Parvatibai Chowgule College of Arts & Science, Margao Goa.

(Higher Secondary Section)

Class: - XI Science **Max Marks:- 60**

Day: – Monday **(Subject:-Chemistry)** **Date:- 13-10-2014**

Time: - 10.30 a.m. TO 01.00 p.m. **Duration: - Three Hours**

Total No of Questions: - 6 **First Terminal Examination-October-2014** **Total No Of Printed pages: 5**

Q No ***INSTRUCTIONS:*** **Marks**

(1) Figures to the right-indicate full marks.
(2) Use of calculators is not permitted, however mathematical tables will be provided on request.
(3)Multiple Choice Questions should be attempted only once.
(4) Begin each question on a fresh page
(5)Atomic masses & Constants:
K=39,I=127.5,S=32,H=1,C=12,N=14,O=16,N_A=6.023×10^{23}

Q 1 A Define the following and write their mathematical expression:- **3**

a) Mole fraction

b) Molarity

c) Mass percentage

Q 1 B Write two points of difference between Homogenous and Heterogenous mixtures with two examples of each. **2**

Q 1 C Dihydrogen and Iodine react with each other to produce hydrogen iodide according to the following chemical equation: **2**

$H_{2\,(g)} + I_{2(g)} \rightarrow 2HI_{(g)}$

Write the information available from the above balanced chemical equation.

Q 1 D Calculate the mass of:- **2**

a) One atom of Potassium

a) One molecule of NH_3

Q 1 E Complete the following statement by choosing the *correct* alternative from those given below the statement and rewrite the completed statement: **1**

_____number of moles water are present in 720 grams of water.

4 # 20 # 40 # 2

Q 2 A State the following. **3**

a) Heisenberg's Uncertainty Principle
b) Aufbau Principle
c) Paulis exclusion principle

Q 2 B Explain why Copper and Chromium shows exceptional electronic configuration **2**

Q 2 C Explain the (n+l) rule to determine the energies of 4s and 3d orbitals **2**

Q 2 D Determine the possible values of quantum numbers **n, l, m_l** for the M shell of an atom. **2**

Q 2 E Complete the following statement by choosing the *correct* alternative from those given below the statement and rewrite the completed statement: **1**

The number of electrons & neutrons present in $^{80}_{35}Br$ is_____respectively

45&35 # 35&80 # 35& 45 # 35&40

Q 3 A Define Hybridisation. Explain formation of sp^2 hybrid orbitals with diagram **3**

Q 3 B Write any two points of difference between sigma & pi bonds **2**

Q 3 C Define the following **2**

i. Bond Enthalpy

ii. Bond angle

Q 3 D Explain with structure why in BF_3 molecule Total Dipole moment is Zero **2**

Q 3 E Complete the following statement by choosing the *correct* alternative from those given below the statement and rewrite the completed statement: **1**

The percentage of s character in sp^3 hybridized orbital is_____

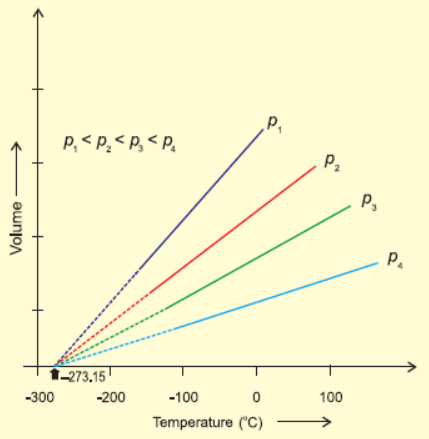
25% # 30% # 50% # 35%

Q 4 A Name the different types of van-dar-waals forces and write any three physical properties of gaseous state. **3**

Q 4 B It is hard to begin inflating a balloon. A pressure of 800.0 Kpa is required to initially inflate the balloon 225.0 mL. **2**

What is the final pressure when the balloon has reached its capacity of 1.2 L?

Q 4 C Answer the following questions with respect to following graph. **2**



1. What does each line of the volume *vs* temperature graph is called as?
2. Which Gas law does this Graph depicts?
3. What do you understand by Absolute Zero?

Q 4 D State the following **2**

i. Dalton's Law of partial pressures.

ii. Gay Lussac's Law (Pressure- Temperature Relationship)

Q 4 E Complete the following statement by choosing the *correct* alternative from those given below the statement and rewrite the completed statement: **1**

Use of hot air balloons is an application _____law

Charles' # Gay Lussac's # Avogadro's # Boyle's

Q 5 A **3**

Explain the following with suitable examples.

a) Position Isomerism

b) Functional group isomerism.

c) Heterolytic cleavage.

Q 5 B Write the structural formulae of the following compounds. **2**

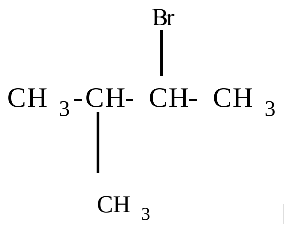
a) Pentan-3-one

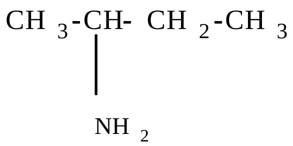
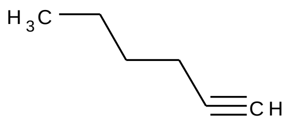
b) Methoxyethane

c) But-1-ene

d) Propanoic acid

Q 5 C Write the IUPAC names of the following compounds. **2**

a)    b) CH_3-CH_2-COO-CH_3

c)    d) 

Q 5 D **2**

Answer the following.

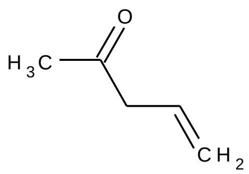
I. Explain the **inductive effect** with an example.

II. Write the formulas of the first three members of each homologous series beginning with following

a) HCHO   b) CH_3OH

Q 5 E Complete the following statement by choosing the *correct* alternative from those given below the statement and rewrite the completed statement: **1**

The correct IUPAC name of the following compound is________________________ .



3-Buten-1-al   # Pent-4-en-2-one   # 2-pentanone   # Pent-1-ene

Q 6 A Define the following. **3**

1) Electronegativity
2) Atomic radii
3) Modern periodic law

Q 6 B Explain the variation of Ionisation Enthalpy across the period and down the group **2**

Q 6 C Cations are smaller and Anions are larger in radii than their parent atoms. Give reason. **2**

Q 6 D Identify and group the following properties into intensive and extensive properties **2**
(temperature , pressure ,Mass , volume , enthalpy, viscosity)

Q 6 E Complete the following statement by choosing the *correct* alternative from those given below the statement and rewrite the completed statement: **1**

The system in which exchange of mass and energy takes place with surrounding is called as___________________system.

Open   # Closed   # Isolated   # Adiabatic

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