



## S.S. Divine School

Pre – Primary , Primary, Secondary & Higher Secondary

Opp.Science City, Sola M : 70693 11011

E-Mail :ssdivineschool2015@gmail.com



Std:11<sup>th</sup> EM

Subject: Chemistry(052)

Time:1 Hour

Date:27/07/2022

Roll No:

Max.Marks:25

### Section-A

**Write the answer of the following questions. [Each carries 1 Mark]**

(1)

A solution is prepared by adding 2 g of a substance A to 18 g of water. What is the mass percent of the solute?

(2)

. How many number of oxygen atoms in 4.4 gm carbon dioxide.

(3)

If 20 volumes of dihydrogen gas react with 10 volumes of dioxygen gas, How many volumes of water vapour would be produced?

(4)

How many electrons are present in an atom having  $n=3$  and  $l=1$ ?

(5)

Photon energy of light having wavelength  $0.50 \text{ \AA}$  is \_\_\_\_\_.

### Section-B

**Write the answer of the following questions. [Each carries 2 Marks]**

(1)

State and explain: Law of multiple proportion.

(2)

Calculate the mass of sodium acetate(  $\text{CH}_3\text{COONa}$ ) required to make 500 ml of 0.05 M aqueous solution. ( at weight of C =12, O =16, Na =23)

(3)

Write a note on : Principle Quantum number

#### Section-C

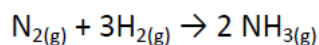
Write the answer of the following questions. [Each carries 3 Marks]

(1)

State and explain : (i) Aufbau's principle and (ii) Hund's principle

(2)

Dinitrogen and Dihydrogen react with each other to produce ammonia according to the following chemical equation:



(i) Find the mass of ammonia produced if 2 Kg dinitrogen reacts with 1 Kg dihydrogen

(ii) Will any of the two reactants remain unreacted?

(iii) if yes, which one and what would be its mass?

(3)

What is the energy in joules, required to shift the electron of the hydrogen atom from the first orbit to the fifth Bohr orbit and what is the wavelength of the light emitted when the electron returns to the ground state? The ground state electron energy is  $-2.18 \times 10^{-11}$  ergs.

#### Section-D

Write the answer of the following questions. [Each carries 5 Marks]

(i) State and explain Heisenberg's Uncertainty Principle. (03 marks)

(ii) A golf ball has a mass of 40 g, and a speed of 45 m/s. If the speed can be measured within accuracy of 2%, Calculate the uncertainty in the position.(02 marks)

Best of luck