MAR IVANIOS COLLEGE (AUTONOMOUS)
THIRUVANANTHAPURAM

Reg. No. :…… **Name :……**

First Semester B.Sc. Degree Examination, November 2016

First Degree Programme under CBCSS

Core Course: Chemistry – I

AUCH141: Inorganic Chemistry I

(*Common for* ***Regular*** *– 2016 Admn. and* ***Improvement*** *– 2015 Admn.*)

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

SECTION – A

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

1. According to the Heisenberg's uncertainty principle, $\Delta x \times \Delta p$ = _____.
2. The energy of the 4s orbital is _____ than that of the 3d orbital.
3. In the gravimetric estimation of Barium, it is precipitated as _____.
4. Ozone is mainly present in the _____ region of atmosphere.
5. Write two examples of greenhouse gases.
6. Which experiment first led to the verification of de Broglie's relation ?
7. To which block of the periodic table does uranium belong to ?
8. Name an adsorption indicator.
9. Which chromatographic method is best suitable for separating a mixture of amino acids ?
10. What is the group reagent for group IV cations ?

(10 × 1 = 10 Marks)

SECTION – B

*Answer any **EIGHT** questions, not exceeding a paragraph.*

11. Give the Schrodinger wave equation and explain the terms.
12. Write down the ground state electronic configuration of Cu and Ni. Account for the discrepancy.

13. Explain the ionic character of covalent bonds.
14. Show how and why beryllium differs from other alkaline earth metals.
15. Enlist the advantages of double burette titrations.
16. How is a pipette calibrated ?
17. Explain co – precipitation with an example.
18. Explain R_f value and its significance.
19. Briefly discuss the four major segments of environment.
20. What is BOD ? Explain its significance.
21. Distinguish between primary and secondary particulates.
22. Write briefly on plastic pollution.

(8 × 2 = 16 Marks)

SECTION – C

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

23. Write a note on eutrophication.
24. Explain the treatment of industrial waste water.
25. What is acid rain ? How is it formed ? What are its adverse effects ?
26. Discuss the problem of ozone layer depletion.
27. Write a note on greenhouse effect.
28. Explain the principle and practice of ion exchange chromatograhy.
29. Discuss the theory of acid – base titrations.
30. Compare the Mullikan's and Pauling's approach to electronegativity.
31. Give an account of water pollution.

(6 × 4 = 24 Marks)

SECTION – D

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

32. What are the quantum numbers ? Explain with examples the four quantum numbers, their possible values and their significance.
33. Explain the term solubility product and common ion effect and discuss their significance in inorganic qualitative analysis.
34. Which are the common air pollutants ? Discuss their sources, influences and control measures.
35. Write an essay on any three chromatographic methods.

(2 × 15 = 30 Marks)

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