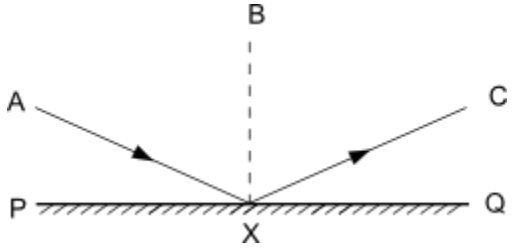
NAME…….. **STREAM**……..

S.3 PHYSICS HOLIDAY 2015

Light

Question 1

From the diagram below, given that PQ is a plane mirror, which is the normal?



A AX

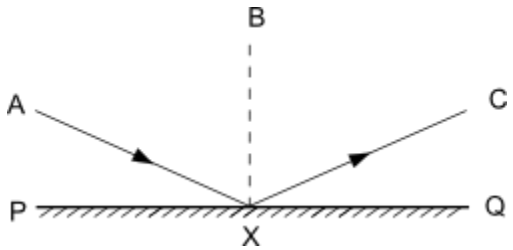
B BX

C XC

D AC

Question 2

From the diagram below, given that PQ is a plane mirror, which are the incident ray and the angle of incidence?



A Incident ray Angle of Incidence AX AXP

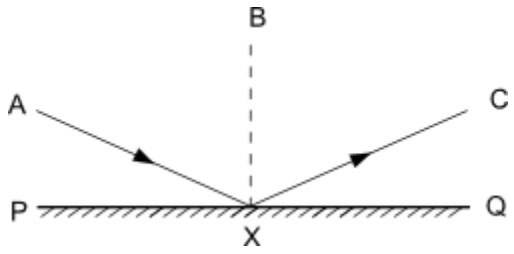
B AX AXB

C XC BXC

D XC CXQ

Question 3

From the diagram below, given that PQ is a plane mirror, which is the reflected ray and the angle of reflection?



A Reflected ray Angle of reflection AX AXP

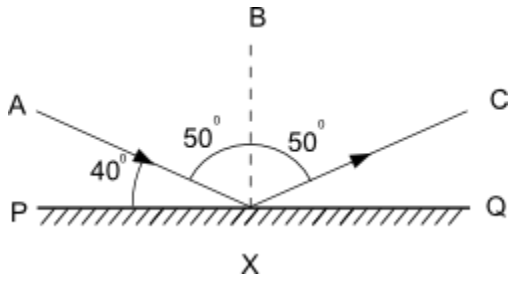
B AX AXB

C XC BXC

D XC CXQ

Question 4

From the diagram below, what is the angle of incidence?



A 40^0

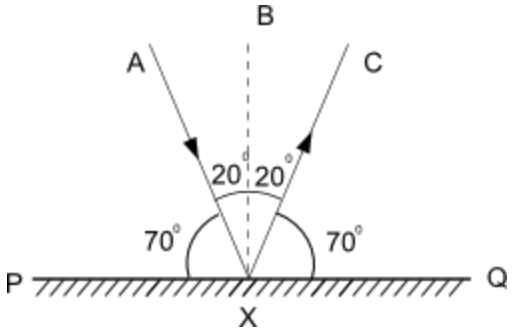
B 50^0

C 80^0

D 90^0

Question 5

From the diagram below, what is the angle of reflection?



A 20^0

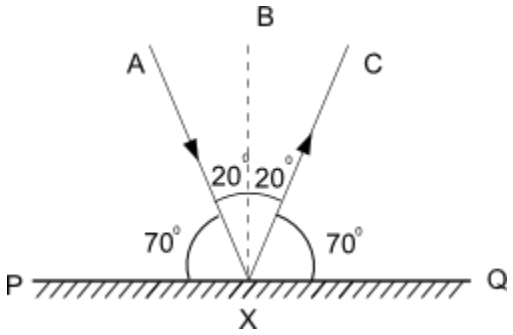
B 40^0

C 70^0

D 90^0

Question 6

From the diagram below, what is the angle between the incident ray and the reflected ray?



A 20^0

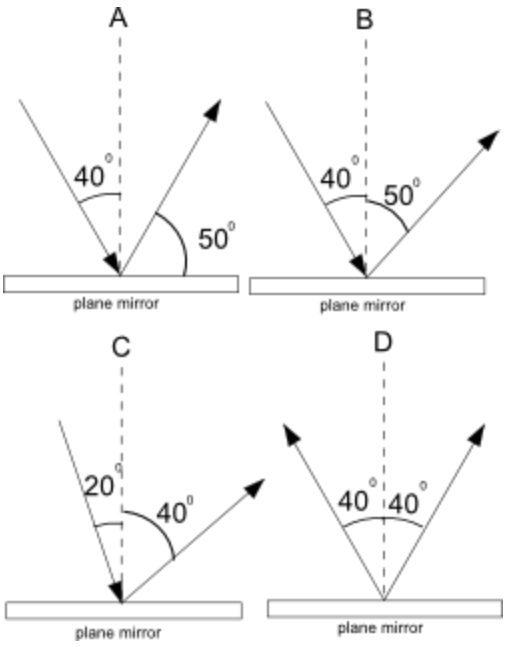
B 40^0

C 70^0

D 90^0

Question 7

Which of the following demonstrates the law of reflection?



A A

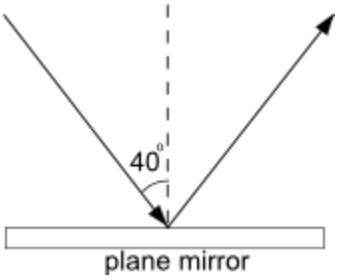
B B

C C

D D

Question 8

An incident ray strikes a plane mirror at an angle of incidence of 40^{o}. What is the decrease in the angle of reflection if the incident ray moves to an angle of incidence of 30^{o}?



A 10^{0}

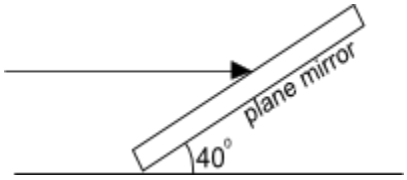
B 20^{0}

C 30^{0}

D 40^{0}

Question 9

A plane mirror is inclined at 40^{o} to the floor. An incident ray parallel to the floor strikes the mirror and a reflected ray is formed. What is the angle of reflection?



A 20^{0}

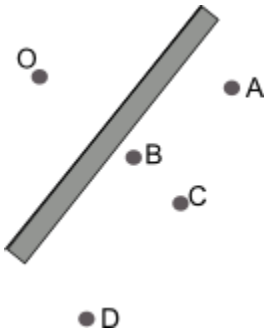
B 40^{0}

C 50^{0}

D 80^{0}

Question 10

An object O is placed in front of a mirror. Which is a possible position of the image?



