I.M Practice Paper [CLASS 12th)

Wave Optics (CBSE)

Q1.A slit of width 'a' is illuminated by light of wavelength 6000 A. For what value of 'a' will the (I) first maximum fall at an angle of diffraction of 30° ? (ii) First minimum fall at an angle of diffraction of 30°

Q2 A double slit is illuminated by light of wave length 6000 A. The slits are 0.1 cm apart and the screen is placed on metre away. Calculate (i) the angular position of the 10th maximum in radian and (ii) separation of the two adjacent minima?

Q3. How does the angular separation of interference fringes change in Young's experiment, if the distance between the slits is increased ?2

Q4.A ray of light strikes a glass plate at an angle of 60° with the glass surface. If the reflected and refracted rays are at right angles to each other, find the refractive index of the glass?

Q5. Explain diffraction at single slit? Also find the fringe width of central maxima? 5

Q6.Explain laws of refraction by using wave theory of light?   3

Q7. Two identical coherent waves, each of intensity I, are producing an interference pattern. Find the value of the resultant intensity at a point of (i) constructive interference and (ii) destructive interference.   3

Q9. Draw a graph showing the variation of intensity of polarized light transmitted by an analyzer.2

Q10. Why is the interference pattern not detected, when two coherent sources are far apart ?1

Q11. In Young's double slit experiment the fringes are formed at a distance of 1 m from double slit of separation 0.12 mm. Calculate the distance of 3rd dark band from the center of the screen, given λ = 6000A?   3

Q12. How does the fringe width of interference fringes change, when the whole apparatus of young's experiment is kept in a liquid of refractive index 1.3 .2

Q13. Find the relation for fringe width minima and maxima for young's double slit experiment? 3

Wave Optics(PSEB)

Note:ThisPractice Paper is only for Punjab School Education Boards Students.

Q1. State and prove Brewster law of polarization of light. 3

Q2. Show that interference obeys laws of conservation of energy? 2

Q3. Define wave front and ray of light. How they are related to each other. 2

Q4. What is difference between interference and diffraction?   2

Q5. What do u mean by interference? Find the relation for fringe width minima and maxima for young's double slit experiment? 5

Q6. Explain Huygens principle? 2

Q7. What is the shape of wave front due to point source? 2

Q8.What do you mean by Polaroid's . Give their three uses?   2

Q9. Two coherent sources whose intensity ratio is 25:1 produce interference fringes. Calculate the ratio of intensity of maxima and minima in the fringe system.   2

Q10. Explain Fraunhoffer diffraction of single slit(maxima and minima) and derive relation for linear width of central maxima?5

Q11. The fringe width in a Young's double slit interference pattern is 2.4× 10-4 m, when red light of wavelength 6400Ao is used. By how much will it change, if blue light of wavelength 4000Ao is used?3

Q12.   In Young's double slit experiment, the angular width of a fringe formed on a distant screen is 0.5^0. The wavelength of light used is 6000 A. What is the spacing between the slits ?

Q13. In diffraction at a single slit, a screen is placed 2 m away from lens to obtain diffraction pattern. If the slit width is 0.2 mm and first minimum lies 5 mm on either side of central maximum, find the wavelength of light used.