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PHYSICS

BOOKS - SURA PUBLICATION

Light

Exercise

1. The centre of a sphere of which the reflecting surface of a spherical mirror is a part is called

A. centre of curvature

B. pole

C. radius of curvature

D. aperture

Answer:

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2. The spherical mirror used as a rear view mirror in the vehicle is

A. conver mirror

B. concave mirror

C. plane mirror

D. radius curvature

Answer:

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3. The imaginary line passing through the center of curvature and pole of a spherical mirror is called

A. centre of curvature

B. pole

C. principal axis

D. radius curvature

Answer:

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4. The distance from the plot to the focus is called

A. pole length

B. focal length

C. principal axis

D. None opf above

Answer:

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5. Focal length is equal to half of the

A. centre of curvature

B. axis

C. radius of curvature

D. None opf above

Answer:

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6. If the focal length of a spherical mirror is $10cm$, what is the value of its radius of curvature?

A. $10cm$

B. $5cm$

C. $20cm$

D. $15cm$

Answer:

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7. If the image and object distance is same, then the object is place at

A. infimity

B. at F

C. between f and p

D. at C

Answer:

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8. The refractive index of water is

A. 1.0

B. 1.33

C. 1.44

D. 1.52

Answer:

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9. The spherical mirror used in na beauty parlour as make-up mirror is _____.

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10. Geometric center of the spherical mirror is _____ .

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11. Name of the images formed by a convex mirror is _____.

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12. The mirror used by the ophthamologist to examine the eye is _____.

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13. It the angle of incidence is 45°, then the angle of reflection is ____.

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14. Two mirror are parallel to each other, then the number of images formed is _____.

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15. Match the following

1.	Convex mirror	(a)	Radio telescopes
2.	Parobolic mirror	(b)	wall
3.	Regular reflection	(c)	rear – view mirror
4.	Irregular reflection	(d)	Plane mirror

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16. Match the following

1.	Convex mirror	(a)	Radio telescopes
2.	Parobolic mirror	(b)	wall
3.	Regular reflection	(c)	rear – view mirror
4.	Irregular reflection	(d)	Plane mirror

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17. If the focal length of a spherical mirror is $12cm$, what is the value of its radius of curvature?

A. $10cm$

B. $5cm$

C. $6cm$

D. $24cm$

Answer:

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18. Which object use the reflection of light?

A. Kaleidoscope

B. plane mirror

C. Convex mirror

D. All of these

Answer:

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19. Which surface will not demonstrates the law of reflection?

A. Rough surfasce

B. Smooth surface

C. Shining surface

D. Opaque surface

Answer:

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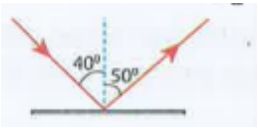
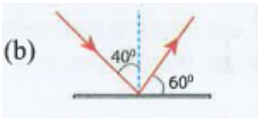
20. Which of the following demonstrates the law of reflection?

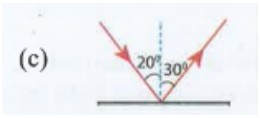
A.



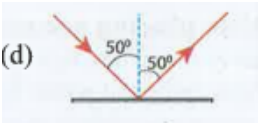
B.



C.



D.



Answer:

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21. The ENT doctor uses a _____.

A. plane mirrors

B. concave mirror

C. convex mirror

D. convex lens

Answer:

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22. In dispersion, the colour of light that will bend more is _____.

A. red

B. yellow

C. green

D. violet

Answer:

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23. Reflection by a looking mirror is called _____.

A. regular reflection

B. irregular reflection

C. regular and irregular reflection

D. none of these

Answer:

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24. The velocity of light in vacuum is $3 \times 10^8 ms^{-1}$ and in glass is $2 \times 10^8 ms^{-1}$ reflective index of glass is _____.

A. 2

B. 1.5

C. 1.8

D. 1.33

Answer:

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25. Incidant angle of a ray of light is 30°. The angle between the incident ray and the reflected ray is _____.

A. 50°

B. 90°

C. 60°

D. 15°

Answer:

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26. In the head light of motor vehicles,_____ mirrors are used as reflectors.

A. plane mirrors

B. concave lenses

C. Convex mirrors

D. concave mirrors

Answer:

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27. The phenomenon of light passing through the object is called _____.

A. reflection

B. refraction

C. dispersion

D. total intemal reflection

Answer:

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28. The bouncing back of light from a surface is called _____.

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29. _____ mirrors make things look larger when object are placed close to it.

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30. Convex mirror always forms _____ and _____ image.

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31. The incident ray,____ ray and the ____ at the point of incidence. all on the same plane.

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32. A ray of light incident along nirmole to the mirror to the mirror ___ its path.

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33. When light passes from pone medium to another the ray gets bent. This property light is called_____.

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34. Spherical mirrors are one from of _____ mirrors.

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35. _____ mirrors magnify the cbject placed close to them.