A A

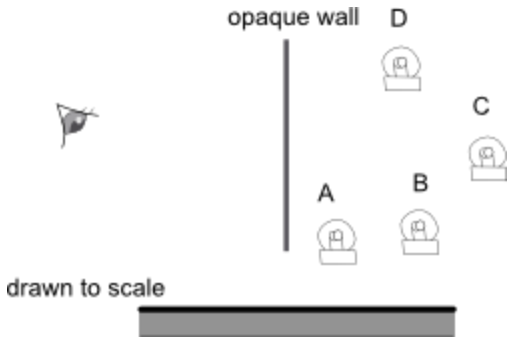
B B

C C

D D

Question 11

Four light bulbs are concealed from an observer by an opaque wall as shown. Without shifting the positions of the observer and the bulbs, how many bulbs can the observer see from the mirror?



A 1

B 2

C 3

D 4

Question 12

Which of the following are the properties of a plane mirror image?

1. The image is the same size as the object.
2. The image is virtual.
3. The image is inverted.

A 1 only

B 1 and 2 only

C 1 and 3 only

D 1, 2 and 3

Question 13

Which of the following are the properties of a plane mirror image?

1. The image is at the same distance as the object.
2. The image is upright.
3. The image is laterally inverted.

A 1 only

B 1 and 2 only

C 2 and 3 only

D 1, 2 and 3

Question 14

Which of the following is the mirror image of the word “EXAMPLE” when it is placed facing the plane mirror?

A EXAMPLE B ƎLԀMAXƎ

C ƎLdWAXƎ D EXAMPLE

A A

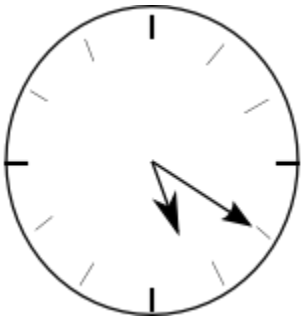
B B

C C

D D

Question 15

A man looked into a plane mirror and saw the clock as shown below. What was the time then?



A 5 : 20

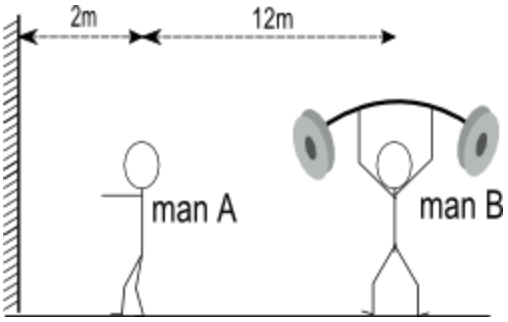
B 6 : 40

C 11 : 50

D 12 : 10

Question 16

Two men are standing in front of a plane mirror as shown. When a man looks into the mirror, how far away from him will man B seem to be?



A 12 m

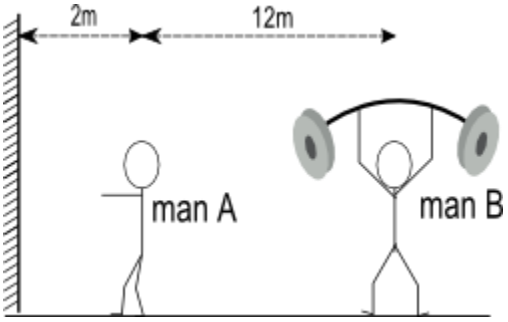
B 16 m

C 26 m

D 28 m

Question 17

Two men are standing in front of a plane mirror as shown. If man A walks 5 m backward and then looks into the mirror, how far away from him will man B seem to be?



A 7 m

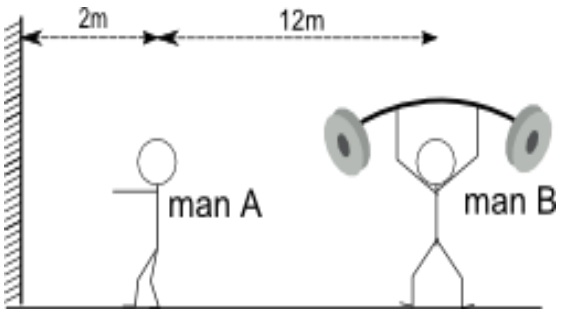
B 16 m

C 21 m

D 26 m

Question 18

Two men are standing in front of a plane mirror as shown. If man B walks 5 m backward and then looks into the mirror, how far away from him will man B seem to be?



A 9 m

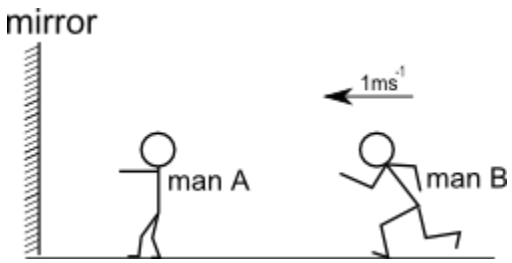
B 11 m

C 18 m

D 23 m

Question 19

Man A is standing in front of a plane mirror while man B is running towards him from behind. If man B is running at a speed of 1 m/s, how many meters nearer does man B seem to be away from man A after 5 seconds?



A 1 m

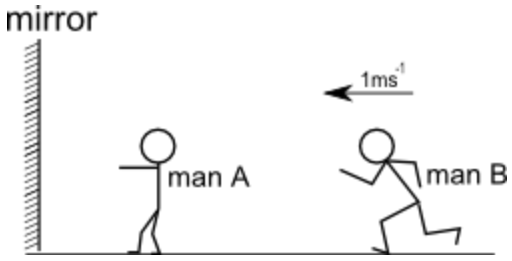
B 5 m

C 6 m

D 10 m

Question 20

Man A is facing a plane mirror while man B is running towards him from behind. If man B is running at a speed of 2 m/s, how fast does man B seem to be running towards man A?



A 1 m/s

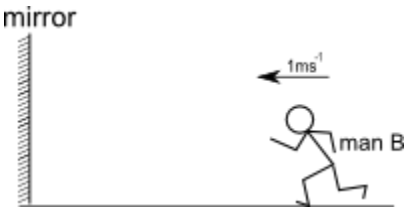
B 2 m/s

C 3 m/s

D 4 m/s

Question 21

A man is running towards a plane mirror at a speed of 2 m/s. How fast does he see himself running towards his image?



A 1 m/s

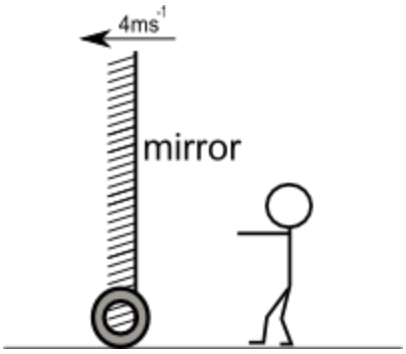
B 2 m/s

C 3 m/s

D 4 m/s

Question 22

A man is standing still while a plane mirror is moving away from him at a speed of 4 m/s, how fast does he see his image moving away?



