C 43508 **(Pages 2)** **Name**

Reg. No.....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, JULY 2013

(CCSS)

Chemistry

CH1 B01—FOUNDATIONS IN CHEMISTRY

Time : Three Hours Maximum : 30 Weightage

I. Answer all *twelve* questions. Each question has a weightage of 'A. This part contains multiple choice, fill in the blank and one word answer questions :

1 The devise used for the measurement of radioactivity :

(a) GM counter. (b) Nuclear reactor.

(c) Cyclotron. (d) Mass spectrometer.

2 A mixture of naphthalene and urea can be purified by :

(a) Sublimation. (b) Crystallisation.

(c) Distillation. (d) Solvent extraction.

3 In comparison to its parent atom, the size of the positive ion is :

(a) Bigger. (b) Equal.

(c) Double. (d) Smaller.

4 The probable explanations for observations are called :

(a) Hypothesis. **(b) Law.**

(b) Theory. **(d) Knowledge.**

5 Name the monomer of nylon 6.

6 The element which has the highest electronegativity is :

7 Write the product formed in the reaction $^{7}N^{5}$ (p, a).

8 The branch of chemistry where the study is confined to the particle size of 1 to 100 nm is called.

9 S and P block elements are also called the _____ elements.

10 The beach sands of Kerala contain the ore from which _____ metal is extracted which has applications in paints, automobiles, aerospace industries.

Turn over

11 The source of energy in sun is due to the _____ of hydrogen.

12 $_{90}Th^{232} \rightarrow {}_{88}Ra^{288}$ _____

(12 x ¼ = 3 weightage)

II. Answer all *nine* questions. Each question has a weightage of 1. Answers may be in one sentence *or* two

13 The second ionization energy is larger than first ionization energy. Why ?

14 Give any two examples for antipyretic drugs.

15 How will you purify benzoic acid ?

16 What is the important difference between analgesic and tranquiliser ?

17 Write the advantages of solar cells.

18 With the help of suitable example, explain the artificial transmutation.

19 How will you explain the emission of β-rays from nucleus which contains only protons and neutrons ?

20 What do you mean by effective nuclear charge ?

21 With the help of a suitable example, explain the chain isomerism shown by organic compounds.

(9 x 1 = 9 weightage)

III. Answer any *five* questions. Each question has a weightage of 2. Answers may be in a paragraph :

22 After 136 minutes a radioactive element has only 118th of its original amount. Calculate the disintegration constant and half-life period.

23 Discuss the application of chemistry in the area of building materials.

24 What do you mean by radioactive series? Why the elements of Neptunium series are not found in earth ?

25 Compare the properties of ionic and covalent compounds using suitable examples.

26 With the help of suitable examples describe the use of isotopes in the study of reaction mechanism.

27 Briefly describe the importance of hypothesis in development of theories.

28 Discuss the similarities in properties observed for Be and Al.

(5 x 2 = 10 weightage)

IV. Answer any *two* questions. Each question has a weightage of 4 :

29 Describe briefly any four important discoveries in science which revolutionised the society.

30 Briefly discuss the different electronegativity scales.

31 Write the important methods used for the separation of isotopes.

(2 x 4 = 8 weightage)