St. Lawrence High School
A Jesuit Christian Minority Institution

Term : 2nd
Solution of Work Sheet – 10

Class – X   Subject – Physical Science   Date – 02.05.20

Chapter – Light   Topic – Refraction of light
                                                                   through prism and Lens

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Choose the correct option for the following questions. $1 \times 15 = 15$

1. For same angle of incidence, the colour that deviates most in a prism has –
   a. Highest wave length and lowest frequency
   b. Highest wave length and highest frequency
   c. Lowest wavelength and highest frequency
   d. Lowest wavelength and lowest frequency
      Ans: c. Lowest wavelength and highest frequency

2. For same angle of incidence, the colour that deviates most in a prism is –
   a. Red
   b. Green
   c. Yellow
   d. Violet
      Ans: d. Violet

3. Angle of deviation in a prism for a particular colour of light, depends on –
   a. Incident angle
   b. Refractive index of prism
   c. Angle of prism
   d. All of these
      Ans: d. All of these

4. It is seen that, red light suffers a deviation of 50° when made incident on a prism with equal measures of angle of incidence and angle of emergence equal to 55° each. What is the measure of angel of that prism?
   a. 30°
   b. 45°
   c. 60°
   d. 90°
      Ans: c. 60°

5. In a prism, for same angle of incidence, red light suffers least deviation, because –
   a. Frequency of red light is highest
   b. Wave length of red light is least
   c. Refractive index of red light is least as wave length is highest
   d. None of these
      Ans: c. Refractive index of red light is least as wave length is highest

6. If a ray is incident on one refracting face normally, then –
   a. It will be un-deviated
   b. Angle of incidence will be 0° but not the angle of emergence
   c. Angle of emergence will be 0° but not the angle of incidence
   d. Both the angles will be zero.
      Ans: b. Angle of incidence will be 0° but not the angle of emergence

7. A monochromatic light suffers a deviation of $60°$ when passes through a prism of angle $60°$. If the angle of incidence is $65°$, then the measure of angle of emergence is –
   a. $120°$
   b. $90°$
   c. $65°$
   d. $55°$
      Ans: d. $55°$

8. For a prism, the measures of i_1, r_1 and r_2 are given as $60°, 45°$ and $25°$ respectively. What is the measure of angle of prism?
   a. $105°$
   b. $70°$
   c. $85°$
   d. $10°$
      Ans: b. $70°$

9. For a prism placed in air –
   a. i_1 can never be greater than r_1
   b. i_1 can never be equal to r_1
   c. $i_1 \geq r_1$ always
   d. $i_1 = r_1$ always
      Ans: c. $i_1 \geq r_1$ always

10. For a prism, the measures of i_1, r_1, i_2 and r_2 are given as $60°, 45°, 19°$ and $15°$ respectively. What is the measure of angle of deviation (δ)?
    a. $71°$
    b. $11°$
    c. $15°$
    d. $19°$
       Ans: $19°$

11. For a prism, the measures of angle of incidence and angle of emergence both are equal to $55°$. If the angle of Prism is $40°$, then the measures of r_1 and r_2 are –
    a. $35°$ and $35°$
    b. $25°$ and $15°$
    c. $15°$ and $25°$
    d. $20°$ and $20°$
       Ans: d. $20°$ and $20°$

12. For a prism, the measures of angle of incidence and angle of emergence both are equal to $50°$. If the angle of Prism is $40°$, then the measure of angle of deviation is –
    a. $10°$
    b. $60°$
    c. $30°$
    d. $90°$
       Ans: b. $60°$

13. For a lens system, all the distances are measured with respect to –
    a. The pole
    b. The focus
    c. Centre of curvature
    d. Optical centre
       Ans: d. Optical centre

14. The principal axis of a lens is –
    a. The line joining two centres of curvature
    b. The perpendicular line to the plane of lens through the optical centre

c. Both a. and b.
d. None of these
Ans: c. Both a. and b.

15. When light ray is incident on a lens through the optical centre, then –
    a. The lateral displacement is almost zero
    b. The lateral displacement is maximum
    c. The ray remains undeviated
    d. Both a. and c. are correct
       Ans: d. Both a. and c. are correct

<u>Name of the teacher</u> – Soumitra Maity