A 1 m/s

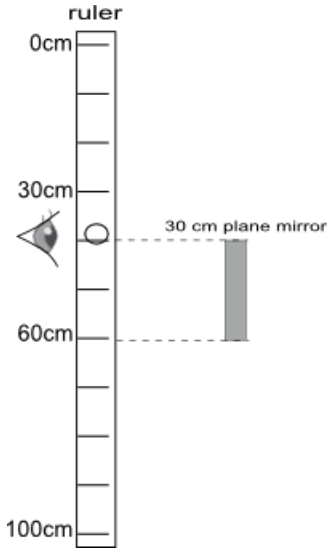
B 2 m/s

C 4 m/s

D 8 m/s

Question 23

A man drills a tiny hole at the 40 cm mark of a meter long ruler. He places a 30 cm long plane mirror in front of the ruler as shown. What are the minimum and maximum readings he can read from the image of the ruler if he peeps through the tiny hole looking into the plane mirror?



A Minimum Maximum reading 20 cm 70 cm

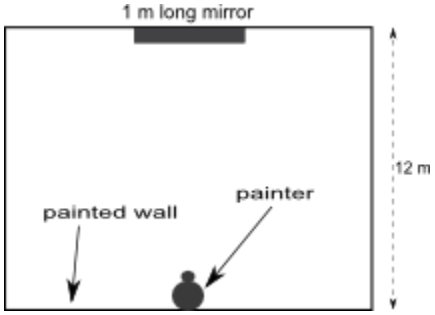
B 20 cm 80 cm

C 30 cm 60 cm

D 30 cm 80 cm

Question 24

A painter leans back against a pointed wall while looking into a 1 m long mirror at the opposite end of a rectangular room. How much of the painted wall can he see through the 1 m long mirror?



A 1 m

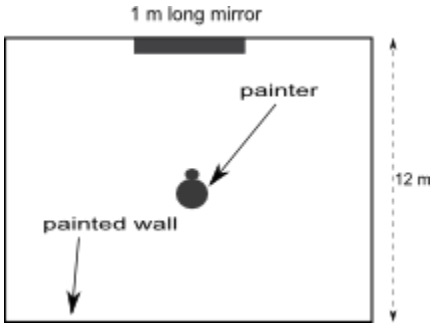
B 2 m

C 6 m

D 12 m

Question 25

A painter standing at the Centre of a rectangular room looking into a 1 m long mirror at the opposite end of the room. How much of the painted wall can he see through the 1 m long mirror?



A 1 m

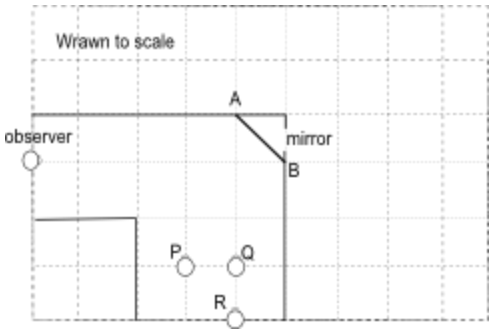
B 2 m

C 3 m

D 6 m

Question 26

A plane mirror AB is positioned at the corner of a road as shown in the plan view below. Which men can the observer see through mirror?



A P and Q only

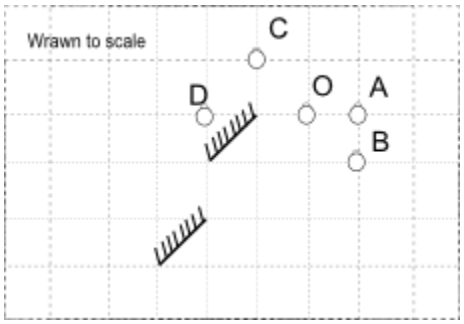
B P and R only

C Q and R only

D P, Q and R

Question 27

Two mirrors (facing each other) and an object O are places in the grid as shown. At which position(s) can the virtual image of object O be formed?



A C only

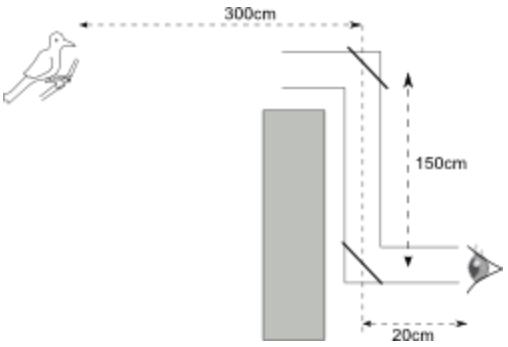
B D only

C A and B only

D B and C only

Question 28

A mirror periscope is used to observe a bird as shown below. How far away will the bird seem to be from the observer?



A 320 cm

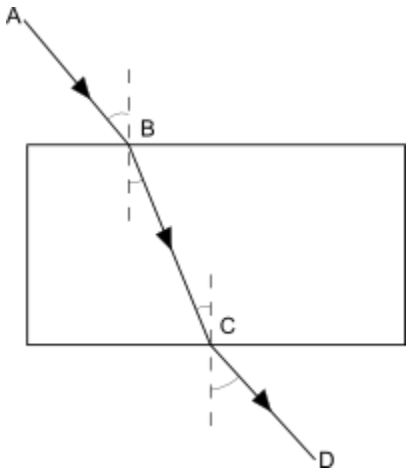
B 470 cm

C 620 cm

D 940 cm

Question 29

Which are the incident ray, the refracted ray and the emerging ray?



A AB BC CD

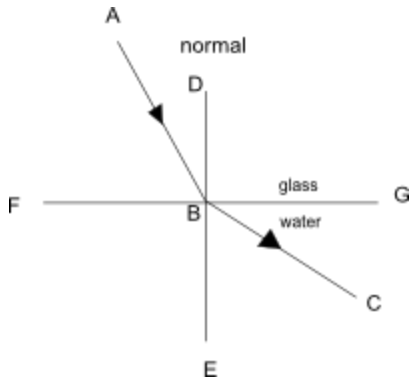
B AB CD BC

C CD BC AB

D CD AB BC

Question 30

Which are the incident ray and the refracted ray?



A AB only BC only

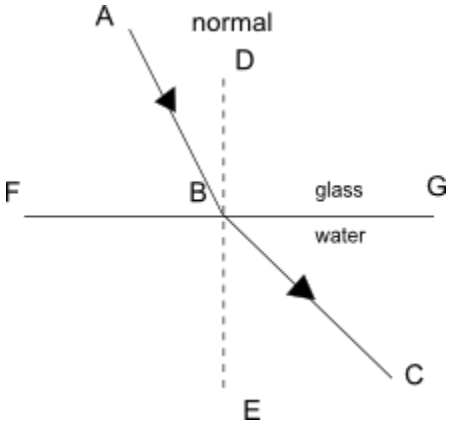
B AB and BC only CD only

C AB only BC and CD only

D AB and BC only BC and CD only

Question 31

Which are the angle of incidence and angle of refraction?



