Dept. of Physics

DEGLOOR COLLEGE, DEGLOOR

MCQ for Practice

B.Sc. S.Y.   OPTICS AND LASERS

1.   Optical system has …….. principal planes

 a) Three   b) Six   c) Four   d) Two

2.   ….. points are on principal axis where light rays without refraction intersect optic axis

 a) Nodal points   b) Principal points

 c) Focal points   d) All of these

3.   Velocity of light is greater in

 a) Dimond   b) Vacuum

 c) Glass medium   d) Water medium

4.   The lens near the object is called …..

 a) eyepiece   b) objective

 c) field lens   d) Eye lens

5.   Eyepiece constitute ….

 a) Eye lens only   b) field lens only

 c) Both field and eye lens   d) None

6.   Huygens eyepiece consist of two lens having focal length in the ratio

 a) 3:1   b) 1:1   c) 1:2   d) 2:1

7.   In Huygens eyepiece the distance between two lenses is

 a) f   b) 2f   c) 3f   d) 4f

8.   Ramsden eyepiece consist of two lens having focal length in the ratio

 a) 3:1   b) 1:1   c) 1:2   d) 2:1

9.   Ramsden eyepiece consist of

 a) Two convex lenses   b) one convex and one plano-convex lenses

 c) Two plano-convex lenses   d) Two concave lenses

10.   Enhancement and cancellation of displacement at a point of medium due to superposition of two or more waves is called

 a) Polarization   b) Diffraction   c) Refraction   d) Interference

11. Light waves are

a) Electromagnetic waves   b) Matter waves
c) gravitational waves   d) All of these

12. Velocity of light in vacuum is

a) 3×10^{10} m/s   b) 3×10^{-10} m/s   c) 3×10^{8} m/s   d) 3×10^{-8} m/s

13. Number of cardinal points in a lens are

a) 4   b) 2   c) 8   d) 6

14. Points having unit lateral magnification in a lens system are called

a) nodal points   b) principal points   c) cardinal points   d) principal foci

15. For a thin lens nodal points coincides with

a) optic axis   b) optic centre   c) nodal planes   d) Principal foci

16. The ratio of focal length of Huygen's plano-convex lens is

a) 3 :1   b) 1:1   c)2:1   d)1:2

17. The equivalent focal length of Ramsden eyepiece is

a) $F = \frac{3}{4}f$ b) $F = \frac{f}{4}$ c) $F = \frac{3}{2}f$ d) $F = \frac{4}{3}f$

18. Which of the following eyepiece is positive eyepiece?

a) Huygens eyepiece   b) Ramsden eyepiece
c) Both Huygens and Ramsden eyepiece   d) None

19. There are …… nodal points

a) Four   b) Three   c) One   d) Two

20. In Ramsden eyepiece, the of separation between lenses is

a) Half focal length of either lens   b) Twice focal length of either lens
c) 2/3 times focal length of either lens   d) Equal to focal length of each lens

21. Light waves are ……. In nature

a) Longitudinal   b) transverse
c) both transverse and longitudinal   d) None

22. Which of following is/are properties of light

a) Interference   b) Polarisation   c) diffraction   d) All of these

23. Lens has ……. Curved surfaces

a) Two   b) Three   c) four   d) one

24. When optical system is situated in a same medium, principal points coincides with

a) focal points   b) focal planes   c) principal planes   d) Nodal points

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25.   There are …… focal points

a) Four   b) Two   c) six   d) Three

26.   In Huygen's eyepiece, the of separation between two lenses is

a) Difference in their focal length   b) Twice focal length of either lens

c) 2/3 times focal length of either lens   d) Equal to focal length of each lens

27.   The ratio of focal length of Huygen's plano-convex lens is

a)   3 :1   b)   1:1   c)2:1   d)1:2

28.   The equivalent focal length of Huygen's eyepiece is

$a)$ $F = \frac{3}{4}f$ b) $F = \frac{f}{4}$ c) $F = \frac{3}{2}f$ d) $F = \frac{4}{3}f$

