**SAMPLE PAPER (2013)**

**CLASS – X**

**SUBJECT : PHYSICS**

 **SECTION--A { ALL QUESTIONS CARRY 1 MARK EACH}**

**Q.1 The magnification produced by a mirror is -1. What does this mean?**

**Q.2 Find the focal length of a lens of power +1.5 D. What type of lens is this?**

**Q.3 Name the component of white light that deviates the least and the component that deviates the**

 **most while passing through the glass prism.**

**Q.4 How are power and focal length of a lens related? You are provided with two lenses of focal**

 **lengths 20 cm and 40 cm resp. which lens will you use to obtain more convergent light?**

**Q.5 A ray of light travelling in glass enters obliquely into water . Does the light ray bend towards the**

**normal or away from the normal? Why?**

 **SECTION--B {ALL QUESTIONS CARRY 2 MARKS EACH}**

**Q.6 Why do star twinkle but planet do not twinkle at all.**

**Q.7 (i)How is the refractive index of an optical medium related to the Wave length of light in that**

 **medium.**

 **(ii)“The refractive index of a substance X is 2.42” what is the meaning of this statement in relation**

 **to the speed of the light?**

**Q.8 An object 5.0 c in length is placed at a distance of 20 cm in front of a convex mirror of radius of**

 **curvature 30 cm. find the position of the image, its nature .**

**Q.9 (i)What sign convention has been given to the focal length of (i) convex lens (ii) concave mirror**

 **(ii)Give the Cartesian sign convention for (a) height of object (b) height of virtual image**

**Q.10 A convex mirror used for rear-view on an automobile has a radius of curvature of 3.00 m. if a bus**

 **is located at 5.00 m from this mirror, find the position, nature and size of the image.**

**Q.11 The speed of light in water is 2.25x108m/s. if the speed of light in vacuum be 3x108 m/s. calculate**

 **the refractive index of the water.**

 **SECTION--C { ALL QUESTIONS CARRY 3 MARKS EACH}**

**Q.12 Two thin leses of focal length +10 cm and – 5 are kept in contact. What is the focal length and**

 **power of the combination.**

**Q.13 A concave lens of focal length 30 cm forms an image 20 cm from the lens. How far is the object**

 **placed from the lens? Draw the ray diagram.**

 **SECTION--D { ALL QUESTIONS CARRY 5 or 6 MARKS EACH}**

**Q.14 A person cannot see objects far than 120 cm from his eyes while a person with normal vision**

 **can see objects upto infinity from his eyes . find the nature, the focal length and the power of the**

 **correcting lens used for the defective vision.**

**Q.15 (a) A concave lens has focal length of 15 cm. At what distance should the object from the lens be**

 **placed so that it forms an image 10 cm from the lens? Also find the magnification produced by**

 **the lens.**

 **(b) A glass prism is able to produce a spectrum when light passes through it but a glass slab does**

 **not produce any spectrum. Explain why is it so.**

**Q.16 (a) What is Hypermetropia? State the two causes of it. With the help of the lebelled ray diagram show :- (i) The eye defect Hypermetropia (ii) Correction of Hypermetropia using lens.**

 **(b) Why is normal eye unable to focus on an object within 10 cm from the eye.**

 