A ∠ABD ∠CBG

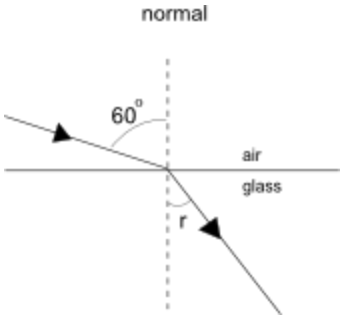
B ∠ABF ∠CBE

C ∠ABD ∠CBE

D ∠ABF ∠CBG

Question 32

A ray of light travels from air to glass as shown below. Given that the refractive index of air is 1.0 and the refractive index of glass is 1.5, what is the angle of refraction, *r*?



A 22.6^0

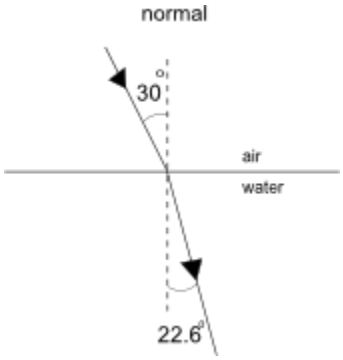
B 30.8^0

C 35.3^0

D 40.0^0

Question 33

A ray of light travels from air to water as shown below. Given that the refractive index of air is 1.0, what is the refractive index of water?



A 1.2

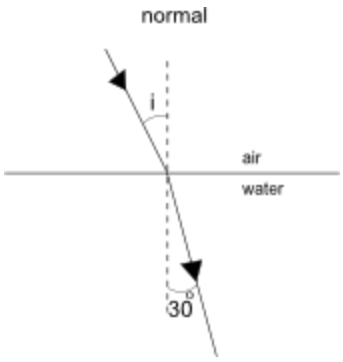
B 1.3

C 1.4

D 1.5

Question 34

A ray of light travels from air to water as shown below. Given that the refractive index of air is 1.0 and the refractive index of water is 1.3, what is the angle of incidence, *i*?



A 22.7^0

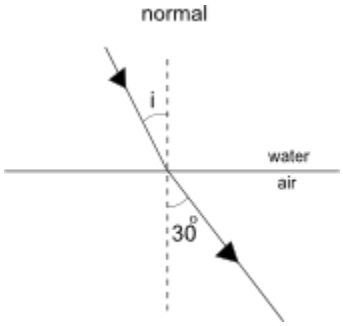
B 23.1^0

C 39.0^0

D 40.5^0

Question 35

A ray of light travels from water to air as shown below. Given that the refractive index of air is 1.0 and the refractive index of water is 1.3, what is the angle of incidence, *i*?



A 22.6^0

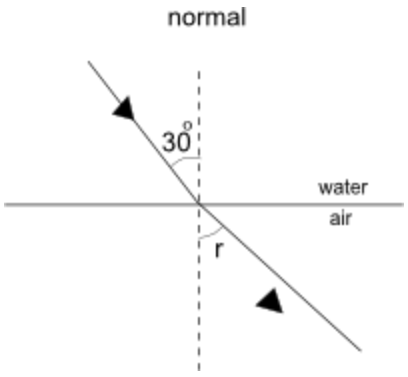
B 23.1^0

C 39.0^0

D 40.5^0

Question 36

A ray of light travels from water to air as shown below. Given that the refractive index of air is 1.0 and the refractive index of water is 1.3, what is the angle of refraction, *r*?



A 22.6^0

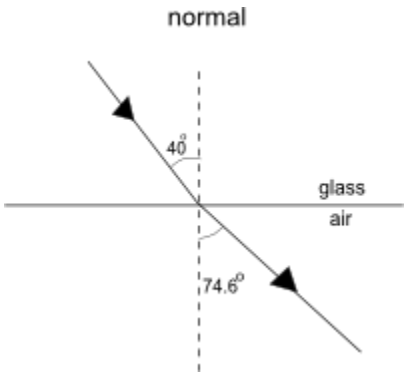
B 23.1^0

C 39.0^0

D 40.5^0

Question 37

A ray of light travels from water to air as shown below. Given that the refractive index of air is 1.0, what is the refractive index of glass?



A 1.2

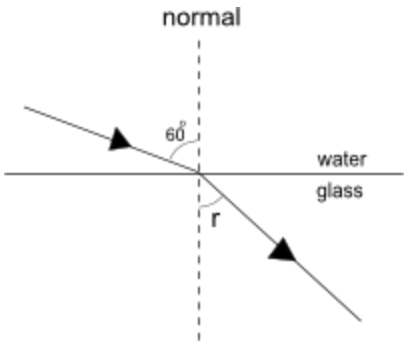
B 1.3

C 1.4

D 1.5

Question 38

A ray of light travels from water to glass as shown below. Given that the refractive index of water is 1.3 and the refractive index of glass is 1.5, what is the angle of refraction?



A 30.7^0

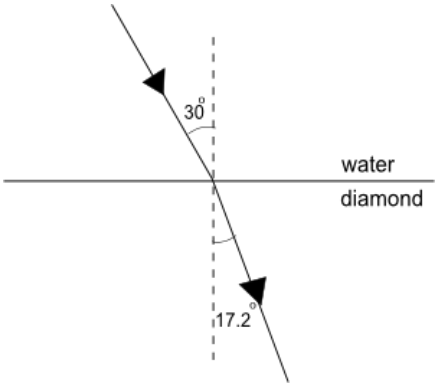
B 35.3^0

C 41.7^0

D 48.6^0

Question 39

A ray of light travels from water to diamond as shown below. Given that the refractive index of water is 1.3, what is the refractive index of diamond?



A 1.5

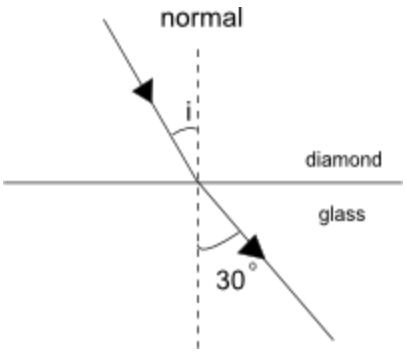
B 1.7

C 2.2

D 2.3

Question 40

A ray of light travels from diamond to glass as shown below. Given that the refractive index of diamond is 2.0 and the refractive index of glass is 1.5, what is the angle of incidence?



