Cosmo School

Physics | **Worksheet 1 : 30/09/2020** | **Class - X**

CHAPTER 13 : MODERN PHYSICS AND ELECTRONICS

Instructions:

- ✓ Read the chapter in your book - quickly and thoroughly, preferably more than once.
- ✓ Learn the answers given in this worksheet.
- ✓ Contact me in case of any difficulties in understanding.

(Questions given in this worksheet are important questions for all exams)

Cognitive Questions (Mark 1)

1. What is radioactivity?

Ans.: The phenomenon of emission of radioactive rays or particles from an element is called radioactivity.

2. What is half life?

Ans.: The time required to decay half of the total amount of atoms present in a radioactive element is called half life.

3. What is one Becquerel?

Ans.: One Becquerel is defined as the activity of a quantity of radioactive material in which one nucleus decays per second.

4. What is an isotope?

Ans.: If the atoms of the same element have same number of protons but different number of neutrons in their nucleus, they are called isotopes of each other.

5. What is analogue signal?

Ans.: The signal that changes continuously in magnitude is called analogue signal. This signal is applied to voltage, temperature, pressure, etc as well as devices like radio, telephone, fax, etc.

6. What is modulation?

Ans.: To send the signal that is transformed from sound to electric wave far away places, it is mixed with a high frequency electromagnetic wave. This process is modulation.

7. What do CAT and PET stand for?

Ans.: CAT stands for Computer Assistant Tomography and PET stands for Positron Emission Tomography.

Analytical Questions (Mark 2)

1. Write down the comparison among Alpha, Beta and Gamma rays.

Ans.: Alpha, Beta and Gamma rays are compared below:

Alpha Ray	Beta Ray	Gamma Ray
i. It is helium nucleus and positively charged.	i. It is negatively charged.	i. It is charge neutral.
ii. It's penetrating power is the least.	ii. It's penetrating power is more than that of alpha ray.	ii. It's penetrating power is the highest.
iii. It is influenced by magnetic and electric field.	iii. It is largely deflected by magnetic and electric field.	iii. It is not deflected by electric and magnetic field.
iv. Strong ionization.	iv. Enough ionization in gases.	iv. Low ionization in power.
v. It's velocity is 10% of the velocity of light.	v. It's velocity is 50% of the velocity of light.	v. It travels with the velocity of light i.e. is 3 x 10^8 ms^{-1}.
vi. It's mass is four times the mass of hydrogen.	vi. It's mass is equal to the mass of electron.	vi. It has no mass.