

## Unit 9 - Week 7

## Course outline

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 Lecture 31 : Interference phenomena Lecture 32 : Interference phenomena (contd.) Lecture 33 : Interference phenomena (contd.) Lecture 34 : Bi-prism Lecture 35 : Bi-prism (contd.) Quiz : Assignment 7 Feedback for Week 7

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## Assignment 7

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

Due on 2019-09-18, 23:59 IST.

1) In Young's double slit experiment using monochromatic light of wavelength  $\lambda$ , the intensity at a point on the screen where path difference  $\lambda$  is K units. What is the intensity of light at a point where path difference is  $\lambda/3$ ? 1 point

- (a)  $K/2$   
 (b)  $k/4$   
 (c)  $k/6$   
 (d) None of those

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
b2) Laser light of wavelength 630 nm incident on a pair of slits produces an interference pattern in which the bright fringes are separated by 8.1nm. A second light produces an interference pattern in which the fringes are separated by 7.2 nm. Calculate the wavelength of the second light. 1 point

- (a) 560 nm  
 (b) 540 nm  
 (c) 510 nm  
 (d) 650 nm

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
a3) In the Young's double slit experiment, the intensity of the central maximum is observed to be  $I_0$ . If one of the slits is covered, the intensity at the central maximum will become 1 point

- (a)  $I_0/2$   
 (b)  $I_0/\sqrt{2}$   
 (c)  $I_0/4$   
 (d)  $I_0$

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
c4) In a double slit interference pattern, the intensity at the centre of a bright fringe is I. The intensity at a point one quarter of the distance to the next bright fringe is 1 point

- (a)  $I/2$   
 (b)  $I/4$   
 (c)  $I/8$   
 (d) I

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
a5) Two laser beams of the same wave length and intensities  $9I$  and  $I$  are superposed. The minimum and maximum intensities of the resultant beam are: 1 point

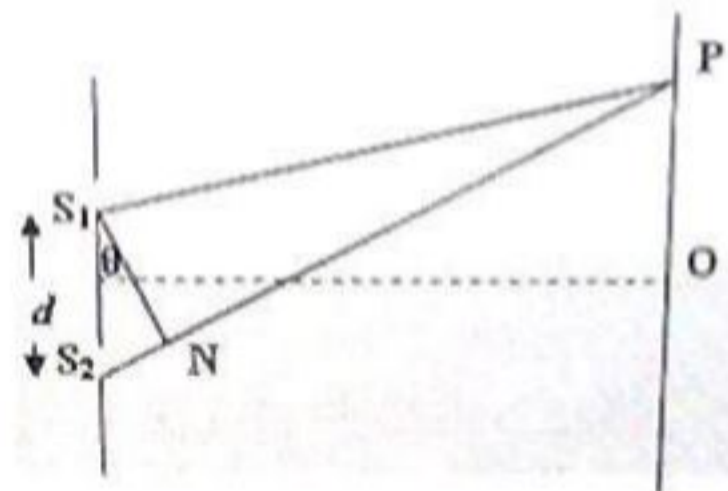
- (a)  $8I$  and  $10I$   
 (b) 0 and  $10I$   
 (c)  $4I$  and  $16I$   
 (d) 0 and  $16I$

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
c6) Two beams of light having intensities  $I$  and  $4I$  interfere to produce a fringe pattern on a screen. The phase difference between the beams is  $\pi/2$  at point A and  $\pi$  at point B. Then the difference between the resultant intensities at A and B is 1 point

- (a)  $2I$   
 (b)  $4I$   
 (c)  $5I$   
 (d)  $7I$

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
b7) Suppose the wave length  $\lambda$  and the double slit separation  $d$  in a Young's double slit experiment are such that the 6<sup>th</sup> dark fringe is obtained at point P shown in the above figure. The path difference ( $S_2P - S_1P$ ) will be 1 point

- (a)  $5\lambda$   
 (b)  $5\lambda/2$   
 (c)  $6\lambda$   
 (d)  $11\lambda/2$

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
d8) If the velocity of incident ray is less than the velocity of refracted ray through a medium, then angle of refraction is .....? 1 point

- (a) Greater than angle of incidence.  
 (b) Less than angle of incident.  
 (c) Equal to angle of incident.  
 (d) There is no angle of refraction.

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
a9) A ray of the light travels from medium of refractive index  $N_1$  to a medium of refractive index  $N_2$ , if angle of incidents is 'i' and angle of refraction is 'r' then  $\sin(i)/\sin(r) = ?$  1 point

- (a)  $N_1$   
 (b)  $N_2$   
 (c)  $N_1/N_2$   
 (d)  $N_2/N_1$

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
d10) Angular dispersion of a prism means... 1 point

- (a) Sum of the deviations between two colours.  
 (b) Difference of the deviations between two colours.  
 (c) Angle between reflected ray and refracted ray  
 (d) Difference of the deviations between two colours/mean deviation.

- a  
 b  
 c  
 d

No, the answer is incorrect.  
Score: 0Accepted Answers:  
b