**D 13820** (Pages : 2) Name.....

Reg. No.....

# FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2016

(CUCBCSS–UG)

Complementary Course

CHE 1C 01—GENERAL CHEMISTRY

Time : Three Hours Maximum : 64 Marks

## Section A (One Word)

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

1. The volume of $6.02 \times 10^{23}$ atoms of hydrogen gas at STP is ————.
2. The oxidation state of Mn in $K_2MnO_4$ is ————.
3. In the titration of Mohr's salt against potassium permanganate, ———— is used to acidify the solution.
4. The shape of $ClF_3$ is ————.
5. A subshell with $n = 5$, I = 3 is designated as ————.
6. ———— restricts the number of electrons in an orbital to two.
7. Determination of age of minerals is known as ————.
8. The first nuclear reactor in India is located at ————.
9. ———— is a haemo protein.
10. ———— is a complex of $Mg^{2+}$ with prophyrin.

(10 × 1 = 10 marks)

## Section B (Short Answers)

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

11. What is the cause of periodicity in properties of elements ?
12. Methyl orange is not a suitable indicator in the titration of a weak acid against a strong base. Why ?
13. Differentiate accuracy and precision of a measurement.
14. Give any *two* advantages of microanalysis.
15. Write the Schrodinger wave equation and explain the terms involved.
16. Explain the anomalous electronic configuration of Chromium.
17. Ice floats over water. Why ?

**Turn over**

18. What is meant by K-electron capture ?
19. How is the stability of the nucleus related to n/p ratio ? Explain.
20. State Soddy's group displacement law.

(7 × 2 = 14 marks)

## Section C (Paragraph)

*Answer any* **four** *questions.*
*Each question carries* 5 *marks.*

21. Define ionization enthalpy of an element. What are the factors influencing ionization enthalpy ?
22. Explain the applications of common ion effect and solubility product in qualitative analysis.
23. Write a note on double burette method of titration.
24. Explain the geometry of $IF_5$ molecule on the basis of VSEPR theory.
25. Describe radiocarbon dating.
26. Explain the mechanism of action of sodium-potassium pump.

(4 × 5 = 20 marks)

## Section D (Essay)

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

27. (a) Describe the various theories of acids and bases. (6 marks)
    (b) Write a note on origin of modern Chemistry. (4 marks)
28. Describe the mechanism of $O_2$ transportation.
29. Briefly describe the postulates of Bohr's model of the atom, its merits and demerits.
30. (a) Explain the theory of acid-base indicators. (6 marks)
    (b) Differentiate isotopes and isotones with examples. (4 marks)

[2 × 10 = 20 marks]