

## Physics - FSC Part 1 Physics Chapter 9 Short Questions Preparation

Q1. Define optical rotation. Give its practical use.

**Ans 1:** When a plane polarized light is passed through certain crystals, they rotate the plane of polarization. It is called optical rotation.

Organic solutions such as sugar, tartaric acid etc., show optical rotation which is used to determine their concentration in the solutions.

Q2. 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.

Q3. What is the usual way to obtain plane wavefront from a point source?

**Ans 1:** A usual way to obtain a plane wavefront is to place a point source of light at the focus of a convex lens. The rays coming out of the lens will constitute plane waves.

Q4. What is the contribution of Michelson to measure the length of standard meter using interferometer?

**Ans 1:** Michelson measured the length of the standard meter in terms of wavelength of red cadmium light and showed that the standard meter is equal to 1553163.5 wavelengths of this light.

Q5. How can the distance between interference fringes affect by the separation between the slits of young's experiment? Can fringes disappear?

**Ans 1:**

Q6. What are Newton's rings?

**Ans 1:** When a plano-convex lens of long focal length is placed in contact with a plane glass plate, a thin air film is enclosed between them to form circular dark and bright fringes known as Newton's rings.

Q7. 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.

Q8. How would you distinguish between un-polarized and plane polarized lights?

**Ans 1:** Un-Polarized lights: A beam of ordinary light consists of electric and magnetic vibrations which are perpendicular to the direction of propagation. It is called un-polarized light.

Plane Polarized lights: The beam of light in which all vibrations are confined to one plane of vibration is called plane polarized light.

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Q9. Define polarization of light.

**Ans 1:** The phenomenon in which the vibration of waves can be oriented to any one direction (plane), That may be vertical, horizontal or any other direction is called polarization of light.

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Q10. What do you mean by the term wavefront and ray of light?

**Ans 1:** Such a surface on which all the points have same phase of vibration is known as wavefront.  
A line normal to wavefront including the direction of motion is called a ray of light.

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