Physics MCQs for NET, IAS, State-SET (KSET, WBSET, MPSET, etc.), GATE, CUET, Olympiads etc. Part 7

Question:

The slit width, when a light of wavelength $6500\mathring{A}$ is incident on a slit, if first minima for red light is at 300

A. $1 \times 10^{-6} m$

B. $5.2 \times 10^{-6} m$

C. $1.3 \times 10^{-6} m$

D. $2.6 \times 10^{-6} m$

Question:

Newton's rings are observed by keeping a spherical surface of $100\,cm$ radius on a plane glass plate. The wave length of light used is $5880\mathring{A}$. lt the diameter of the 15th bright ring is $0.59\,cm$, the diameter of the 5th ring is

A. $0.226\,cm$

B. $0.446\,cm$

C. $0.336\,cm$

D. $0.556\,cm$

Question:

The resulting intensity after interference of two coherent waves represented by $y1a1\cos t$ and $y2a2\cos 2t$ will be

A. $a_1 - a_2$

B. $a_1 + a_2$

C. $a_{12} - a_{22}$

D. $a_{12} - a2_2$

Question:

In a young's experiment, one of the slit is covered with a transparent sheet of thickness $3.6 \times 10^{-3} cm$ due to which position of central fringe shifts to a position originally occupied by 30th bright fringe. The refractive index of the sheet, if $\lambda = 6000\mathring{A}$

A. 1.5

B. 1.2

C. 1.3

D. 1.7

Question:

In young's double slit experiment with monochromatic light of wave length $600\,nm$, the distance between slits is $10^{-3}m$. For changing fringe width by $3\times10^{-5}m$

A. The screen is moved away from the slits by $5cm$.

B. The screen is moved by 5cm towards the slits.

C. The screen is moved by 3am towards the slits.

D. Both (a) and (b) are correct.

Question:

When two coherent monochromatic light beams of intensities $I\text{and}4I$ are superimposed, what are the maximum and minimum possible intensities in the resulting beams?

A. $5I\text{and}I$

B. $5I\text{and}3I$

C. $9I\text{and}I$

D. $9I\text{and}3I$

Question:

In young's double slit experiment when violet light of wave length $4358\mathring{A}$ is used, then 84 fringes are seen in the field of view, but when sodium light of certain wave length is used, then 62 fringes are seen in the field of view, the wave length of sodium light is

A. $6893\mathring{A}$

B. $5904\mathring{A}$

C. $5523\mathring{A}$

D. $6429\mathring{A}$

Question:

In an interference pattern the position of zeroth order maxima is 4.8mm from a certain point P on the screen. The fringe width is $0.2mm$. The position of second maxima from point P is

A. $5.1\,mm$

B. $5\,mm$

C. $40\,mm$

D. $5.2\,mm$