

**INTERNATIONAL INDIAN SCHOOL , RIYADH****Post box no.89788, Riyadh-11692(K.S.A)****First Term Examination , June 2012****CLASS:XI****Subject: Chemistry****Maximum Marks: 70****Time: 3 hours****GENERAL INSTRUCTIONS:**

- (i) All questions are compulsory.
- (ii) Marks for each question are indicated against it.
- (iii) Question numbers 1-8 are very short answer questions and carry 1 mark each.
- (iv) Question numbers 9-18 are short answer questions and carry 2 marks each.
- (v) Question numbers 19 -27 are also short answer question carry 3 marks each.
- (vi) Question numbers 28-30 are long answered questions and carry 5 marks each.
- (vii) Use Log Tables, if necessary. Use of calculator is not allowed.

- 1) State the number of significant figures in the following numbers, a)0.0405, b)50.0 (1)
- 2) Using s,p,d,f notations describe the orbital with following numbers: a)n=1, l=0 & b)n=4, l=2 (1)
- 3) What would be the IUPAC name and symbol for element with atomic number 120? (1)
- 4) Define lattice enthalpy. (1)
- 5) What is covalent radius? (1)
- 6) Draw resonance structures of  $\text{CO}_3^{2-}$  ion. (1)
- 7) Liquid ammonia bottle is cooled before opening the seal. Assign reason. (1)
- 8) What is Boyle temperature? (1)
- 9) Write down all the four quantum numbers for a) 19<sup>th</sup> electron of  ${}_{24}\text{Cr}$ , (2)  
b) 21<sup>st</sup> electron of  ${}_{21}\text{Sc}$
- 10) Arrange the following in the increasing order of property indicated. (2)  
a) F, Cl, Br, I (electron gain enthalpy),  
b)  $\text{Mg}^{2+}$ ,  $\text{C}^{2-}$ ,  $\text{Na}^+$ ,  $\text{F}^-$ ,  $\text{N}^{3-}$  (ionic size)  
c) Mg, Al, Si, Na (ionisation enthalpy)  
d) C, N, O, F (Second ionization enthalpy)

- 11) What is the physical significance of  $\Psi^2$ ? In some region around nucleus  $\Psi^2=0$ , what is the name of this region? (2)
- 12) How much copper is obtained from 100 g of  $\text{CuSO}_4$  [At. masses of Cu(63.5), S(32) & O(16)] (2)
- 13) What mass of copper oxide will be obtained by heating 12.35 g of copper carbonate? (Atomic mass of Cu=63.5). (2)
- 14) Give reasons for the following; (2)
- a) Noble gases have positive electron gain enthalpy?
  - b) Negative electron gain enthalpy of F is less than that of Cl.
  - c) Second ionisation enthalpy is always more than first ionisation enthalpy.
  - d) F is larger than F atom while  $\text{Na}^+$  ion is smaller than the of Na atom.
- 15) An organic compound has the following percentage composition, C=48%, H=8%, N=28%, O=16%, calculate empirical formula of the compound? (2)
- 16) An 100 Watt bulb emits monochromatic light of wave length 400 nm. Calculate number of photons emitted per second by the bulb? (2)
- 17) A weather balloon has volume of  $175 \text{ dm}^3$ , When filled with hydrogen gas at a pressure of 1 bar. Calculate the volume of balloon when it rises to a height where the atmospheric pressure is 0.8 bar. Assume that temperature is constant. (2)
- OR
- At  $25^\circ\text{C}$  and 760 mm of Hg pressure a gas occupies 600ml volume. What will be its pressure at the height where temperature  $10^\circ\text{C}$  and volume of gas is 640ml.
- 18) a) What is isoelectronic species? Give example? (2)  
b) Why alkali metals do not form di-positive ions?
- 19) a) State Heisenberg's Uncertainty principle. (3)  
b) State Aufbau principle.  
c) Draw the shape of orbitals with  $l=1$
- 20) The density of 3M solution of NaCl is 1.25 g/ml. Calculate the Molality of solution? (3)
- 21) How much magnesium sulphide can be obtained from 2g of Mg and 2 g of S by the reaction  $\text{Mg} + \text{S} \rightarrow \text{MgS}$ ? Which is limiting reagent? Calculate the amount of one of the reactant which remains unreacted. (Atomic masses Mg=24.3, S=32) (3)

