QB365 Question Bank Software Study Materials

Optics 50 Important 1 Marks Questions With Answers (Book Back and Creative)

10th Standard

Science

Total Marks : 50

Multiple Choice Question

50 x 1 = 50

1) The refractive index of four substances A, B, C and D are 1.31, 1.43, 1.33, 2.4 respectively. The speed of light is maximum in

(a) A (b) B (c) C (d) D

2) Where should an object be placed so that a real and inverted image of same size is obtained by a convex lens

(a) f **(b) 2f** (c) infinity (d) between f and 2f

3) A small bulb is placed at the principal focus of a convex lens. When the bulb is switched on, the lens will produce

(a) a convergent beam of light (b) a divergent beam of light **(c) a parallel beam of light** (d) a coloured beam of light

4) Magnification of a convex lens is

(a) Positive (b) negative **(c) either positive or negative** (d) zero

5) A convex lens forms a real, diminished point sized image at focus. Then the position of the object is at

(a) focus **(b) infinity** (c) at 2f (d) between f and 2f

6) Power of a lens is –4D, then its focal length is

(a) 4m (b) –40m **(c) –0.25 m** (d) –2.5 m

7) In a myopic eye, the image of the object is formed

(a) behind the retina (b) on the retina **(c) in front of the retina** (d) on the blind spot

8) The eye defect 'presbyopia' can be corrected by

(a) convex lens (b) concave lens (c) convex mirror **(d) Bi focal lenses**

9) Which of the following lens would you prefer to use while reading small letters found in a dictionary?

(a) A convex lens of focal length 5 cm (b) A concave lens of focal length 5 cm (c) A convex lens of focal length 10 cm (d) A concave lens of focal length 10 cm

10) If V_B, V_G, V_R be the velocity of blue, green and red light respectively in a glass prism, then which of the following statement gives the correct relation?

(a) $V_B = V_G = V_R$ (b) $V_B > V_G > V_R$ **(c) $V_B < V_G < V_R$** (d) $V_B < V_G > V_R$

11) _____ determines speed of light in a medium.

(a) thickness (b) wavelength (c) refractive index (d) both b and c

12) The splitting up of white light into colours is called

(a) reflection (b) refraction (c) scattering **(d) dispersion**

13) On a rainy day, small oily films on water show brilliant colours. This is due to

(a) scattering (b) dispersion (c) reflection **(d) refraction**

14) A star appears twinkling in the sky because of _____ by the atmosphere.

(a) scattering of light (b) reflection of light **(c) refraction of light** (d) both a and b

15) The scattering of light by pure light is _____ scattering.

(a) Rayleigh's (b) Mie **(c) Raman** (d) Tyndall

16) The scattered light in Raman scattering contains _____ lines

(a) Rayleigh's (b) stokes (c) Antistokes **(d) all above**

17) The distance below the lens and focus is called

(a) pole (b) radius of curvature **(c) focal length** (d) principal axis

18) Magnification produced by a lens is

(a) $\frac{height\ of\ the\ image}{height\ of\ the\ object}$ (b) $\frac{Distance\ of\ the\ image}{Distance\ of\ the\ object}$ (c) Both a & b (d) $\frac{1}{v} - \frac{1}{f} = \frac{1}{u}$

19) The reciprocal of the focal length of the lens is

(a) Magnification **(b) Power** (c) Principal focus (d) None

20) The phenomena of light responsible for the working of the human eye is

(a) Reflection **(b) Refraction** (c) Power (d) Accommodation

21) The part of the eye refracts light entering the eye from external objects?

(a) Lens **(b) Cornea** (c) Iris (d) Pupil

22) When a person is myopic, he / she can clearly see

(a) Both nearby & far off **(b) Only nearby objects** (c) Only far off objects (d) Neither nearby nor far off objects

23) Presbyopia is corrected by

(a) Concave **(b) Focal** (c) Convex (d) Cylindrical

24) To heavenly objects like stars _____ is used

(a) Simple microscope **(b) Compound microscope** (c) Terrestrial (d) Astronomical

25) To view the objects on the surface of the earth.

