Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021

Course Name -Geometrical Optics
Course Code - BOPTO205

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Answer all the questions. Each question carry one mark.

9. 1. Focal length of plane mirror is

Mark only one oval.

- [ ] at infinity
- [ ] zero
- [ ] negative
- [ ] none of these

10. 2. Image formed by plane mirror is

Mark only one oval.

- real and erect
- real and inverted
- virtual and erect
- virtual and inverted

11. 3. A concave mirror gives real, inverted and same size image if the object is placed

Mark only one oval.

- at F
- at infinity
- at C
- beyond C

12. 4. In optics an object which has higher refractive index is called

Mark only one oval.

- optically rarer
- optical denser
- optical density
- refractive index

13. 5. The optical phenomena, twinkling of stars, is due to

Mark only one oval.

- atmospheric reflection
- total reflection
- atmospheric refraction
- total refraction

14. 6. The unit of power of lens is

Mark only one oval.

- metre
- centimeter
- diopter
- m^-1

15. 7. Which one of the following materials cannot he used to make a lens?

Mark only one oval.

- Glass
- Plastic
- Clay
- water

16. 8. The Image formed by a concave mirror is observed to be virtual, erect and larger than the object. Where should be the position of the object?

Mark only one oval.

- between the principal focus and the centre of curvature
- at the centre of curvature
- beyond the centre of curvature
- between the pole of the mirror and its principal focus

17. 9. A spherical mirror and a thin spherical lens have each a focal length of 15 cm. The mirror and the lens are likely to be

Mark only one oval.

- both concave
- both convex
- the mirror is concave and the lens in convex
- the mirror is convex but the lens is concave.

18. 10. No matter how far stand from a mirror, your image appears erect. The mirror is likely to be

Mark only one oval.

- plane
- concave
- convex
- either plane or convex

19. 11. Which of the following lenses would you prefer to use while reading small letters found in a dictionary?

Mark only one oval.

- a convex lens of focal length 50 cm.
- a concave lens of focal length 50 cm.
- a convex- lens of focal length 5 cm.
- a concave lens of focal length 5 cm.

20. 12. The laws of reflection hold good

Mark only one oval.

- plane mirror
- concave mirror
- conves mirror
- all of these

21. 13. As you move an object away from a convex mirror, its image becomes_____ and moves towards_____

Mark only one oval.

- smaller, infinity
- smaller, focus
- enlarged, infinity
- enlarged, focus

22. 14. For a spherical mirror, _____ is true.

Mark only one oval.

- f = 2R
- R = 2f
- fR = 2
- fR = ½

23. 15. For a plane mirror, magnification (m) is

Mark only one oval.

- 0
- 1
- ±1
- less than equal to zero

24. 16. The image formed by a concave lens is

Mark only one oval.

- always real and enlarged
- always real and diminished
- always virtual and enlarged
- always virtual and diminished

25. 17. No matter how far is the object from the mirror, the image of the object appears erect. The mirror is

Mark only one oval.

- concave
- convex
- either concave or convex
- none of these

26. 18. Absolute refractive index of any medium is always

Mark only one oval.

- 1
- > 1
- < 1
- 0

27. 19. A short pulse of white light is incident from air to a glass slab at normal incidence. After travelling through the slab, the first colour to emerge is

Mark only one oval.

- blue
- green
- violet
- red

28. 20. A converging lens is used to form an image on a screen. When the upper half of the lens is covered by an opaque screen

Mark only one oval.

- half of the image will disappear
- image will not form on the screen
- intensity of image will increase
- intensity of image will decrease

29. 21. The power of concave lens

Mark only one oval.

- positive
- negative
- both
- none of the above

30. 22. To increase the magnifying power of a telescope, the focal length of

Mark only one oval.

- objective lens should be increased
- objective lens should be decreased
- eye-piece lens should be increased
- eye-piece lens should be decreased

31. 23. A rear-view mirror for driving is

Mark only one oval.

- plain
- concave
- convex
- inverted

32. 24. Which of the following is used to split white light into different colours?

Mark only one oval.

- glass slab
- convex lens
- concave lens
- prism

33. 25. Hypermetropia or longsight can be corrected by using

Mark only one oval.

- bifocal lenses
- cylindrical lenses
- concave lenses
- convex lenses

34. 26. In mirrors, the back surface is coated with a thin layer of

Mark only one oval.

- mercury
- silver
- red oxide
- silver nitrate

35. 27. Which colour of light shows maximum deviation when passed through a prism?

Mark only one oval.

- red
- green
- violet
- yellow

36. 28. Which of the following is not an electromagnetic wave?

Mark only one oval.

- x-rays
- cosmic rays
- Microwave
- all of these

37. 29. A candle is placed in front of a concave mirror. The image produced by the mirror is

Mark only one oval.

- real, inverted and magnified
- real, inverted and demagnified
- virtual, upright and magnified
- virtual, upright and demagnified

38. 30. An object is placed in front of a converging lens at a distance greater than 2F. The image produced by the lens is

Mark only one oval.

- real, inverted and demagnified
- real, inverted and magnified
- virtual, upright and magnified
- virtual, upright and demagnified

39. 31. To increase the magnifying power of a telescope, the focal length of

Mark only one oval.

- objective lens should be increased
- objective lens should be decreased
- eye-piece lens should be increased
- eye-piece lens should be decreased

40. 32. Why the colour of the ocean appears blue?