29.   Which of the following eyepiece is negative eyepiece?

a) Huygens eyepiece   b) Ramsden eyepiece

c) Both Huygens and Ramsden eyepiece   d) None

30.   Lens system has ------ cardinal points

a) 6   b) 4   c) 2   d) None

31.   In Newtons rings fringes are of

a) Equal thickness   b) circular   c) Concentric   d) All of these

32.   In Newtons ring radius of mth dark ring is directly proportional to

a) Wavelength   b) Square of wavelength

c) square root of wavelength   d) None of these

33.   Interferometer is an instrument in which phenomenon of ----------- is used

a) Interference   b) Diffraction   c) Refraction   d) Polarization

34.   In Michelson's interferometer circular fringes are produced when mirror M1 and M2 are …………… to each other

a) Exactly perpendicular   b) Exactly parallel

c) Antiparallel   d) None

35.   Bending of light at an edge of an obstacle is

a) Interference   b) Diffraction   c) Dispersion   d) Polarization

36.   Diffraction of waves becomes noticeable only when size of obstacle is …… to wavelength

a) Large   b) very large   c) Comparable   d) None

37.   Natural light is

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a) Plane polarized

b) Circularly polarized

c) Elliptically polarized

d) Unpolarized

38. Restriction of light into a single plane only is

a) Polarization

b) Diffraction

c) Interference

d) Refraction

39. `Transverse nature of light can be proved by

a) Interference

b) Diffraction

c) Polarization

d) None of these

40. Which of the following is/are types of polarization

a) plane polarized

b) Elliptical polarization

c) Circular polarization

d) All above are correct

41. Polarization can be produced by

a) Reflection

b) Refraction

c) Double refraction

d) All above are correct

42 E. L. Malus discovered polarization of light by

a) Reflection

b) Refraction

c) Double refraction

d) All above are correct

43. On bright sunny days glare caused by sunlight on roadway is effect of

a) Interference

b) Diffraction

c) Polarization

d) None of these

44. According to Malus the extent of polarization occurs depends on

a) Angle at which light incident on surface   b) The material

c) Both a and b are correct

d) Neither a nor b are correct

45 Electric field vector E of unpolarized light wave can be resolved into

a) *s*- components only

b) *p*- components only

c) Both *s* and *p* components

d) Neither *s* nor *p* components

46. In case of Completely unpolarized light the two components are of

a) Equal in magnitude

b) Not equal in magnitude

c) Zero magnitude

d) None of these

47. At polarizing angle, reflected beam contains

    a) Only *p*- components   b) only s- components

    c) Both *s* and *p* components   d) Neither *s* nor *p* components

48.   Polarizing angle is also called as

    a) Malus angle   b) Snell's angle

    c) Brewster's angle   d) Huygen's angle

49.   Perpendicular components of *E* vector are called ….

    a) *s*- components   b) *p*- components

    c) Both *s* and *p* components   d) Neither *s* nor *p* components

50.   Parallel components of *E* vector are called ….

    a) *s*- components   b) *p*- components

    c) Both *s* and *p* components   d) Neither *s* nor *p* components

51.   According to Brewster, polarizing angle depends upon

    a) Material   b) Refractive Index of medium

    c) Both *a* and *b*   c) Neither *a* nor *b*

52.   According to Brewster, tangent of Brewster angle is equal to

    a) Square of Refractive Index of medium

    b) Square root of Refractive Index of medium

    c) Cube of Refractive index of medium

    d) Refractive index of medium

53. $\mu = tan\theta_B$ Is known as ..

    a) Malus law   b) Brewster law

    c) Huygen law   d) Nicol law

54.   Light reflected from any angle other than Brewster angle is

    a) Partially Polarized   b) Completely polarized

    c) Totally polarized   d) Unpolarized

55.   Intensity of polarized light through polarizer is directly proportional to
    a) Square of cosine of angle between plane of polarization and transmission axis
    b) Square root of cosine of angle between plane of polarization and transmission axis
    c) Cosine of angle between plane of polarization and transmission axis
    d) Cube of cosine of angle between plane of polarization and transmission axis