30. Give the important parameters and their Indian standard limits to express water quality.

31. Explain two methods of industrial waste water treatment.

(6 x 4 = 24 Marks)

SECTION – D

*Long essay type : Answer any **TWO** questions.*

32. Find out a well – behaved solution of Schrodinger equation for a particle in a three dimensional box and get the expression for energy of the particle.

33. Briefly discuss the different electronegativity scales.

34. Describe the theories of acid – base indicators.

35. a) Discuss the importance of ozone layer and its protection.

    b) What are the factors responsible for ozone depletion ?

    c) Comment on the consequences of ozone layer depletion.

(2 x 15 = 30 Marks)

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