A 14.5^0

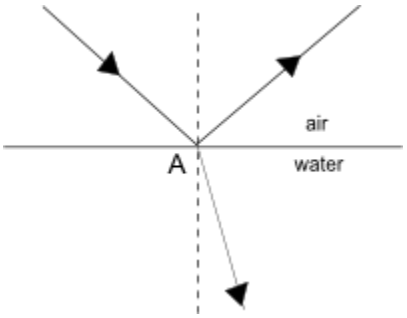
B 19.5^0

C 22.0^0

D 22.5^0

Question 41

A ray of light travels from air to water as shown below. What are ray AB and ray AC?



A Reflected ray Refracted ray

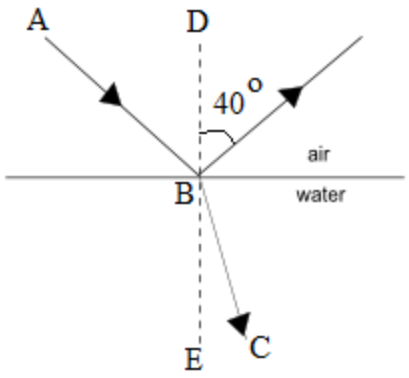
B Reflected ray Reflected ray

C Refracted ray Reflected ray

D Refracted ray Refracted ray

Question 42

A ray of light travels from air to diamond as shown below. Given that the refractive index of air is 1.0 and the refractive index of diamond is 2.2, what are the ∠ABD and ∠EBC?



A 17^0 17^0

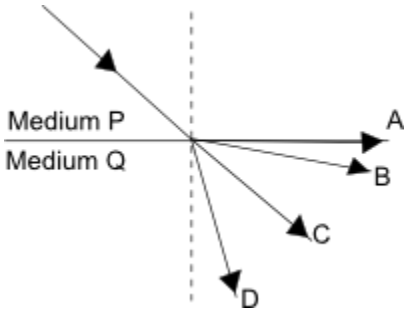
B 17^0 40^0

C 40^0 17^0

D 40^0 40^0

Question 43

A light ray travels from a medium P to medium Q. Given that medium P has a refractive index of 1.0 and medium Q has a refractive index of 1.2, which of the following is a possible refracted ray?



A A

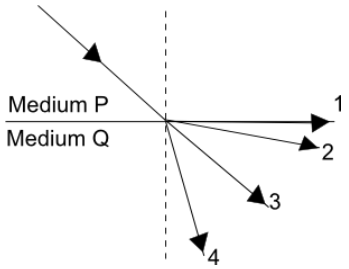
B B

C C

D D

Question 44

A light ray travels from a medium P to medium Q. Given that medium P has a refractive index of 1.5 and medium Q has a refractive index of 1.0, which of the following is/are possible refracted ray(s)?



A 2 only

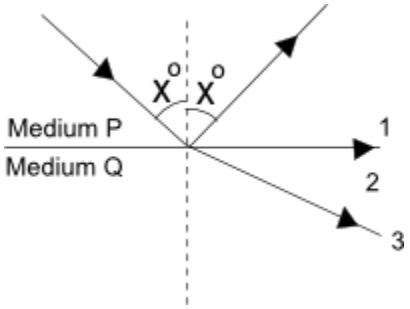
B 1 and 2 only

C 2 and 3 only

D 3 and 4 only

Question 45

A light ray travels from a medium P to medium Q. Given that medium P has a refractive index of 1.5 and medium Q has a refractive index of 1.2, which of the following rays is/are possible outcome(s)?



A 3 only

B 1 and 3 only

C 2 and 3 only

D 1, 2 and 3 only

Question 46

Given that the refractive index of water is 1.0 and the refractive index of water is 1.0, what is the critical angle when a light ray travels from glass to air?

A 22.6^0

B 30.0^0

C 41.8^0

D 48.6^0

Question 47

Given that the critical angle angle of the medium is 45^o, what is the refractive index of the medium?

A 0.71

B 1.00

C 1.33

D 1.41

Question 48

A light ray travels from a medium of refractive index 1.5 to another medium of refractive index of 1.2. At what angle will total internal reflection occur?

A 22.6^0

B 41.8^0

C 53.1^0

D 56.4^0

Question 49

A light ray travels from a medium of refractive index 1.4 to another medium of refractive index of 2.2. At what angle will total internal reflection occur?

A 39.5^0

B 41.8^0

C 53.1^0

D Critical angle cannot be reached

Question 50

A scientist is given 3 mediums to do a certain experiment. The refractive indices of the three mediums are 1.0, 1.2 and 1.4. What are the possible critical angles obtained by these three mediums? 1) 45.6^o 2) 56.4^o 3) 59.0^o

A 1 only

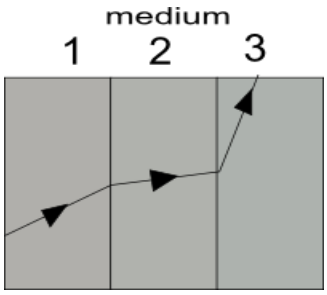
B 1 and 3 only

C 2 and 3 only

D 1, 2 and 3

Question 51

A light ray travels through three mediums as shown. Which of the following shows the ascending order of refractive index?



A Medium 1, Medium 2, Medium 3

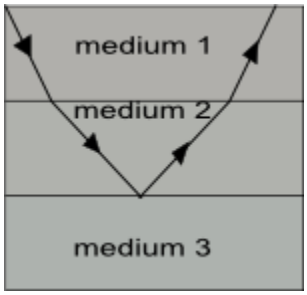
B Medium 2, Medium 3, Medium 1

C Medium 3, Medium 1, Medium 2

D Medium 1, Medium 3, Medium 2

Question 52

A light ray travels from medium 1 to 3 as shown. Which of the following is ascending order of refractive index?



A Medium 1, Medium 2, Medium 3

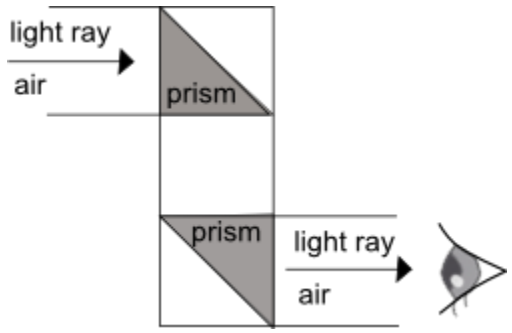
B Medium 1, Medium 3, Medium 2

C Medium 3, Medium 1, Medium 2

D Medium 3, Medium 2, Medium 1

Question 53

1) A periscope uses two 45^{o} prisms to reflect the light ray into the observer's eye. What is the possible refractive index of the prism material? 1) 1.2 2) 1.5 3) 2.2



A 1 only

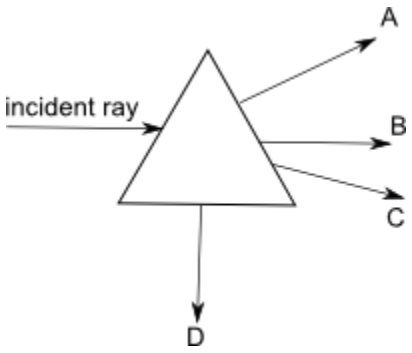
B 2 only

C 2 and 3 only

D 1, 2 and 3

Question 54

Which of the following is the emergent ray when the incident ray strikes the glass prism from air?



