DOON PUBLIC SCHOOL

(C.B.S.E. Affiliation No. 1030502)

Class X Physics
Vacation Worksheet-2

Q1. Answer the following questions.

01. What are the various effects of refraction of Light?
02. Define Snell's law of Refraction.
03. What is the cause of refraction of light?
04. Mention various uses of plane mirror.
05. Draw a labeled diagram to show the - (a) optical center (b) principal axis (c) principal focus (d) focal length of a convex lens.
06. The refractive index of water is 4/3 and for glass it is 3/2, with respect to air. What is the Refractive Index of glass with respect to water?
07. Write a tabular formula (summary) of images formed by a concave mirror.
08. What are the various signs of convention for spherical mirrors?
09. Describe with help of a ray diagram the nature, size and position of the image formed when an object is placed in front of a convex lens between focus and optical center.
10. What are the various laws of refraction of light?
11. Write the characteristics of an image formed by a plane mirror.
12. What are the uses of concave mirrors?

Q2. Solve the Numerical Problems given below

01. At what distance from a concave mirror of focal length 10 cm should an object be placed, so that its real image is formed 20 cm from the mirror?

02. A 2 cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 10 cm. The distance of the object from the lens is 15 cm. Find the nature, position, size of the image. Also find its magnification.

03. An object of size 7 cm is placed at 27 cm in front of a concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed so that a sharp focused image can be obtained?

04. A concave mirror produces 3 times enlarged real image of an object placed at 10 cm in front of it. Where is the image located?

05. Describe the nature of the image formed when the object is placed at a distance of 20 cm from a concave mirror of focal length 10 cm.

06. Light, of wavelength of 500nm in air, enters a glass plate of refractive index 1.5 Find speed, frequency and wavelength of light in glass. Assume that the frequency of light remains the same in both media.

07. A convex mirror used in automobile has 3m radius of curvature. If a bus is located at 5m from this mirror, find the position, nature and size of the image.

08. An object 5cm high is held 25cm away from a converging lens of focal length 10cm. Find the position, nature and size of the image formed. Also draw the ray diagram.