Mark only one oval.

- ◯ because the sunlight falling on it is reflected
- ◯ because the sunlight falling on it is refracted
- ◯ because the sunlight falling on it is absorbed
- ◯ because the sunlight falling on it is scattered

41. 33. In projectors which lenses are used?

Mark only one oval.

- ◯ convex lens
- ◯ concave lens
- ◯ bipolar lens
- ◯ both (a) and (b)

42. 34. Due to which phenomena the stick if immersed in water appears to be bent?

Mark only one oval.

- ◯ reflection
- ◯ dispersion
- ◯ refraction
- ◯ scattering

43. 35. Suppose you are standing 1 m in front of a plane mirror. What should be the minimum vertical size of the mirror so that you can see your full image in it?

Mark only one oval.

- 0.50 m
- 2 m
- half of your height
- twice your height

44. 36. A spherical air bubble is embedded in a piece of glass. For a ray of light passing through the bubble, it behaves like

Mark only one oval.

- converging lens
- diverging lens
- plano-converging lens
- plano-diverging lens

45. 37. What is the power of the lens, if the far point of a short-sighted eye is 200 cm?

Mark only one oval.

- -0.5 D
- 2 D
- 1 D
- -1.5 D

46. 38. The human eye is like a camera and hence it contains a system of lens. The eye lens forms

Mark only one oval.

- a straight or upright, real image of the object on the retina
- an inverted, virtual image of the object on the retina
- an inverted, real image of the object on the retina
- a straight or upright, real image of the object on the iris

47. 39. What kind of image is created by a concave lens?

Mark only one oval.

- upright and smaller
- inverted and smaller
- inverted and larger
- upright and smaller

48. 40. How far must an object be from a concave mirror if the image formed is to be inverted?

Mark only one oval.

- less than its focal length
- exactly at its focal length
- more than its focal length
- none of the above

49. 41. An object is kept 5 cm in front of a concave mirror of focal length of 15 cm. What will be the nature of the image?

Mark only one oval.

- virtual, not magnified
- virtual, magnified
- real, magnified
- real, not magnified

50. 42. The head mirror used by E.N.T doctors is

Mark only one oval.

- concave
- convex
- plane
- plano-convex

51. 43. An object is placed at a distance of 12 cm from a convex lens on its principal axis and a virtual image of certain size is formed. If the object is moved further 8 cm away from the lens, a real image of the same size as that of the virtual image is formed . Which one of the following is the focal length of the lens?

Mark only one oval.

- 15 cm
- 16 cm
- 18 cm
- 20 cm

52. 44. The visible light has a wavelength range from about 380 nm (violet) to 780 nm (red). If an excited object emits light with wavelength of 15 nm, to which one of the following ranges does it belong?

Mark only one oval.

- X-ray
- gamma ray
- infrared
- ultraviolet

53. 45. In vacuum, the speed of light

Mark only one oval.

- depends on its wavelength
- depends on its frequency
- depends on its intensity
- neither depends on its wavelength, frequency nor intensity

54. 46. Propagation of light quanta may be described by

Mark only one oval.

- photons
- protons
- neutrons
- electrons

55. 47. A candle is placed in front of a concave mirror in between focus and centre of curvature. The image produced by the mirror is

Mark only one oval.

- real, inverted and magnified
- real, inverted and demagnified
- virtual, upright and magnified
- real, upright and magnified

56. 48. By which optical phenomenon does the splitting of white light into seven constituent colours occur?

Mark only one oval.

- refraction
- reflection
- dispersion
- interference

57. 49. In human eye, the image of an object is formed at

Mark only one oval.

- iris
- pupil
- retina
- cornea

58. 50. The focal length of the eye lens changes due to the action of

Mark only one oval.

- pupil
- retina
- ciliary muscles
- cornea

59. 51. For which of the following cases will the total internal reflection of light be possible?

Mark only one oval.

- angle of incidence is less than the critical angle
- angle of incidence is equal to the critical angle
- angle of incidence is greater than the critical angle
- angle of incidence is equal to the angle of refraction

60. 52. To an astronaut in space, the sky will appear to be

Mark only one oval.

- violet
- blue
- red
- black

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

Mark only one oval.

- scattering
- interference
- polarisation
- dispersion

62. 54. Rainbow formation is due to

Mark only one oval.

- absorption of sunlight by water droplets
- diffusion of sunlight through water droplets
- ionisation of water droplets
- refraction and reflection of sunlight by water droplets

63. 55. Golden view of sea shell is due to

Mark only one oval.

- diffraction
- dispersion
- polarisation
- reflection

64. 56. Optical fibres are based on the phenomenon of

Mark only one oval.

- interference
- dispersion
- diffraction
- total internal reflection

65. 57. Lens in made up of

Mark only one oval.

- pyrex glass
- flint glass
- ordinary glass
- cobalt glass

66. 58. Evening Sun is not as hot as the midday sun. What is the reason?

Mark only one oval.

- in the evening, radiation travel slowly
- in the evening, the temperature of the sun decreases
- ozone in atmosphere absorbs more light in the evening
- in the evening, radiations travel larger distance through atmosphere

67. 59. Which of the special technique is used in ships to calculate the depth of ocean beds?

Mark only one oval.

- laser
- sonar
- sonic boom
- reverberation

68. 60. A periscope works on the principal of

Mark only one oval.

- refraction
- total internal reflection
- diffraction
- reflection