A A

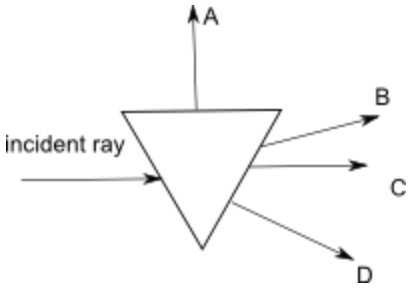
B B

C C

D D

Question 55

Which of the following is the emergent ray when the incident ray strikes the glass prism from air?



A A

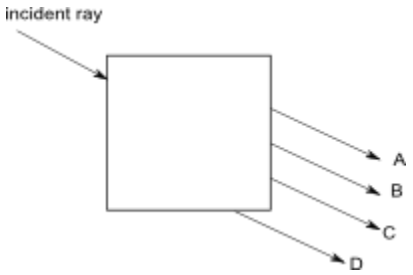
B B

C C

D D

Question 56

Which of the following is the emergent ray when the incident ray strikes the rectangular glass block from air?



A A

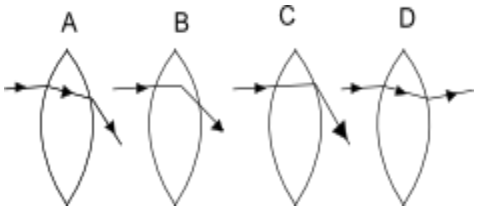
B B

C C

D D

Question 57

Which of the following shows how the light ray travels through a thick converging lens?



A A

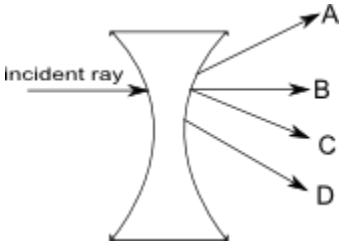
B B

C C

D D

Question 58

Which of the following emergent ray is correct when the incident ray strikes the diverging lens?



A A

B B

C C

D D

Question 59

What is/are the effect(s) of using a thin converging lens instead of a thick converging lens?

1. The image formed will be brighter.
2. The focal length will be longer.
3. The image formed will always be virtual.

A 2 only

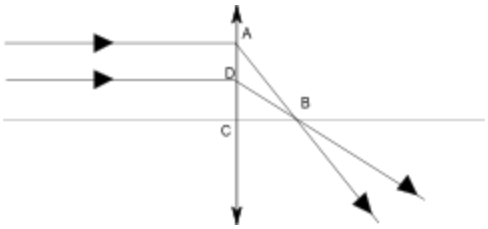
B 1 and 2 only

C 2 and 3 only

D 1 and 3 only

Question 60

Two light rays parallel to the principal axis strike a converging lens and converge to point B as shown. Which point is the focal point?



A A

B B

C C

D D

Question 61

The focal length is

A the distance from the light source to the image.

B the distance from the object to the centre of the lens.

C the distance from the image to the centre of the lens.

D the distance from the focal point to the centre of the lens.

Question 62

Which of the following are true?

1. The principal focus of a converging lens is real.
2. The principal focus of a diverging lens is virtual.
3. The principal focus of a lens is along the principal axis.

A 1 and 2 only

B 2 and 3 only

C 1 and 3 only

D 1, 2 and 3

Question 63

Which of the following are true?

A The image distance obtained from a far away object is the focal length of

the convex lens.

B The images obtained by a convex lens always lie on the focal point.

C The images obtained by a convex lens are always real.

D The images obtained by a convex lens are always inverted.

Question 64

Which of the following are true?

1. An incident ray parallel to the principal axis emerging from the converging lens will always pass through the focal point F of the lens.
2. An incident ray that passes through the focal point of a converging lens will travel in parallel to the principal axis after emerging from converging lens.
3. A ray that passes through the optical centre of a thin converging lens will not be refracted by the lens and continues to travel along its original path

A 1 and 2 only

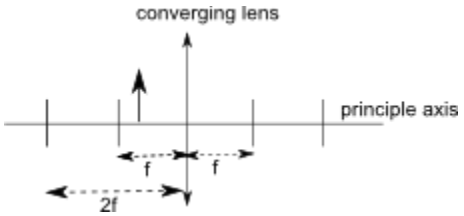
B 2 and 3 only

C 1 and 3 only

D 1, 2 and 3

Question 65

An object O is placed at the position shown. What are the characteristics of the image produced?



A real, inverted and diminished

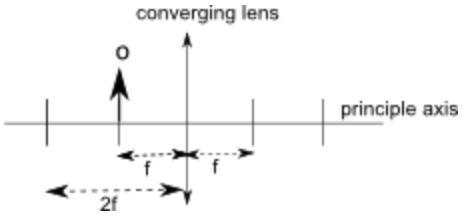
B real, inverted and enlarged

C virtual, inverted and diminished

D virtual, upright and enlarged

Question 66

An object O is placed at the position shown. What are the characteristics of the image produced?



A real, inverted and diminished

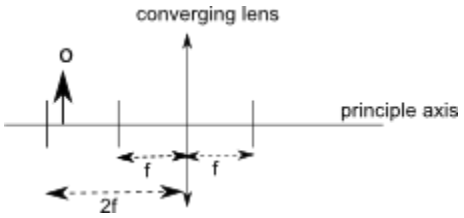
B real, inverted and enlarged

C virtual, upright and enlarged

D no image formed

Question 67

An object O is placed at the position shown. What are the characteristics of the image produced?



A real, inverted and diminished

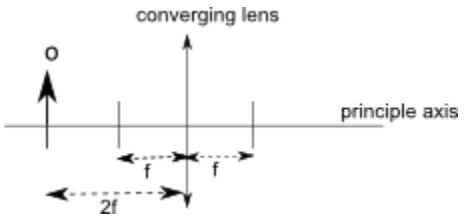
B real, inverted and enlarged

C virtual, upright and enlarged

D no image formed

Question 68

An object O is placed at the position shown. What are the characteristics of the image produced?



