

## 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)  $\text{NH}_2^+$ . (b)  $\text{NH}_4^+$   
(c)  $\text{OH}^-$ . (d)  $\text{NH}_2^-$ .

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 **four** arthropods :

- (a) Haemoglobin. (b) **Haemerythrins**.  
(c) **Haemocyanins**. (d) Haemosiderin.

8 The hybridization of Xenon in  $\text{XeF}_2$  is :

- (a)  $sp$ . (b)  $dsp$ .  
(c)  $sp^2$ . (d)  $sp^2d$ .

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 x 3 = 36 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 x 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  $\text{NH}_3$  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  $\text{H}_2\text{S}$  in acidic and alkaline medium in the qualitative analysis of cations.

(5 x 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 x 4 = 8 weightage)