B-tech assignment(physics),**F-section**

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1.Two coherent sources whose intensity ratiois64:1 produce interference fringes. Deduce the ratio maximum intensity to minimum intensity.

2.two coherent sources whose intensity ratio is 4:1 produce interference fringes. Deduce the ratio of maximum intensity to minimum intensity.

3. Determine the ratio of intensity at the center of a bright fringe to the intensity found at a point one -quarter of the distance between two fringes from the center.

4.Determine the ratio of intensity at the center of a bright fringe to the intensity found at a point one -third of the distance between two fringes from the center.

5.Two straight and narrow parallel slits 0.9 mm apart are illuminated using a monochromatic light sources. A screen placed at a distance of 90 cm is used to obtain fringes. It is found that the distance between consecutive fringes is 0.4 mm. Determine the wave length of light.

6. Two coherent sources are placed 1mm apart and generate interference fringes on a screen 0.9m away. The second dark fringes is formed at a distance of 0.9 mm from the central fringes. determine the wave length of a monochromatic light used.

7. In Young's experiment, let a light of wave length 5.4x10-7 m and 6.85x10-8 m be used in turn, keeping the geometry same. Compare the fringes widths in the two cases.

8. In Young's double slit experiment, the slits are separated by 0.28 mm and the screen is placed 1.4 m away. The distance between the central bright fringes and the fourth bright fringe has been measured to be 1.2 cm. determine the wave length of a monochromatic light used.

9.two straight and narrow parallel slits located 1 mm apart are illuminated using a monochromatic light source, A screen placed at a distance 100 cm is used to obtain fringes. It is found that the distance between consecutive fringes is 0.5 mm . determine the wave length of light .

10. coherent sources are placed 0.9 mm apart and generate interference fringes on a screen 1 m away. The second dark fringes is formed at a distance of 0.08 cm from the central fringe. Determine the wave length light.

11.In the Young's double slit experiment, let light of wave lengths 6.2x10-7m and 7.1x10-8 m be used in turn, keeping the geometry same. Compare the fringe widths in these two cases.

12. In young's double-slit experiment ,the slits are separated by 0.32 mm and the screen is placed 1.5m away. the distance between the central bright fringe and fourth bright fringe is measured to be 1.3 cm. Determine the wave length of light.

13.In a thin film, between points A and B ,six fringes are seen with a light of wave length 6000 A0. if the wave light used is of wave length 4500 A0, what are number of fringes observed between A and B?

14. In Newton's ring set-up ,the diameter of the fourth ring was found to be 0.4 cm and that of the 24th ring was 0.8 cm. the radius of curvature of the Plano-convex lens is 100 cm. Calculate the wave length of light used.

15. In Newton's ring experimental set-up, the diameter of the ninth ring changes from 1.42 to 1.28 cm when a liquid of refractive index µ replaces air in the space between the lens and the plate. Determine the refractive index of the liquid.

16. In a Newton's ring set-up, the diameter of the third ring has been found to 0.2 cm and that of the 20th ring 0.7 cm. the radius of curvature of the Plano-convex lens is 90 cm. Calculate the wave length of the light used.

17.In a Newton's ring experimental set-up, the diameter of the eighth ring changes from 1.25 to 1.14 cm when a liquid of refractive index µ replaces air in the space between the lens and the plate. Determine the refractive index of the liquid.

18.light of wave length 5.8x10-5 cm falls on a narrow slit. the pattern formed is observed on a screen placed at a distance of 100 cm from the slit. Determine the width of the slit if the first minimum lies 0.08 cm on either side of the central maximum.

19.Fraunhofer diffraction pattern is observed using light of wave-length 5500 A0 and a single slit . The bright band next to the first dark band is formed at an angle of 15' .Calculate the width of the slit.

20.Fraunhofer diffraction pattern is obtained with a slit width of 0.28 mm and light source of wave length λ =6000 A0. Determine the angles at which the first dark band and the next bright band are formed.

21. A parallel beam of light is incident normally on a plane grating having 4300 lines/cm. A second-order spectral line is found to be deviated through an angle of 300 .Determine the wave length of light.

22. A monochromatic light of wave length 5860x10-8 cm is incident normally on 2 cm wide grating. The first -order spectrum is produced at an angle of 200 with respect to the normal. Determine the total number of lines on the grating.

23. Determine the minimum number of lines in a grating that are just able to resolve the sodium lines of wavelengths 5890 A0 and 5896 A0 in the first order spectrum.