One Two academy

Std 12 Physics Unit -7

Time: 60 minutes ***Maximum marks: 35***

Choose the correct answer:- ***5 x 1 = 5***

1. Light transmitted by Nicol prism

(a) partially polarised (b) unpolarised (c) plane polarised

2. When light is incident on a soap film of thickness 5 x 10^{-5} cm, the wavelength of light reflected maximum in the visible region is 5320 Å. Refractive index of the film will be,

(a) 1.22 (b) 1.33 (c) 1.51 (d) 1.83

3. A plane glass is placed over a various coloured letters (violet, green, yellow, red) The letter which appears to be raised more is

(a) red (b) yellow (c) green (d) violet

4.The transverse nature of light is shown in,

(a) interference (b) diffraction (c) scattering (d) polarisation

5. In a Young's double-slit experiment, the slit separation is doubled. To maintain the same fringe spacing on the screen, the screen-to-slit distance D must changed to,

(a) 2D (b) $\frac{D}{2}$ (c) $\sqrt{2}D$ (d) $\frac{D}{\sqrt{2}}$

Answer any three of the following questions:- ***3 x 2 = 6***

6. State Brewster's law.

7. What is the use of a Collimator in a spectrometer?

8. List out the uses of the polaroids.

9. State Malus's Law.

Answer any three of the following questions: ***3 x 3 = 9***

10. Write a short note on the quantum theory of light.

11. Differentiate between Frensel and Fraunhofer diffraction.

12. Discuss pile of plates.

13. The ratio of maximum and minimum intensities in an interference pattern is 36:1. What is the ratio of the amplitudes of the two interfering waves ?

Answer the following questions: ***3 x 5 = 15***

14. Obtain the equation for resultant intensity due to interference of light.

OR

Prove laws of refraction using Huygen's principle.

15. Explain the Young's double slit experimental setup and obtain the equation for path difference.

OR

Discuss diffraction at single slit and obtain the condition for nth minimum.

16. Explain the experimental determination of refractive index of the material of the prism using spectrometer.

OR

a. Light of wavelength of 5000 Å produces diffraction pattern of the single slit of width 2.5 μm.What is the maximum order of diffraction possible ?

b. What is Astigmatism ? What is the remedy ?

All the Best