

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 B₁₂ :
- 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) 1×10^{-14} .
 - (c) 1×10^{-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) C₂H₂.
 - (b) H₂O.
 - (c) BeF₂.
 - (d) CO₂.
- 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)