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36. The image formed by convex morrors is _____ then the object

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37. _____ mirrors from the perfect image of an object.

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38. The _____ of a mirror determines the type of image it forms.

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39. The _____ is an optical device with a polished surface that reflects the light ralling on ot.

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40. Match the following

i	Real image	(a)	Distance between pole and centre of curvature.
ii	Virtual image	(b)	Centre of the sphere of which the mirror is a part.
iii	Focus	(c)	Line passing through the pole and focus.
iv	Principal axis	(d)	Erect
v	Centre of curvature	(e)	Inverted

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41. Match the following

i	The ray that enters the transparent medium	(a)	Violet
ii	The ray that comes out from a transparent medium into air	(b)	0^{o}
iii	Speed of light in vacuum	(c)	Emergent ray
iv	The angle of incidence for normal incidence	(d)	Incident ray
v	The colour that deviates the most	(e)	3×10^{8} m/s

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42. Match the following

i	Mirror	(a)	Used by dentists to see enlarged image of teeth.
ii	Virtual image	(b)	Can be taken on a screen.
iii	Real image	(c)	Cannot be taken on a screen.
iv	Convex mirror	(d)	An optical device which produces reflection.
v	Concave mirror	(e)	Can form image of objects speed over a larger area

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43. Cross word puzzle : Across ,Mirror which converges a parallel beam of light passing through it.

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44. The imaginary line passing through the center of curvature and pole of a spherical mirror is called

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45. Geometric center of the spherical mirror is _____ .

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46. Cross word puzzle : Across , Mirror which diverges a parallel beam of light passing through it.

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47. Cross word puzzle : Across ,The formation of rainbow is an example of .

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48. Cross word puzzle : Across , Centre of the sphere from which the mirror is made.

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49. The _____ is an optical device with a polished surface that reflects the light ralling on ot.

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50. Cross word puzzle : Across ,Image which can be formed on a screen.

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51. Cross word puzzle : Across ,Image which cannot be formed on a screen.

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52. Cross word puzzle : Across ,The bending of a light ray when it passes from one medium to another medium of different density.

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53. The refractive index of water is

A. 1.0

B. 1.33

C. 1.44

D. 1.52

Answer:

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54. In the hand lights of motor vehicles,_____mirrors are used as reflectors.

A. plane mirrors

B. concave lenses

C. colourless light

D. black light

Answer:

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55. If we mix lights of the colours of rainbow,we will get____.

A. pink light

B. brown light

C. colourless light

D. black light

Answer:

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56. Geometric center of the spherical mirror is _____ .

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57. _____ mirrors magnify the object placed close to them.

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58. ____ is a from of energy and it travels in straight line.

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59. Match the following

Convex mirror	(a)	Radio telescopes
Parobolic mirror	(b)	wall
Regular reflection	(c)	rear – view mirror
Irregular reflection	(d)	Plane mirror

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60. Light is a from of energy and it travels in a straight line.

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61. Geometric center of the spherical mirror is _____ .

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62. Rrfractive index is a ratio of two similar quantities and so,it has no unit.

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63. Reflection from a rough surface is called diffused reflection.

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64. Define focal length

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65. Light travels fastest in vacuum.Why?

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66. If two plane mirrors are inclined to each other at an angle of 45°, find the mumber of images formed.

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67. State the Snell's law of refraction.

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68. Why do we need a shiny surface for reflection?

Watch Video Solution

69. What is dispersion? Explain in detail.

Watch Video Solution

70. Explain the uses of periscope.

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Example

1. What is called a spherical mirror?

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2. Define focal length

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3. The radius of curvature of a spherical mirror is $25cm$ Find its focal length.

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4. Give two applicatiuon of a concave and convex mirror.

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5. State the laws of reflection.

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6. If two plane mirrors are inclined to each other at an angle of 45°, find the mumber of images formed.

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7. Define refractive index of a medium.

Watch Video Solution

8. State the Snell's law of refraction.

Watch Video Solution

9. Explain the images formed by a concave mirror for different position of the object.

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10. What is reflection? Write short notes on reguler and irregular reflection?

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11. Explain the working of a periscope.

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12. What is dispersion? Explain in detail.

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13. Speed of light in air is $3 \times 10^8 ms^{-1}$ and the refractive index of a medium is 1.5. Find the speed of light of in the medium.

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14. Speed of light in air is $3 \times 10^8 ms^{-1}$ and light in the medium is `3xx10^8 ms^-1.Find the refractive index of the medium with respect to air.

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15. We can see things around us only when the light reflected by them reaches our eyes.

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16. Light is a from of energy and it travels in a straight line.

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17. The periscope is an optical device with a polished surface that reflects the light falling on it.

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18. Curved mirrors have surface that are spherical, cylindrical,parabolic and elliposid.

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19. Curved mirrors from the perfact image of an object.

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20. Curved mirrors produce images that are eigher enlarged or diminished.

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21. A thin layer of molten aluminium or silver is used for coating plates that will then become mirrors.

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22. The most common example of a convex mirror is the make-up mirror.

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23. Assertion and Reason. Mark the correct choice as:Assertion:A ray incident along normal to the mirror retraces its path Reason: In reflection, angle of incidence is always equal to angle of reflection.

A. If both assertion and reason are true and the true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true, but the reason is not the correct

explanation of the assertion.

C. If the assertion is true, but the reason is false.

D. If the assertion is false, but the reason is true.

Answer:

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24. Assertion and Reason. Mark the correct choice as:Assertion: Convex mirror are used as rear view mirror in vehicles for observing traffic at our back.Reason: A convex mirror has a much larger field of view.

A. If both assertion and reason are true and the true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true, but the reason is not the correct

explanation of the assertion.

C. If the assertion is true, but the reason is false.

D. If the assertion is false, but the reason is true.

Answer:

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25. Assertion and Reason. Mark the correct choice as:Assertion: The mirror used in serch lights are perabolic and not concave spherical. Reason: In concave spherical mirror the image the image formed is always virtual.

A. If both assertion and reason are true and the true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true, but the reason is not the correct

explanation of the assertion.

C. If the assertion is true, but the reason is false.

D. If the assertion is false, but the reason is true.

Answer:

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26. Assertion and Reason. Mark the correct choice as:Assertion:We can see the rainbow in the sky when the rain starts falling after a spell of bright sunlight. Reason: The rainbow is formed due to disprsion of light.

A. If both assertion and reason are true and the true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true, but the reason is not the correct

explanation of the assertion.

C. If the assertion is true, but the reason is false.

D. If the assertion is false, but the reason is true.

Answer:

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27. How does the light trevel?

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28. What is reflection of light?

Watch Video Solution

29. What is mirror

Watch Video Solution

30. What type of image is formed by a concave mirror?

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31. What is rainbow?

Watch Video Solution

32. Name the trianguler piece of glass that splits white light into different colours.

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33. What is the composition of sunlight?

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34. When a ray of light travels from one medium to another, it bends. This phenomenon is called _____.

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35. Name the two types of spherical mirrors.

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36. The angle between incident ray and reflected ray is 60°. What is the value of angle of oncidence?

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37. Light travels fastest in vacuum.Why?

Watch Video Solution

38. Write the difference between real and virtual image.

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39. Write the uses of concave lens.

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40. A convex rear view mirrors is preferred over a plane mirror in a car. Why?

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41. What type of image is formed by a concave mirror?

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42. Why do we need a shiny surface for reflection?

Watch Video Solution

43. The radius of curvature of a spherical mirror is $18cm$ What is the foral length of this mirror?

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44. What happens to light when it gets dispersed? Give an example.

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45. If two mirrors are placed at an inclination of 30° then how many images can be seen?

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46. What is the speed of light in diamond if its refractive index is 2.41?

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47. A light ray moves from glass $\left(V_glass = 2.0 \times 10^m s^{-1}\right)$ to diamond $\left(V_\diamond = 1.25 \times 10^8 ms^{-1}\right)$. What is the refractive index of diamond with respect t6 glass?

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48. Find the refractive index of wather with respect to glass if the refractive index of water is $\frac{4}{3}$ and the refractive index of glass is $\frac{3}{2}$.

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49. The speed of light in air is $3 \times 10^8 ms^{-1}$ and that in wather is $2.25 \times 10^8 ms^{-1}$ Find the absolute refractive index of water.

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50. Differentiate between reguler and irregular reflection.

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51. Explain the construction and working od kaleidoscope.

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52. Explain the construction and working of periscope with a labelled diagram.

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53. Explain the uses of periscope.

Watch Video Solution

54. Explain the images formed by a concave mirror for different position of the object.

Watch Video Solution

55. Explain some phenomene which occur due to refraction of light in our daily life.

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56. Draw the following: Concave mirror

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57. Draw the following: Convex mirror

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58. Draw the ray diagram and write the characteristics of the images formed when an object is placed. At infinity in front of a concave mirror.

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59. Draw the ray diagram and write the characteristics of the images formed when an object is placed. At infinity in front of a convex mirror.

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60. Drow a neat labelled diagram of a periscope.

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61. Draw a ray diagram to show a light ray travels from denser medium (glass) to raree mediym (air)

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62. Drow a ray diagram to show a light ray travels from rater medium (air) to denser medium (water)

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63. Imagine that parallel rays are incident on an irregular surface.Are the rays reflected from this surface parallel to each other?

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64. A safety vest helps to keep the workers who are working by the roadside safe. This especially so during the nights. Why?

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65. What is the difference between virtual images of an object formed by a concavemirror and a convex mirror?

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66. What is a virtual image? Give one situation where a virtual images is formed.

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67. If all object around us were to reflect light in a reguler way,what problem might we face?

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68. Car rear view mitrrors carry a warning message that" objects in the rear view mirror are closer than they appear". Why do you think this is so?

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