CHEMISTRY 2019

Time: 2 ½ Hours' Max. Marks: 68

SECTION "B" (SHORT-ANSWER QUESTIONS)(40)

NOTE: Answer 10 questions from this section.

2. Chemistry and human society "Go Hand in Hand". Write four arguments in support of this statement.
3. State the law of Reciprocal proportion and explain it with the help of an example.
4. Define Radioactivity/ Name the three types of radioactive rays and write one characteristic of each.
5. Write down four comparative points between Covalent bond and Dative bond.
6. What is "Nascent (Newly born) Hydrogen? Describe its reactivity.
7. Find out the mass of 4.5 moles of the following compounds:
   (i) Water (H_2O) (ii) Sodium Carbonate (Na_2CO_3)
   Atomic masses: (N = 23, C = 12, H = 1, O = 16)
8. Define Combustion Reaction. Write down only balanced chemical equations for combustion of the following:
   (i) Methane (ii) Ethene (iii) Ethyne
9. Define "Basicity of Acid" and "Acidity of Base" and identify the following acids as mono basic, di basic and tri basic acid:
   (i) H_2PO_4 (ii) CH_3COOH (3) HNO_3 (iv) H_2SO_4
10. Write down the pH values of the following biological fluids:
    (i) Vinegar (ii) Saliva (iii) Egg-White (iv) Cow-Milk
11. Reproduce the following reactions in the form of balanced chemical equations:
    (i) Ethene reacts with Hydrogen gas to form Ethane.
    (ii) Carbon monoxide react with Oxygen to form Carbon dioxide.
12. Calculate the molality of the aqueous solution containing 18 g Glucose ($C_6H_{12}O_6$) dissolved in 300g of water.
13. What is Ozone? Where does it occur in nature? Write down its two uses also.
14. Write down the chemical formulae of the following compounds: (i) Sodium Nitrate (ii) Caustic Soda (iii) Ammonium Chloride (iv) Table Salt
15. Give reasons of the following:
    (i) Why does ionization energy of elements increase from left to right in a period of the periodic table?
    (ii) Why does lime water turn milky when Carbon dioxide gas is passed through it?
16. What is diffusion? State Graham's Law of Diffusion of gases and Re-arrange the following gases in order of diffusion rate from faster to slower. O_2, H_2, Cl_2, N_2

SECTION 'C' (DETAILED ANSWER QUESTIONS)

Note: Answer Two questions from this Section.(28)

17.(a) What do you mean by soapnification? Write the composition of detergent and its functions.

(b) What are hydrocarbons? How these are classified? Explain in detail. Also draw structural diagrams.

18.(a) Describe the industrial preparation of Chlorine gas by any one of the following cells with electrodes reaction and labeled diagram.
   (i) Nelson's cell (ii) Castner-Kellner's cell.

(b) Write the salient features of Group VIIIA (Inert or Noble gases) and describe the discovery of Noble gases.

19.(a) How sulphur is extracted by "Frisch process"? Describe it and draw its labeled diagram also.

(b) Define the term "matte". Describe the electrolytic refining of blister copper with the help of electrode reaction and labeled diagram of electrolytic cell.

20.(a) Describe the industrial preparation of Nitric acid by Ostwald's method with balanced chemical equations and also draw labeled diagram of this method.

(b) State Faraday's First and Second law of Electrolysis. Calculate the amount of Silver deposited at Cathode when 10 ampere of current is passed for 50 minutes through the solution of Silver Nitrate.