(a) Simple (b) Compound Microscope **(c) Terrestrial** (d) Astronomical

26) An inverted image of the object is formed in _____

(a) Simple microscope (b) Compound microscope **(c) Astronomical microscope** (d) Both b & c

27) The path of light is called_____

(a) ray of light (b) beam of light (c) wave of light (d) none

28) The speed of light in vacuum or air is_____

(a) C = 3 x 10^8 m/s (b) C = 3 x 10^8 m/s^2 (c) C = 2 x 10^8 m /s (d) C = 2 x 10^{10} m /s^2

29) Velocity of light C = _____

(a) γ/λ **(b)** $\gamma\lambda$ (c) $\gamma\lambda^4$ (d) $\gamma\lambda^2$

30) The velocity of light is_____in a rarer medium and _____in a lesser medium.

(a) less, more **(b) more, less** (c) both (d) none

31) Refractive index can be represented by _____

(a) γ (b) λ **(c)** μ (d) none

32) If one of the faces of a bi-convex lens is plane, it is known as a_____

(a) Plano-convex lens (b) Plano—concave lens (c) converging (d) diverging

33) If one of the faces of a bi-concave lens in plane, it is known as a _____.

(a) Plano-convex lens **(b) Plano—concave lens** (c) converging (d) diverging

34) Concave lenses are used as eye lens of _____ telescope.

(a) Hubble **(b) Galilean** (c) terrestrial (d) astronomical

35) The distances measured against the direction of incident light are taken as _____

(a) positive **(b) negative** (c) nagative or positive (d) none

36) If the magnification is greater than 1, then we get an_____ image.

(a) diminished **(b) enlarged** (c) enlarged or diminished (d) same size

37) All lens are made up of transparent materials. Any optically transparent material will have a _____

(a) velocity index **(b) Refractive index** (c) medium index (d) none

38) The lens maker formula is

(a) $\frac{1}{f} = (\mu - 1)\left[\frac{1}{R_2} - \frac{1}{R_1}\right]$ **(b)** $\frac{1}{f} = (\mu - 1)\left[\frac{1}{R_1} - \frac{1}{R_2}\right]$ (c) $\frac{1}{f} = (\mu + 1)\left[\frac{1}{R_2} - \frac{1}{R_1}\right]$ (d) $\frac{1}{f} = (\mu - 1)\left[\frac{1}{R_1} + \frac{1}{R_2}\right]$

39) _____is the centre part of the Iris.

(a) Cornea (b) Iris **(c) Pupil** (d) retina

40) Near point of eye is _____cm for normal human eye.

(a) 2.5 cm **(b) 25 cm** (c) 25.1 cm (d) 0.25 cm

41) The focal length of the required concave lens is f = _____.

(a) -x (b) +x (c) x^2 (d) $\frac{1}{x}$

42) The focal length of the required concave lens is f = _____.

(a) $\frac{xy}{x-y}$ (b) $\frac{xy}{x+y}$ (c) both ‘a’ and 'b' (d) none

43) The focal length of the required convex lens is f = _____.

(a) $\frac{dD}{d-D}$ (b) $\frac{dD}{d+D}$ (c) $\frac{d-D}{dD}$ (d) $\frac{d+D}{dD}$

44) Which one is called as old age hypermetropia?

(a) Presbyopia (b) Myopia (c) hypermetropia (d) hypermyopia

45) Astigmatism can be corrected by using _____ lenses.

(a) cylindrical (b) square (c) spherical (d) rectangular

46) _____ are used by watch repairers and jewellers.

(a) Simple microscope (b) Compound microscope (c) biconvex lens (d) concave lens

47) _____ works based on the principle of vernier, its least count is 0.01 mm.

(a) Simple (b) Compound **(c) Travelling microscope** (d) none

48) Light travels fastest through which of the following material.

(a) Water **(b) air** (c) diamond (d) glass

49) The angle of refraction is smallest in _____ colour.

(a) green (b) blue **(c) red** (d) violet

50) _____ lens is thicker at the centre than at the edge.

(a) Concave **(b) Convex** (c) Spherical (d) Bifocal