**Tarun Arora**  **R.L. Institute M :9416974837**

**Max Time : 1 hr** **Light Reflection & Refraction Max Marks : 30**

**CODE : A**

1. The sideway reversal of the image by plane mirror is called ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) lateral inversion | b) parallax | c) optical illusion | d) none of these |

1. A real image is formed when two or more

|  |  |
| --- | --- |
| a) reflected rays meet | b) refracted rays meet |
| c) reflected rays appear to meet | d) both (a) & (b) |

1. The image of our face in a plane mirror is

|  |  |  |  |
| --- | --- | --- | --- |
| a) real | b) magnified | c) diminished | d) none of these |

1. What is the nature of the image formed by plane mirror

|  |  |
| --- | --- |
| a) Virtual and erect | b) The same size as the object |
| c) Laterally inverted | d) All of the above |

1. The refractive indices of four materials A , B , C and D are 1.33 , 1.43 , 1.71 and 1.52 respectively. When the light rays pass from air into these materials, they reflected the maximum in

|  |  |  |  |
| --- | --- | --- | --- |
| a) Material A | b) Material B | c) Material C | d) Material D |

1. Power of a convex lens of focal length 50 cm is

|  |  |  |  |
| --- | --- | --- | --- |
| a) – 2 D | b) – 0.5 D | c) + 2 D | d) + 0.5 D |

1. Two thin lenses of power, + 3.5 D and – 2.5 D are placed in contact, then the power and focal length of lens combination is

|  |  |  |  |
| --- | --- | --- | --- |
| a) + 1 D , + 100 cm | b) + 2 D , + 150 cm | c) + 1 D , + 200 cm | d) + 2 D , + 100 cm |

1. Magnification produced by a rear view mirror fitted in vehicles

a) is less than one

b) is more than one

c) is equal to one

d) can be more or less than one depending upon the position of the object in front of it

1. Child is standing in front of a magic mirror. She finds the image of her head bigger, the middle portion of her body of the same size and that of the legs smaller. The following is the order of combinations for the magic mirror from the top.

|  |  |
| --- | --- |
| a) Plane , convex and concave | b) Convex , concave and plane |
| c) Concave , plane and convex | d) Convex , plane and concave |

1. In the case of refraction of light from a rectangular glass slab, if be the angle of incidence and e be the angle of emergence, then

|  |  |  |  |
| --- | --- | --- | --- |
| a) e = | b) e < | c) e > | d) e |

1. A ray of light travelling in air is incident on the plane of a transparent medium. The angle of incident is 45˚ and that of refraction is 30˚. Find the refractive index of the medium.

|  |  |  |  |
| --- | --- | --- | --- |
| a) 2 | b) | c) 1 | d) |

1. An object is placed at a distance of 10 cm from a convex mirror of focal length 15 cm. Find the image distance

|  |  |  |  |
| --- | --- | --- | --- |
| a) – 6 cm | b) 1/6 cm | c) 6 cm | d) – 1/6 cm |

1. Find the focal length of a convex mirror whose radius of curvature is 32 cm.

|  |  |  |  |
| --- | --- | --- | --- |
| a) – 32 cm | b) 16 cm | c) 64 cm | d) – 1/6 cm |

1. Which of the following forms a virtual and erect image for all positions of the object ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Concave lens | b) Concave mirror | c) Convex mirror | d) Both (a) and (c) |

1. What can be the largest distance of an image of an real object from a convex mirror of radius of curvature is 20 cm.

|  |  |  |  |
| --- | --- | --- | --- |
| a) 10 cm | b) 20 cm | c) infinity | d) zero |

1. An object is placed at centre of curvature of a concave mirror. The distance between its image and the pole is

|  |  |  |  |
| --- | --- | --- | --- |
| a) equal to f | b) between f and 2f | c) equal to 2f | d) greater than 2f |

1. The magnification m of an image formed by a spherical mirror is negative. It means, the image is

|  |  |  |  |
| --- | --- | --- | --- |
| a) smaller than the object | b) larger than the object | c) erect | d) inverted |

1. Which of the following statements is true ?

a) A convex lens has 4 dioptre power having a focal length of 0.25 m.

b) A convex lens has - 4 dioptre power having a focal length of 0.25 m.

c) A concave lens has 4 dioptre power having a focal length of 0.25 m.

d) A concave lens has - 4 dioptre power having a focal length of 0.25 m.

