Physics (New Book) - FSC Part 1 Physics Chapter 9 Short Questions Preparation

Q1. In Newton's rings, Why are the fringes circular?

Ans 1: The thickness of the air film between plano-convex lens and plane glass plate is almost zero at the point of contact "o" and gradually increases as we proceed towards the periphery of the lens. Thus, points where the thickness of air film is constant will lie on a circle with "o" as centre. That is why circular fringes are produced.

Q2. What is difference between interference and diffraction fringes?

Ans 1: Interference Fringes: The superposition of two waves having same frequency and travelling in same direction results in bright and dark fringes is called interference fringes.

Diffraction Fringes: The fringes formed due to the bending of light around edges and corners are called diffraction fringes.

Q3. If white light is incident on a film of irregular thickness at all possible angles,what will be the pattern of interference fringes? Explain your answer.

Ans 1: If white light is incident on a film of irregular thickness at all possible angles, we should consider the interference pattern due to each spectral colour separately. If at a certain place condition of destructive interference of one colour is satisfied then that portion of film will exhibit the remaining constituent colours of white light.

Q4. Can visible light produce interference fringes? Explain.

Ans 1: Yes visible light or what light can produce interference fringes. But each color will produce its own interference fringe pattern. Theses patterns overlap to give rise to a resultant diffused coloured interference pattern.

Q5. What are conditions for detectable interference of light?

Ans 1: For detectable interference,light beam should be

- Monochromatic
- Coherent

Q6. Explain whether the Young's experiment is an experiment for studying interference or diffraction effect of light.

Ans 1: Mainly, Young's experiment was performed to study the interference of light.However, it also involves diffraction.So diffraction can also be studied by this experiment because when light passes through the slit, it bends towards the corner.

Q7. In Young's experiment, one of the slits is covered with blue filter and other red filter, what would be the pattern of light intensity on the screen?

Ans 1: No interference pattern will be observed because blu and red lights are of different wavelengths. So the source of light will not be coherent

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Q8. Why the polaroid sun glasses are better than ordinary sun glasses?

Ans 1: Polaroid sun glasses are better than ordinary sun glasses because they reduce the glare of light entering into the eye as a result of polarization.

Q9. In Newton's rings, Why are the fringes circular?

Ans 1: The thickness of the air film between plano-convex lens and plane glass plate is almost zero at the point of contact "o" and gradually increases as we proceed towards the periphery of the lens. Thus, points where the thickness of air film is constant will lie on a circle with "o" as centre. That is why circular fringes are produced.

Q10. Define wave front and spherical wave front.

Ans 1: Wave Front: Such a surface on which all the points have same phase of vibration is known as wavefront.

Spherical wave fronts: If a point source is sending out waves in three dimensions, the wave fronts are spheres centered on the source. Such wave fronts are called a spherical wave fronts.
