

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2012

(C.C.S.S.)

Chemistry—Complementary Course

CHIC 01—GENERAL CHEMISTRY

Time : Three Hours

Maximum : 30 Weightage

I. Answer all *twelve* questions. Each question has a weightage of $\frac{1}{4}$. This part contains multiple choice, fill in the blank and one word answer questions :

- 1 Acid rain can be due to the presence of _____ in air.
(a) Hydrocarbons. (b) Carbon dioxide.
(c) Oxides of sulphur. (d) Chlorofluoro carbons.
- 2 _____ cause temporary hardness to water.
(a) Bicarbonates. (b) Carbonate.
(c) Phosphates. (d) Chlorides.
- 3 The subshell with $n = 6$, and $l = 3$ is designated as _____.
(a) s. (b) p.
(c) d. (d) f.
- 4 No. of spherical nodes in 3s orbital is :
(a) 0. (b) 1.
(c) 2. (d) 3.
- 5 The conjugate acid of ammonia is :
(a) NH_2^+ . (b) NH_4^+
(c) OH^- . (d) NH_2^- .
- 6 The external indicator used in dichrometry :
(a) Pot. ferrocyanide. (b) Pot. ferricyanide.
(c) Eriochrome Black T. (d) N-phenylanthranilic acid.
- 7 The oxygen carrier found in arthropods :
(a) Haemoglobin. (b) Haemerythrins.
(c) Haemocyanins. (d) Haemosiderin.
- 8 The hybridization of Xenon in XeF_2 is :
(a) sp^3 . (b) dsp^3 .
(c) sp^3d . (d) sp^3d^2 .

Turn over

- 9 In iodometric titrations, Iodine oxidizes sodium thiosulphate to _____.
- 10 The dual nature of light was proposed by _____.
- 11 _____ is an example zinc containing enzyme.
- 12 Name a gas responsible for greenhouse effect.

(12 × ¼ = 3 weightage)

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

- 13 Briefly outline carbon cycle.
- 14 How detergents cause water pollution ?
- 15 Write Schrödinger equation and explain the terms.
- 16 What are the symptoms of fluorosis ? How can you control fluorosis ?
- 17 What is the de-Broglie wave length for an electron traveling with a speed equal to 1% of the speed of light.
- 18 o-nitrophenol is more volatile than p-nitrophenol. Why ?
- 19 What are the functions of haemoglobin ?
- 20 Distinguish between iodometry and iodimetry.
- 21 What are primary standards?

(9 × 1 = 9 weightage)

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

- 22 How will you explain the bond angle of NH₃ using VSEPR theory ?
- 23 Write the effect of chlorofluorocarbons on ozone ?
- 24 What is a redox indicator ? Give any *two* examples.
- 25 Write short note on secondary bond forces.
- 26 What are the differences between respiration and photosynthesis ?
- 27 Discuss the difference between accuracy and precision.
- 28 Discuss the role of H₂S in acidic and alkaline medium in the qualitative analysis of cations.

(5 × 2 = 10 weightage)

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

- 29 Discuss the environmental effects of fertilizers and pesticides.
- 30 Write the postulates of Bohr theory and discuss its limitations.
- 31 Write a brief account of complexometric titrations.

(2 × 4 = 8 weightage)