

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

Course Name - –Geometrical Optics

Course Code - BOPT0205

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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. Which one of the following materials cannot be used to make a lens? \*

*Mark only one oval.*

- Glass
- Plastic
- Clay
- water

15. 7. 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

16. 8. 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 is convex
- the mirror is convex but the lens is concave.

17. 9. 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

18. 10. 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.

19. 11. The laws of reflection hold good \*

*Mark only one oval.*

- plane mirror
- concave mirror
- convex mirror
- all of these

20. 12. 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

21. 13. For a spherical mirror, \_\_\_\_\_ is true. \*

*Mark only one oval.*

- $f = 2R$
- $R = 2f$
- $fR = 2$
- $fR = \frac{1}{2}$



22. 14. For a plane mirror, magnification ( $m$ ) is \*

*Mark only one oval.*

- 0
- 1
- $\pm 1$
- less than equal to zero

23. 15. 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

24. 16. 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

25. 17. Absolute refractive index of any medium is always \*

*Mark only one oval.*

1

> 1

< 1

0

26. 18. 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

27. 19. 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

28. 20.The power of concave lens \*

*Mark only one oval.*

- positive
- negative
- both
- none of the above

29. 21. 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

30. 22. A rear-view mirror for driving is \*

*Mark only one oval.*

- plain
- concave
- convex
- inverted

31. 23. Which of the following is used to split white light into different colours? \*

*Mark only one oval.*

- glass slab
- convex lens
- concave lens
- prism

32. 24. Hypermetropia or longsight can be corrected by using \*

*Mark only one oval.*

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

33. 25. In mirrors, the back surface is coated with a thin layer of \*

*Mark only one oval.*

- mercury
- silver
- red oxide
- silver nitrate

34. 26. Which colour of light shows maximum deviation when passed through a prism?

\*

*Mark only one oval.*

- red
- green
- violet
- yellow

35. 27. Which of the following is not an electromagnetic wave? \*

*Mark only one oval.*

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

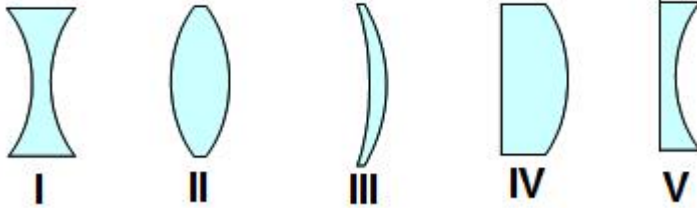
36. 28. A candle is placed in front of a concave mirror. The image produced by the mirror is \*

*Mark only one oval.*

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

37. 29. \*

Which of the lens or lenses is the converging lens?



Mark only one oval.

- I and V
- II, III and IV
- II and III
- III and IV

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. 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

48. 40. 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

49. 41. The head mirror used by E.N.T doctors is \*

*Mark only one oval.*

- concave  
 convex  
 plane  
 plano-convex

50. 42. 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

51. 43. 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

52. 44. 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

53. 45. Consider the following parts of spectra: 1 visible 2 infrared 3 ultraviolet 4 microwave Which one of the following is the correct sequence in which their wavelengths increase? \*

*Mark only one oval.*

- 4 - 3 - 1 - 2
- 4 - 1 - 2 - 3
- 3 - 2 - 1 - 4
- 3 - 1 - 2 - 4

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 is 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

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