# 10th Class Physics - 2 Marks Important Questions

**Q: Janaki observed that light is travelling from water to crown glass. The refractive indices of these two are given below. Water : n = 1.33, Crown glass: n = 1.52**

**Now answer the following:**

**a) Which is the denser medium and which is the rarer medium?**

**b) What happens when light travels from crown glass to water?**

A: a) Water is the rarer medium and glass is the denser medium.

b) When light travels from crown glass (denser medium) to water (rarer medium), the refracted ray bends away from the normal because of the increase in speed of light.

**Q: Substance 'A' turns blue litmus into red. Substance 'B' turns red litmus into blue. If the reaction takes place between A and B, guess what are the substances to be formed.**

A: Substance 'A' turns blue litmus to red so it is an acid. Substance 'B' turns red litmus to blue so it is a base. When A and B react, the reaction takes place between an acid and a base which is a neutralization reaction.

**Q: 'X' is an element that belongs to 3rd period and 13th group, then answer the following.**

**i) Write the electronic configuration of X.**

**ii) What is the valency of X?**

A: i) The element (X) that belongs to the 3rd period and 13th group is Aluminium (Al).

ii) The atomic number of Aluminium is 13. Its electronic configuration is 1s2 2s2 2p6 3s2 3p1.

Valency of Aluminium is 3.

**Q: A student dropped a metal into a test tube containing ethyl alcohol and observed a gas is coming out. What gas is released and how could he identify it?**

A: The student added sodium metal to ethyl alcohol in the test tube.

The gas released is hydrogen.

If a burning splinter is put at the mouth of the test tube it puts off with a pop sound.

**Q: How do you appreciate the role of Buck minster fullerene medicine?**

A: Fullerences may be useful as a specific antibiotic for certain cancer cells such as melanoma.

This is still under research studies.

I appreciate its usefulness in medicine which may become a good medicine for curing certain cancer in the time to come.

**Q: Padma wears a spectacle. Her eyes began seem to be bigger in size.**

**a) What lens is there in her spectacle?**

**b) Which type of eye defect is she having? Draw the ray diagram for this defect.**

A: a) Convex lens is there in her spectacle.

b) She is having hypermetropia eye defect.

**Q: Ravi wears a spectacle. From that his eyes observed to be bigger in size.**

**a) What lens is used by him?**

**b) What is the eye defect he is suffering from?**

A: a) When we saw Ravi through his spects, the size of his eyes seemed to be bigger in size because he wore a convex lens in his spects.

The magnification of the convex lens is greater than 1 when the object is placed in between its optic centre and focus.

b) Ravi is suffering from hypermetropia. This is also called as far sightedness. For people suffering from hypermetropia, they cannot see the objects clearly which are nearer as the image is formed beyond the retina.

**Q: Explain the working of eye lens and ciliary muscles in the eye.**

A: The ciliary muscles to which eye lens is attached helps the eye lens to change its focal length by changing the radii of curvature of the eye lens.

When the eye is focused on a distant object, the ciliary muscles are relaxed. So that the eye lens has maximum value for its focal length.

The parallel rays coming into the eye are then focused on to the retina and we see the object clearly.

When the eye is focused on a closer object, the ciliary muscles are strained and focal length of eye lens decreases.

The ciliary muscles adjust the focal length in such a way that the image is formed on retina and we see the object clearly. This process of adjusting focal length is called 'accommodation'.

**Q: How do you appreciate the role of octet rule in describing the properties of elements?**

A: Elements with 8 electrons in their outer most orbit are more stable because inert gases with 8 electrons in their outer most orbit are stable.

This rule is called octet rule. So every atom of the element try to attain 8 electrons in its outermost orbit either by loosing, gaining or sharing of electrons.

In this process compounds are formed. So chemical properties of elements depend on octet rule.

So the role of octet rule to describe the properties of elements should be thoroughly appreciated.

**Q: During rainy season the power supply to our home from the electrical pole will be interrupted. Why? How do you restore the current?**

A: Sometimes during rainy season the power supply to our home from the electric pole will be interrupted due to the formation of metal oxide layer on the electric wire.

This metal oxide is an insulator.

If, the metal oxide formed on the wire, is removed with the help of a sand paper, the power supply will be restored.

**Q: How could we use the principle of electromagnetic induction in the case of using ATM card when its magnetic strip is swiped through a scanner?**

A: If the ATM card is moved through a card reader, then a change in magnetic flux is produced in one direction, which induces potential or E.M.F.

The current received by the pickup coil goes through signal amplification and translated into binary code which can be read by the computer.

**Q: Distinguish between real and virtual images.**

A: **Real Image**

1. This can be formed on a screen.

2. Real image is always inverted.

3. Concave mirrors can form both real and virtual images.

4. The reflected rays actually meet at the image point.

**Virtual Image**

This cannot be formed on a screen.

Virtual image is always erect.

Convex mirror can form only virtual images.

Reflected rays appear to diverge from the image point.