A real, inverted and diminished

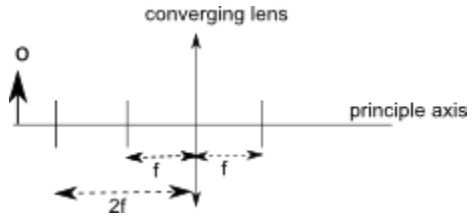
B real, inverted and same size as object

C real, inverted and enlarged

D virtual, upright and enlarged

Question 69

An object O is placed at the position shown. What are the characteristics of the image produced?



A real, inverted and diminished

B real, inverted and same size as object

C real, inverted and enlarged

D virtual, upright and enlarged

Question 70

Which of the following are always true?

1. When the object is placed nearer to the focal point, the image gets bigger.
2. When the object is placed further away from the converging lens, the image gets smaller.
3. When the object is placed further away from the converging lens, the image distance approaches focal length.

A 1 and 2 only

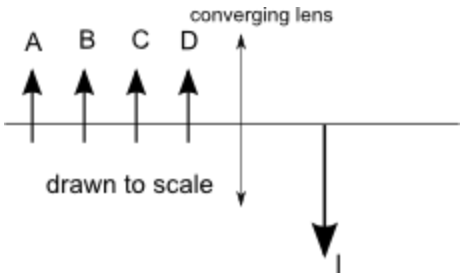
B 2 and 3 only

C 1 and 3 only

D 1, 2 and 3

Question 71

Which of the following objects can form the image I?



A A

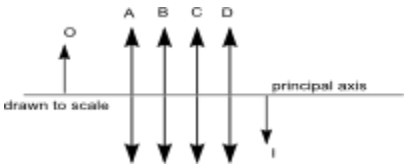
B B

C C

D D

Question 72

An object O and its image I are shown below. Where is the position of the converging lens?



A A

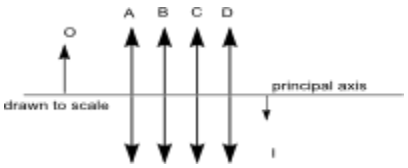
B B

C C

D D

Question 73

An object O and its image I are shown below. Where is the position of the converging lens?



A A

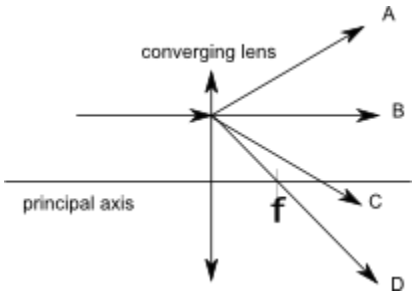
B B

C C

D D

Question 74

A light ray parallel to the principal axis travels into a converging lens as shown. Which is the emergent ray from the converging lens?



A A

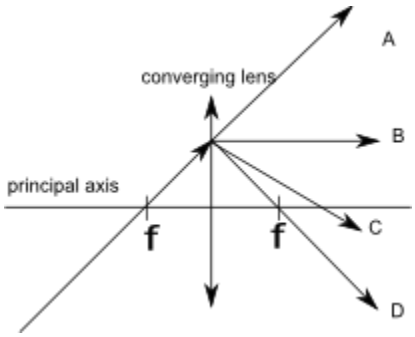
B B

C C

D D

Question 75

A light ray travels into a converging lens as shown. Which is the emergent ray from the converging lens?



A A

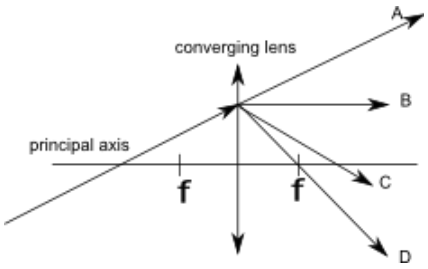
B B

C C

D D

Question 76

A light ray travels into a converging lens as shown. Which is the emergent ray from the converging lens?



A A

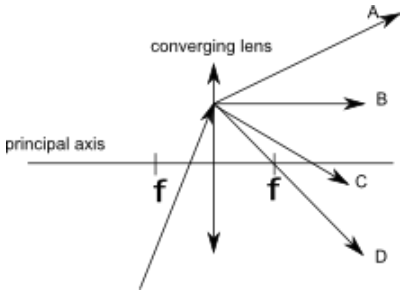
B B

C C

D D

Question 77

A light ray travels into a converging lens as shown. Which is the emergent ray from the converging lens?



A A

B B

C C

D D

Question 78

A converging lens has a focal length of 15 cm. Given that an object is placed 10 cm from the optical centre of the lens, what are the characteristics of the image formed?

A real, inverted and diminished

B real, inverted and same size as object

C real, inverted and enlarged

D virtual, upright and enlarged

Question 79

A converging lens has a focal length of 15 cm. Given that an object is placed 31 cm from the optical centre of the lens, what are the characteristics of the image formed?

A real, inverted and diminished

B real, inverted and same size as object

C real, inverted and enlarged

D virtual, upright and enlarged

Question 80

A converging lens has a focal length of 15 cm. Given that an object is placed 5 m from the optical centre of the lens, what are the characteristics of the image formed?

A real, inverted and diminished

B real, inverted and same size as object

C real, inverted and enlarged

D virtual, upright and enlarged

Question 81

A converging lens has a focal length of 15 cm. Given that an object is placed 10 cm from the optical centre of the lens, what is the image distance (the distance from the image to the optical centre)?

A 10 cm

B 20 cm

C 40 cm

D cannot be determined

Question 82

When an object is placed 29 cm from the optical centre of the converging lens, the image formed is real, inverted and magnified but when the object is placed 31 cm from the optical centre of the lens, the image formed is real, inverted and diminished. What is the focal length of this converging lens?

A 15 cm

B 30 cm

C 60 cm

D cannot be determined

Question 83

When an object is placed 11 cm from the optical centre of the converging lens, the image formed is real, inverted and magnified but when the object is placed 9 cm from the optical centre of the lens, the image formed is virtual, upright and magnified. What is the focal length of this converging lens?

A 5 cm

B 10 cm

C 20 cm

D cannot be determined

Question 84

An overhead projector in the classroom uses a converging lens to produce the image on the screen. If the focal length of the lens is 10 cm, where should a transparency be placed from the converging lens to form a clear image?

A 5 cm

B 10 cm

C 15 cm

D 20 cm

Question 85

A camera uses a converging lens to produce an image on the film. If the focal length of the lens is 10 cm, where should an object be placed from the camera for photo taking?

A 10 cm

B 15 cm

C 20 cm

D 100 cm

Question 86

A photocopy machine uses a converging lens to focus images for printing on papers. If the focal length of the lens is 6 cm, what is the distance from the original copy to the lens during photocopying?

A 2 cm

B 6 cm

C 10 cm

D 12 cm

Question 87

A telescope uses a converging lens to see birds which are far away. If the focal length of the lens is 20 cm, what is the distance from the observer's eye to the lens to see a clear image of the bird?

