V & C Patel English School
Annual Exam
Subject : Chemistry

Std: XI
Date:10 -03-2018

Max.Marks: 70
Time: 3:00 Hrs

General Instruction:
(1) All the questions are compulsory.
(2) Question number 1 to 5 are very short answer questions and carry 1 mark each.
(3) Question number 6 to 10 are short answer questions and carry 2 mark each.
(4) Question number 11 to 22 are also short answer questions and carry 3 mark each.
(5) Question number 23 is a value based question and carry 4 marks.
(6) Question number 24 to 26 are long short answer questions and carry 5 mark each.
(7) Use log tables,if necessary.Use of calculators not allowed.

Questions:

1.Calculate the molecular mass of CO_2
[Atomic mass of C=12u,O=16u]

2.If mass of one electron is 9.11×10^{-31}kg then find the mass of one mole of electrons.
[Avo.No = 6.022×10^{23}]

3.State modern periodic law.

4.Draw Lewis dot structure of H_2S.

5.Write the names of isotopes of Hydrogen with symbol.

6.Among NH_3,H_2O and HF ,Which would you expect to have highest magnitude of hydrogen bonding and why?

7.Write chemical reaction equation for.....
(a) Magnesium burnt in air.(b) Quick lime is heated with silica.

8.What is inert pair effect ,explain with an example.

9.Why does BCl_3 has zero dipole moment?

10.What are electrophiles and nucleophiles?Give example.

11.(a)How much copper can be obtained from 100g of copper sulphate ($CuSO_4$)?
[At.mass of Cu=63.5u,S=32u,O=16u]
(b) Calculate the amount of carbon dioxide that could be produced when 1 mole of carbon is burnt in 16 g of Dioxygen.

12.Calculate the number of atoms in 2 moles of He and 2 g of He.[Avo.No = 6.022×10^{23}]

OR

12.Determine the empirical formula of an oxide of iron Which has 69.9% iron and 30.1% Dioxygen by mass.(Atomic mass Fe=55.85u,O=16u)

13.Find energy of each of the photons which(a)corresponds to light of frequency 1×10^{34}Hz
(b) have wave length of 1 A [$h = 6.63 \times 10^{-34}$]

14.In an astronomical observations, signals observed from the distant stars are generally weak.if the photons detector receives a total of 3.15×10^{-18} J from the radiations of 600 nm,calculate the number of photons received by the detector.

15.Give reasons (a) First ionization enthalpy of boron is slightly less than beryllium.(b)oxygen has smaller first ionization enthalpy than nitrogen.

16.Explain with an example (a)How atomic radii vary in a period and in a group?(b)Screening Effect.

17.Differentiate Electronegativity and Electrongain enthalpy with suitable example.

18.Write in brief about preparation,properties and uses of Dihydrogen.

19.Explain Solvay process to produce Sodium Carbonate,its properties and uses.

20.Write a note on Allotropes of Carbon.

21.With an example explain Inductive effect,Electromeric effect and hyperconjugation.

22.With an chemical reaction equation explain Oxidation and Ozonolysis of Propene.

23.Suggest some ways to control Air,Water and Soil pollution.

24.Explain Kjeldahl's method for estimation of Nitrogen.

OR

24.Explain by drawing figure (a)Column chromatography(b)Thin layer chromatography.

25.Give chemical reaction equation for the following conversions.**[Any five]**

(a) Ethyne to benzene. (b) Sodiumacetate to Benzene.

(c)Phenol to benzene. (d)Benzene to Toluene.

(e) Benzene to Chlorobenzene. (f)Benzene to Acetophenone.

(g)Benzene to Hexachlorobenzene. (h) Benzene to Benzene hexachloride.

26.What is permanent hardness of water?Explain in brief <u>any two</u> method of the following to remove it.

(a) Washing soda method (b) Calgons method

(c) Ion exchange method (d) Synthetic resins method.