

**Physics****Worksheet 1 : 18/10/2020****Class - X****CHAPTER 14 : PHYSICS TO SAVE LIFE****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)

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**Cognitive Questions (Mark 1)****1. What is X-ray?**

Ans.: X-ray is an electromagnetic wave of high energy and very short wavelength which is able to pass through many materials opaque to light due to its high penetrating ability.

**2. What is CT Scan?**

Ans.: CT Scan is the abbreviation of the word 'Computed Tomography Scan'. Tomography means to create an image of a slice (or two-dimensional part) of a three-dimensional object.

**3. What is the elaborated form of MRI?**

Ans.: The elaborated form of MRI is Magnetic Resonance Imaging.

**4. What is the full form of ETT?**

Ans.: ETT means Exercise Tolerance Test.

**5. What is Endoscopy?**

Ans.: In medical science, endoscopy is a procedure in which an optical tube is passed through the mouth to the stomach in order to examine the inner wall of the stomach of a patient.

**6. What is isotopes?**

Ans.: Elements whose atomic numbers are the same but mass numbers are different are called isotopes of each other.

**Analytical Questions (Mark 2)****1. Why is ultrasonography not done instead of X-ray?**

Ans.: Ultrasonography is much safer than X-ray, but still instead of being used excessively, it is used for a very limited time. During the process of ultrasound the transducer is continuously moved so that it can send the beam to a specific region for a long time. That's why ultrasonography is not used instead of X-ray.

**2. Why 'dye' is used during angiography?**

Ans.: In angiography a liquid is pushed into the body of patient through a narrow and bendable tube. This liquid is called dye by using which the veins or arteries are visible through X-ray. As a result, doctors can easily examine and find out any block or compressed or dilated blood vessel in the body.

**3. In which cases angiogram is done?**

Ans.: Angiogram is used to study whether the arteries or veins are narrow, blocked or enlarged in the body. The normal flow of blood is obstructed in the body when the blood vessels are blocked and they are narrow or not wide enough.

**4. ETT is a kind of ECG - Explain.**

Ans.: ETT is an ECG test of the patient while performing exercise. During ETT, the physician records the ECG of the patient while exercising. By adjusting the speed of the rotation of the wheel and the slope of the surface, the degree of stress is gradually increased. Physicians are able to identify the changes that occur in the patient's heart during the physical exercise by studying the ETT. That is how, ETT is a kind of ECG.

### 5. Why the isotopes are the variant of a definite element?

Ans.: The atoms of the same element having different mass number without any change in their atomic numbers are called isotopes. This is why they are the variant of a definite particle. The change does not take place either in the number of electrons or of protons but of neutrons, as a consequence the mass number differs in case of different atoms. For example, carbon has three different mass number - 12, 13 and 14. So the isotopes of carbon are

${}^1_6\text{C}$ ,  ${}^{13}_6\text{C}$  and  ${}^{14}_6\text{C}$  in case of which the numbers of neutrons are 6, 7 and 8 respectively ( $6 + \underline{6} = 12$ ,  $6 + \underline{7} = 13$  and  $6 + \underline{8} = 14$ ).