1. Choose the wrong statement from the following

a) A convex mirror forms virtual images for all positions of the object

b) A concave mirror forms real images for all positions of the object

c) A concave mirror, if suitably placed in front of an object, can form, can form a unity

d) The magnification produced by a convex mirror is always less than unity

1. Refractive index of diamond with respect to glass is 1.6 and the absolute refractive index of the glass is 1.5, then the absolute refractive index of the diamond is

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1.4 | b) 2.4 | c) 3.4 | d) 4.4 |

1. A tree is 18.0 m away and 2.0 m high from a concave lens. How high is the image formed by the given lens of focal length 6 m ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1.0 m | b) 1.5 m | c) 0.75 m | d) 0.50 m |

1. A convex lens is dipped in a liquid whose refractive index is equal to refractive index of the lens. Then its focal length will

|  |  |
| --- | --- |
| a) become zero | b) become infinite |
| c) become small, but non-zero | d) remain unchanged |

**CASE STUDY TYPE**

Read the passage given below and answer the following questions from 23 to 26 .

The relation between distance of an object from mirror from the mirror (u), distance of image from mirror (v) and the focal length (f) is called mirror formula. Hence, + =

This formula is valid in all situations for all spherical mirrors for all positions of the object. The size of image formed by a spherical mirror depends on the position of the object from the mirror. The image formed by the spherical mirror can be bigger than the object, equal to the object or smaller than the object. The size of the image relative to the object is given by the linear magnification (m). Thus the magnification is given by the ratio of height of image to the height of object. If magnification is negative, image is real and if it is positive, image is virtual

1. What is the position of an image when an object is placed at a distance of 20 cm from a concave mirror of focal length 20 cm ?

|  |  |  |  |
| --- | --- | --- | --- |
| a) 5 cm | b) 20 cm | c) 10 cm | d) infinity |

1. If the magnification of an image is –2 , the characteristics of image will be

|  |  |
| --- | --- |
| a) real and inverted | b) virtual and enlarged |
| c) virtual and inverted | d) real and small |

1. The mirror formula holds for

|  |  |  |  |
| --- | --- | --- | --- |
| a) concave mirror | b) convex mirror | c) plane mirror | d) all of these |

1. A parallel beam of light is made to fall on a concave mirror. An image is formed at a distance of 7.5 from the mirror. The focal length of the mirror is

|  |  |  |  |
| --- | --- | --- | --- |
| a) 15 cm | b) 7.5 cm | c) 3.75 cm | d) 10 cm |

**Assertion-Reason Based MCQs**

**DIRECTIONS :** In each of the following questions, a statement of Assertion (A) is followed by a statement of Reason (R) . Choose the correct answer out of the following choices :

1. Both assertion and reason are true, and reason is correct explanation of the assertion.
2. Both assertion and reason are true, but reason is not the correct explanation of the assertion.
3. Assertion is true, but reason is false.
4. Assertion is false, but reason is true.
5. **Assertion:** Light is able to reach Earth from the Sun.

**Reason:** Lights rays can travel in vaccum

1. **Assertion:** Property of converging lens does not remain same in all media.

**Reason:** Property of lens whether the rays is diverging or converging is independent of the surrounding medium.

1. **Assertion:** Although the surface of a goggles, lenses are curved, it does not have any power

**Reason:** In case of goggles both the curved surface have equal radii of curvature

1. **Assertion:** A convex lens is made up of two different materials. A point object is placed on the principle axis. The number of images formed by the lens will be two

**Reason:** The image formed by convex lens is always virtual.

**Tarun Arora**  **R.L. Institute M :9416974837**

**Max Time : 1 hr** **Light Reflection & Refraction Max Marks : 30**

**CODE : B**

1. What can be the largest distance of an image of an real object from a convex mirror of radius of curvature is 20 cm.

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**Answers**

**Light Reflection & Refraction [CLASS = 10th ]**

|  |  |
| --- | --- |
| **CODE : A** | **CODE : B** |
| 1. a | 1. a |
| 2. d | 2. b |
| 3. d | 3. a |
| 4. d | 4. c |
| 5. c | 5. a |
| 6. c | 6. b |
| 7. a | 7. b |
| 8. a | 8. a |
| 9. c | 9. d |
| 10. a | 10. c |
| 11. d | 11. c |
| 12. c | 12. d |
| 13. b | 13. d |
| 14. d | 14. d |
| 15. a | 15. a |
| 16. c | 16. c |
| 17. d | 17. a |
| 18. a | 18. c |
| 19. b | 19. d |
| 20. b | 20. b |
| 21. d | 21. d |
| 22. b | 22. d |
| 23. d | 23. d |
| 24. a | 24. b |
| 25. d | 25. a |
| 26. b | 26. d |
| 27. a | 27. a |
| 28. c | 28. c |
| 29. a | 29. c |
| 30. c | 30. a |