UNIT 2 – OPTICS Question Bank

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1. Explain the phenomena of interference. What are the necessary conditions for producing sustained interference fringe pattern?
2. What are coherent sources? How are they obtained in practice?
3. Write the conditions to obtain interference fringe patterns with a thin parallel film.
4. Derive the conditions for maxima and minima for interference in a thin film of uniform thickness in reflected light.
5. Write the expression for fringe width in a wedge shaped thin film.
6. Why thick films don't show interference patterns?
7. Why soap bubble looks colourful when viewed in reflected white light?
8. If energy is always conserved, how come the interference maximum has amplitude more than the sum of individual interfering rays?
9. What are Newton's rings?
10. Why central spot in Newton's ring is always dark?
11. In the Newton's ring experiment prove that in reflected light the diameter of the dark rings is proportional to the square root of its order number.
12. Explain in brief phenomenon of diffraction.
13. Differentiate between Fraunhoffer and Fresnel classes of diffraction.
14. Differentiate between interference and diffraction.
15. What is a diffraction grating? Define grating element.
16. State the condition of diffraction maxima by a multiple slit grating.
17. Define dispersive power and resolving power of a grating.