

Chapter :- **WAVE OPTICS**

Assignment : 2

Class 12

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| **Class : XIIth Subject : PHYSICS**  **Date : DPP No. : 2** |

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| **Topic :-**.**WAVE OPTICS** |

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| 1. | For a wave propagating in a medium, identify the property that is independent of the others | | | | | | | |
|  | a) | Velocity | | | b) | Wavelength | | |
|  | c) | Frequency | | | d) | All these depend on each other | | |
|  |  |  | | |  |  | | |
| 2. | In Young’s double alit experiment, the seventh maximum with wavelength is at a distance and the same maximum with wavelength is at distance. Then | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
|  |  |  |  |  |  |  |  |  |
| 3. | An oil flowing on water seems coloured due to interference. For observing this effect, the approximate thickness of the oil film should be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 4. | The wave theory of light was given by | | | | | | | |
|  | a) | Maxwell | b) | Planck | c) | Huygen | d) | Young |
|  |  |  |  |  |  |  |  |  |
| 5. | In Young’s double slit experiment, the phase difference between the light waves reaching third bright fringe from the central fringe will be | | | | | | | |
|  | a) | Zero | b) |  | c) |  | d) |  |
|  |  |  |  |  |  |  |  |  |
| 6. | Laser beams are used to measure long distance because | | | | | | | |
|  | a) | They are monochromatic | | | b) | They are highly polarized | | |
|  | c) | They are coherent | | | d) | They have high degree of parallelism | | |
|  |  |  | | |  |  | | |
| 7. | In the far field diffraction pattern of a single slit under polychromatic illumination, the first minimum with the wavelength is found to be coincident with the third maximum at . So | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
|  |  |  |  |  |  |  |  |  |
| 8. | White light is used to illuminate the two slits in a Young’s double slit experiment. The separation between slits is *b* and the screen is at a distance from the slits. At a point on the screen directly in front of one of the slits, certain wavelengths are missing, figure. Some of these missing wavelengths are | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 9. | A beam of light is incident on a glass slab in a direction as shown in figure. The reflected ray is passed through a Nicol prism. On viewing through a Nicole prism, we find on rotating the prism that  *A*  *N*  *B*  33°  33°  *O* | | | | | | | |
|  | a) | The intensity is reduced down to zero and remains zero | | | | | | |
|  | b) | The intensity reduces down some what and rises again | | | | | | |
|  | c) | There is no change in intensity | | | | | | |
|  | d) | The intensity gradually reduces to zero and then again increases | | | | | | |
| 10. | A parallel beam of fast moving electrons is incident normally on a narrow slit. A screen is placed at a large distance from the slit. If the speed of the electrons is increased, which of the following statement is correct? | | | | | | | |
|  | a) | Diffraction pattern is not observed on the screen in the case of electrons | | | | | | |
|  | b) | The angular width of the central maximum of the diffraction pattern will increase | | | | | | |
|  | c) | The angular width of the central maximum will decrease | | | | | | |
|  | d) | The angular width of the central maximum will remains the same | | | | | | |
| 11. | Which of the following radiations has the least wavelength | | | | | | | |
|  | a) | -rays | b) | -rays | c) | -rays | d) | -rays |
| 12. | Which of the following waves have the maximum wavelength | | | | | | | |
|  | a) | -rays | b) | I.R. rays | c) | UV rays | d) | Radio waves |
|  |  |  |  |  |  |  |  |  |
| 13. | A circular disc is placed in front of a narrow source. When the point of observation is from the disc, then it covers first HPZ. The intensity at this point is . When the point of observation is from the disc then intensity will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 14. | A light of wavelength falls normally on a thin air film. The minimum thickness of the film such that the film appears dark in reflected light is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 15. | Polarizing angle for water is . If light is incident at this angle on the surface of water and reflected, the angle of refraction is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 16. | In Young’s double slit experiment, the separation between the slit and the screen increases. The fringe width | | | | | | | |
|  | a) | Increases | b) | Decreases | c) | Remains unchanged | d) | None of these |
| 17. | In which of the following is the interference due to the division of wavefront? | | | | | | | |
|  | a) | Young’s double slit experiment | | | | | | |
|  | b) | Fresnel’s biprism experiment | | | | | | |
|  | c) | Liyod’s mirror experiment | | | | | | |
|  | d) | Demonstration colours of thin film | | | | | | |
| 18. | Air has refractive index 1.0003. The thickness of air column, which will have one more wavelength of yellow light than in the same thickness of vacuum is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 19. | A star emitting radiation at a wavelength of is approaching earth with a velocity of . The change in wavelength of the radiation as received on the earth, is | | | | | | | |
|  | a) |  | b) | Zero | c) |  | d) |  |
| 20. | In Young’s double slit experiment when wavelength used is and the screen is from the slits, the fringes are wide. What is the distance between the slits | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |