



PHYSICS

BOOKS - X BOARDS

QUESTION PAPER 2022 TERM1

Section A

1. In which of the following is a concave mirror used ?

A. A solar cooker

B. A rear view mirror in vehicles

C. A safety mirror in shopping malls

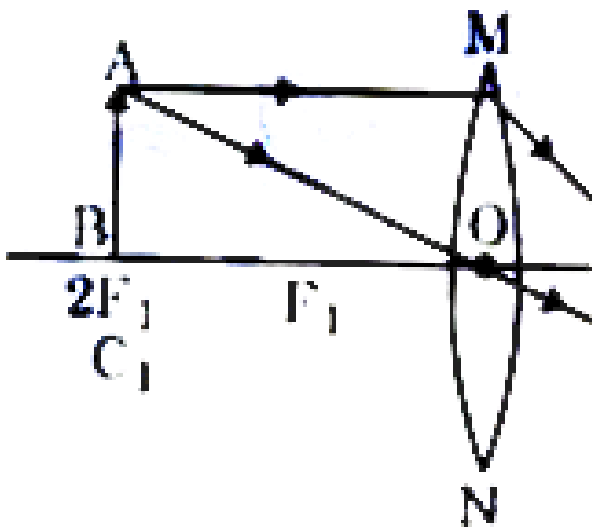
D. In viewing full size image of distant tall buildings.

Answer:

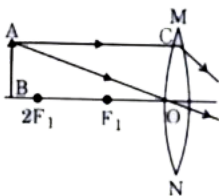


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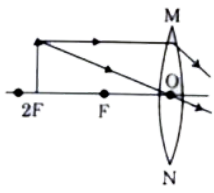
2. A student wants to obtain magnified image of an object AB as on screen. Which one of the following arrangements shows the correct position of AB for him/her to be successful ?



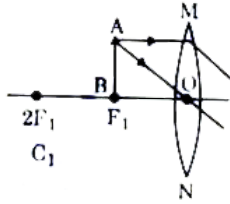
A.



B.



C.



D.

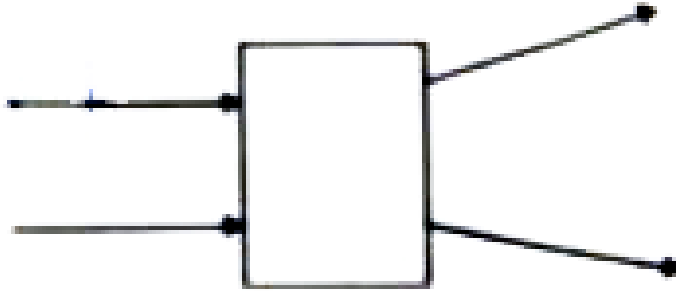
Answer:



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3. The following diagram shows the use of an optical device to perform an experiment of light. As per the arrangement shown, the

optical device is likely to be a,



A. Concave mirror

B. Concave lens

C. Convex mirror

D. Convex lens

Answer:



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4. A ray of light starting from air passes through medium A of refractive index 1.50, enters medium B of refractive index 1.33 and finally enters medium C of refractive index 2.42. If this ray emerges out in air from C, then for which of the following pairs of media the bending of light is least ?

A. air-A

B. A-B

C. B-C

D. C-air

Answer:



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Section A

1. Which of the following statements is not true for scattering of light?

A. Colour of the scattered light depends on the size of particles of the atmosphere.

B. Red light is least scattered in the atmosphere.

C. Scattering of light takes place as various colours of white light travel with different speed in air.

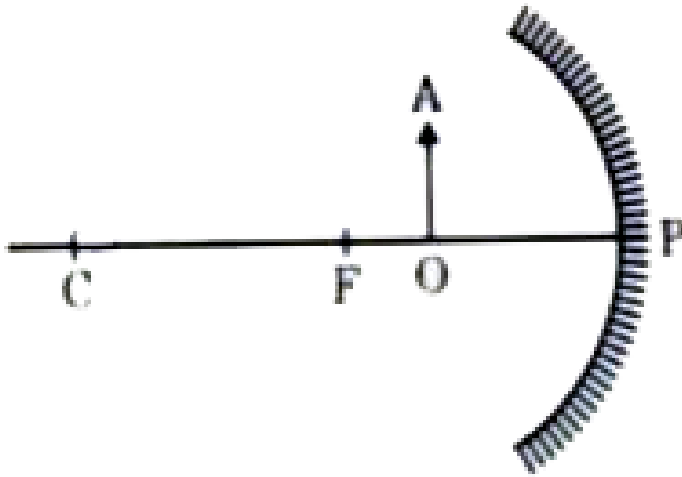
D. The fine particles in the atmospheric air scatter the blue light more strongly than

red. So the scattered blue light enters
our eyes.

Answer:



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2.

For the diagram shown, according to the new Cartesian sign convention the magnification of the image formed will have the following specifications:

A. Sign -Positive, Value -Less than 1

B. Sign- Positive, Value -More than 1

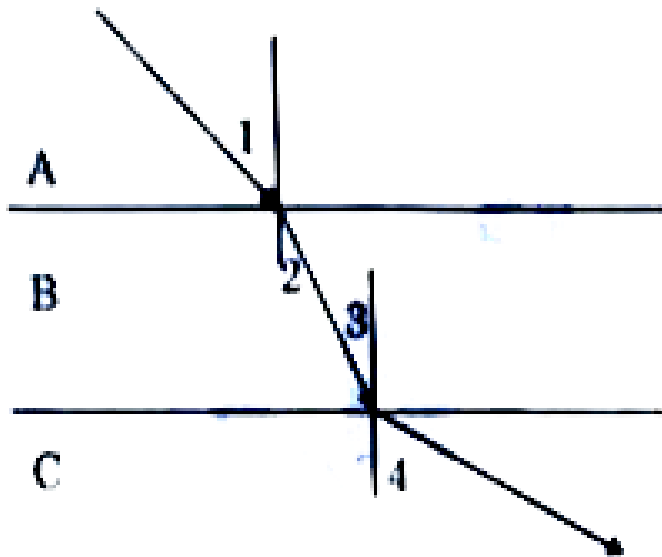
C. Sign -Negative, Value - Less than 1

D. Sign -Negative, Value - More than 1

Answer:



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3.

A ray of light is incident as shown. If A, B and C are three different transparent media, then which among the following options is true for the given diagram?

A. $\angle 1 > \angle 4$

B. $\angle 1 < \angle 2$

C. $\angle 3 = \angle 2$

D. $\angle 3 > \angle 4$

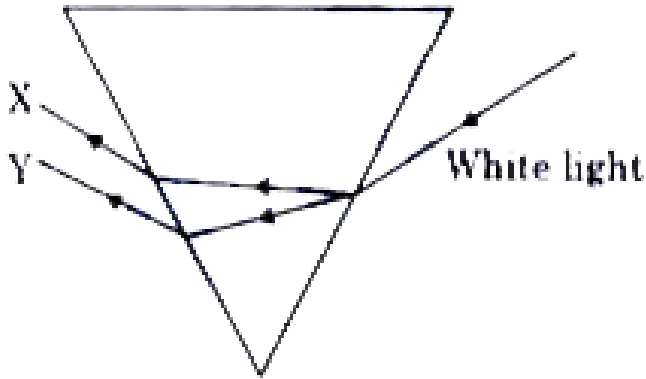
Answer:



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4. In the diagram given below, X and Y are the end colours of the spectrum of white light.

The colour of 'Y' represents the



- A. Colour of sky as seen from earth during the day
- B. Colour of the sky as seen from the moon.
- C. Colour used to paint the danger signals.
- D. Colour of sun at the time of noon

Answer:



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Section B

1. Assertion (A): Sun appears reddish at the time of Sunrise and Sunset.

Reason (R) : Distance travelled by sunlight in the atmosphere is lesser during sunrise and sunset as compared to noon

A. Both (A) and (R) are true (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) is not the correct explanation of (A).

C. (A) is true, but (R) is false.

D. (A) is false, but (R) is true.

Answer:



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2. If a lens can converge the sun rays at a point 20 cm. away from its optical centre, the power of this lens is -

A. $+2D$

B. $-2D$

C. $+5D$

D. 5 D

Answer:



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3. The radius of curvature of a converging mirror is 30 cm. At what distance 5D from the mirror should an object be placed so as to obtain a virtual image?

A. Infinity

B. 30 cm

C. Between 15 cm and 30 cm

D. Between 0 cm and 15 cm

Answer:



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4. A converging lens forms a three times magnified image of an object, which can be take on a screen. If the focal length of the lens is 30 cm, then the distance of the object from the lens is

A. — 55 cm

B. — 50 cm

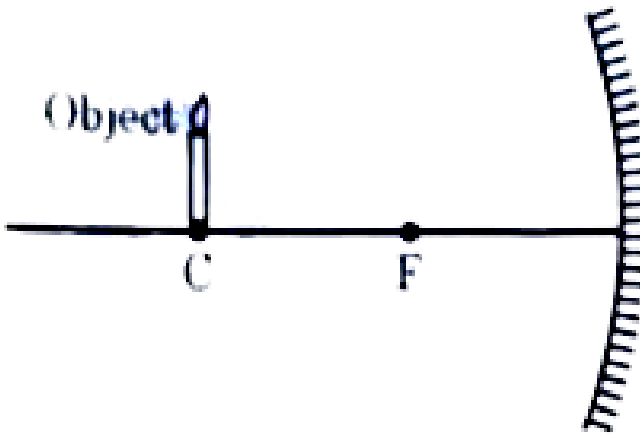
C. — 45 cm

D. — 40 cm

Answer:



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5.

Which of the following statements is not true in reference to the diagram shown above ?

A. Image is real.

B. Image formed is enlarged.

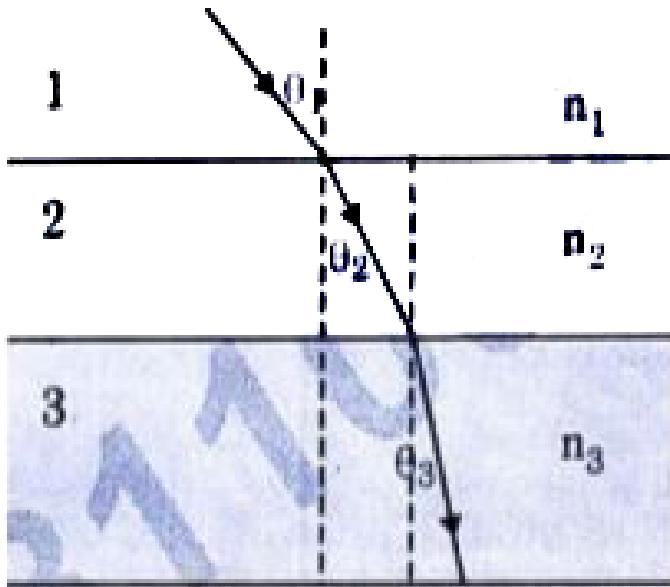
C. Image is formed at a distance equal to
double the focal length.

D. Image formed is inverted.

Answer:



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6.

In the diagram shown above n_1 , n_2 and n_3 are refractive indices of the media 1, 2 and 3 respectively. Which one of the following is true in this case ?

A. $n_1 = n_2$

B. $n_1 > n_2$

C. $n_2 > n_3$

D. $n_3 > n_1$

Answer:



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7. The refractive index of medium A is 1.5 and that of medium B is 1.33. If the speed of light in air is 3×10^8 m/s, what is the speed of light in medium A and B respectively ?

A. 2×10^8 m/s and 1.33×10^8 m/s

B. 1.33×10^8 m/s and 2×10^8 m/s

C. 2.25×10^8 m/s and 2×10^8 m/s

D. 2×10^8 m/s and 2.25×10^8 m/s

Answer:



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8. An object of height 4 cm is kept at a distance of 30 cm from the pole of a diverging

mirror. If the focal length of the mirror is 10 cm, the height of the image formed is

A. + 3.0 cm

B. + 2.5 cm

C. + 1.0 cm

D. + 0.75 cm

Answer:



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1. A compound microscope is an instrument which consists of two lenses L_1 and L_2 . The lens L_1 called objective, forms a real, inverted and magnified image of the given object. This serves as the object for the second lens L_2 , the eye piece. The eye piece functions like a simple microscope or magnifier. It produces the final image, which is inverted with respect to the original object, enlarged and virtual.

What types of lenses must be L_1 and L_2 ?

A. Both concave

B. Both convex

C. L_1 - concave and L_2 - convex

D. L_1 - convex and L_2 - concave

Answer:



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2. A compound microscope is an instrument which consists of two lenses L_1 and L_2 . The lens L_1 called objective, forms a real, inverted and magnified image of the given object. This

serves as the object for the second lens L_2 , the eye piece. The eye piece functions like a simple microscope or magnifier. It produces the final image, which is inverted with respect to the original object, enlarged and virtual.

What is the value and sign of magnification (according to the new Cartesian sign convention) of the image formed by L_1 ?

A. Value= Less than 1 and Sign = Positive

B. Value = More than 1 and Sign = Positive

C. Value = Less than 1 and Sign = Negative

D. Value = More than 1 and Sign = Negative

Answer:



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3. A compound microscope is an instrument which consists of two lenses L_1 and L_2 . The lens L_1 called objective, forms a real, inverted and magnified image of the given object. This serves as the object for the second lens L_2 , the eye piece. The eye piece functions like a

simple microscope or magnifier. It produces the final image, which is inverted with respect to the original object, enlarged and virtual.

What is the value and sign of (according to new Cartesian sign convention) magnification of the image formed by L_2 ?

A. Value = Less than 1 and Sign = Positive

B. Value = More than 1 and Sign = Positive

C. Value = Less than 1 and Sign = Negative

D. Value = More than 1 and Sign = Negative

Answer:



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4. A compound microscope is an instrument which consists of two lenses L_1 and L_2 . The lens L_1 called objective, forms a real, inverted and magnified image of the given object. This serves as the object for the second lens L_2 , the eye piece. The eye piece functions like a simple microscope or magnifier. It produces the final image, which is inverted with respect to the original object, enlarged and virtual.

If power of the eyepiece (L_2) is 5 diopters and

it forms an image at a distance of 80 cm from its optical centre, at what distance should the object be ?

A. 12 cm

B. 16 cm

C. 18 cm

D. 20 cm

Answer:



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