

D 93764

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Name.....

Reg. No.....

**FIRST SEMESTER B.Sc. DEGREE (SUPPLEMENTARY) EXAMINATION  
NOVEMBER 2015**

(UG—CCSS)

Complementary Course

CH 1C 01—GENERAL CHEMISTRY

Time : Three Hours

Maximum : 30 Weightage

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

- 1 Which of the following is not possible ?  
(a) 1s. (b) 2p.  
(c) 3f. (d) 4f.
- 2 Name the metal present in Vitamin B<sub>12</sub> :
- 3 The lowest layer of atmosphere is :  
(a) Stratosphere. (b) Troposphere.  
(c) Mesosphere. (d) Exosphere.
- 4 Ionic product of water has the value of :  
(a) 14. (b)  $1 \times 10^{-14}$ .  
(c)  $1 \times 10^{-7}$ . (d) 7.
- 5 In the de Broglie relation  $\lambda = h/p$ , what nature of electron is manifested by  $p$  ?  
(a) Wave. (b) Particle.  
(c) Dual. (d) Uncertainty.
- 6 Which of the following errors depends on the size of the quantity being measured ?  
(a) Constant error. (b) Method error.  
(c) Random error. (d) Proportional error.
- 7 Which of the following molecule is not linear ?  
(a) C<sub>2</sub>H<sub>2</sub>. (b) H<sub>2</sub>O.  
(c) BeF<sub>2</sub>. (d) CO<sub>2</sub>.
- 8 Which of the following molecule does not contain iron ?  
(a) Haemoglobin. (b) Myoglobin.  
(c) Cytochrome. (d) Haemocyanin.

Turn over

- 9 The suitable indicator for the titration of oxalic acid and sodium hydroxide is \_\_\_\_\_.
- 10 Solubility product of AgCl is given by :
- (a)  $[Ag^+][Cl^-]$ . (b)  $[Ag^+]/[Cl^-]$ .  
(c)  $[Ag^+] + [Cl^-]$ . (d)  $\sqrt{[Ag^+][Cl^-]}$ .
- 11 In  $PCl_5$ , the hybridization of P is :
- (a)  $sp^3d$  (b)  $sp^3d^2$ .  
(c)  $dsp^2$ . (d)  $d^2sp^3$ .
- 12 Which of the following is not an environmental segment ?
- (a) Atmosphere. (b) Hydrosphere.  
(c) Lithosphere. (d) Stratosphere.

(12 × ¼ = 3 weightage)

II. Answer all the *nine* questions. Each question carries a weightage of 1 :

- 13 Distinguish between COD and BOD.
- 14 What are non-bonding orbitals ?
- 15 What is nitrogen cycle ? What is its significance ?
- 16 Mention *two* factors which affect the lattice energy of an ionic compound.
- 17 What is the toxic effect of CN-on haemoglobin ?
- 18 Write the Schrödinger wave equation and explain the terms.
- 19 Give the structure of cis-platin. How does cis-platin act against cancer ?
- 20 What is  $R_f$  value ?
- 21 What is Lewis acid and base ? Give examples.

(9 × 1 = 9 weightage)

III. Answer any *five* questions. Each question carries a weightage of 2 :

- 22 Explain the consequences of acid rain.
- 23 The uncertainty in the position of an electron is  $10^{-10}$  m. What is its uncertainty in velocity ? ( $h = 6.6 \times 10^{-34}$  Js).
- 24 Write note on green house effect.

- 25 Using the theory of hybridization, explain the variation in the bond angles of methane ethylene and acetylene.
- 26 What is significance of sodium potassium pump in living cells ?
- 27 What are systematic and random errors ?
- 28 What are redox indicators ? Give one example.

(5 × 2 = 10 weightage)

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

- 29 (a) Draw the molecular orbital energy diagram for oxygen molecule and predict its bond order and magnetic property.  
(b) What are the limitations of Bohr atom model ?
- 30 Mention the different type of errors in analytical determination. What are the methods for the reduction of such errors ?
- 31 What is hard water ? Discuss different methods for the removal of hardness of water.

(2 × 4 = 8 weightage)