A 10 cm

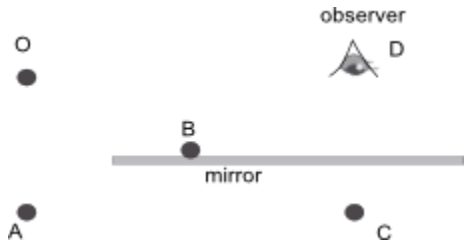
B 20 cm

C 40 cm

D 500 cm

Question 88

An object O is placed near a mirror as shown. Where is the image of object O as seen by the observer?



A A

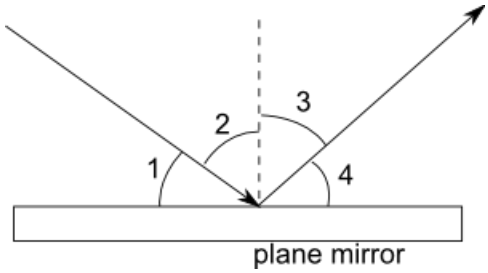
B B

C C

D D

Question 89

The diagram below shows a ray of light being reflected from a plane mirror. Which of the labeled angles are the angle of incidence and the angle of reflection?



A 1 2

B 2 3

C 1 4

D 3 1

Question 90

Which of the following is a virtual image?

1. The image formed by an image projector.
2. The image formed by a mirror.
3. The upright image formed by a magnifying glass.

A 2 only

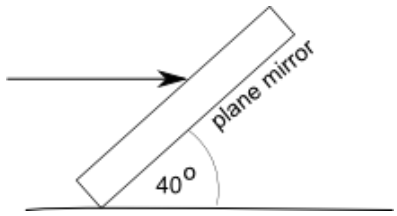
B 1 and 2 only

C 2 and 3 only

D 1, 2 and 3

Question 91

A plane mirror is inclined at 40^{o} to the floor. An incident ray parallel to the floor strikes the mirror and a reflected ray is formed. If the angle of inclination is increased to 50^{o} without changing the direction of the ray, what is the change in angle between the incident ray and the reflected ray?



A 5^{0}

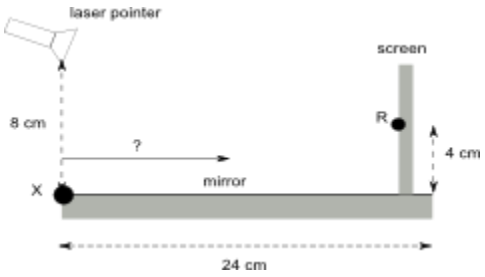
B 10^0

C 20^0

D 40^0

Question 92

The ray from a laser pointer hits a plane mirror and the reflected ray strikes a screen. How far away from the point X should the ray strike the mirror to cause the reflected ray to hit point R?



A 6 cm

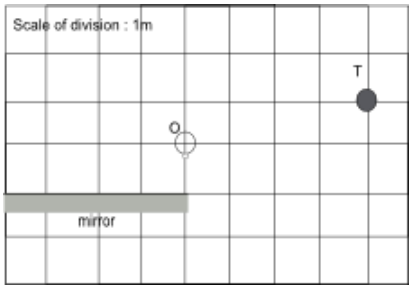
B 12 cm

C 16 cm

D 18 cm

Question 93

An observer O cannot see the image of target through the mirror. What is the minimum distance he should move to see the image os target T through the mirror?



A 1 m

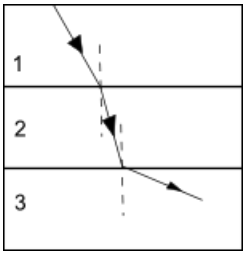
B 2 m

C 3 m

D 4 m

Question 94

Light passes through three different mediums as shown in the diagram below. Which of the following statements is true?



A Medium 1 has the lowest refractive index.

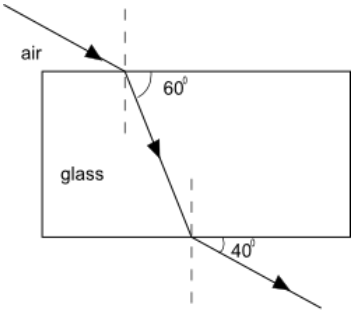
B Medium 2 has the highest refractive index.

C The refractive index of medium 2 is lower than the refractive index of medium 3

D The refractive index of medium 1 is lower than the refractive index of medium 3

Question 95

A light ray passes through a rectangular glass block as shown in the diagram below. What is the refractive index of the glass?



A sin 40 ÷ sin 60

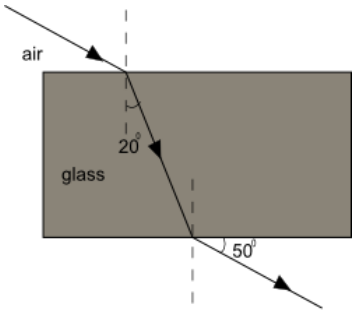
B sin 60 ÷ sin 40

C sin 30 ÷ sin 50

D sin 50 ÷ sin 30

Question 96

A light ray passes through a rectangular glass block as shown in the diagram below. Which of the following expressions should be used to calculate the refractive index of the glass block?



A sin 20 ÷ sin 50

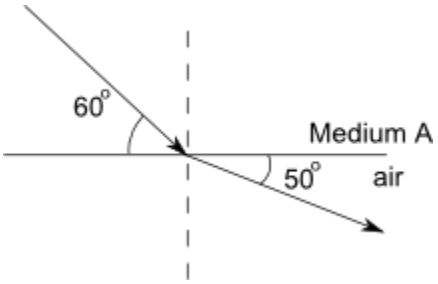
B sin 50 ÷ sin 20

C sin 40 ÷ sin 20

D sin 20 ÷ sin 40

Question 97

Refraction takes place when light travels from medium A into air as shown. What is the critical angle for the situation below?



A 48^0

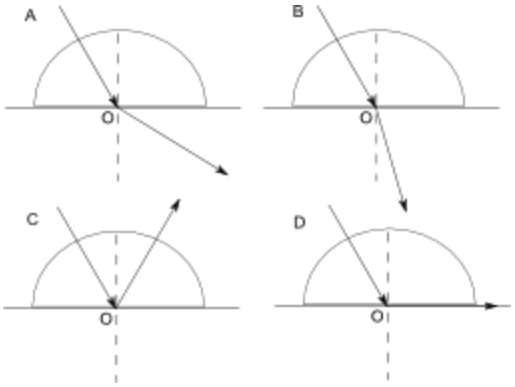
B 5^0

C 55^0

D Critical angle cannot be reached

Question 98

Light ray from air is directed towards point O (centre of the diameter) of the semi-curved glass block. Which diagram is not possible?



A A

B B

C C

D D

Question 99

When is refraction of light not possible?

1. The angle of incidence is 0 deg.
2. The two mediums have the same refractive index.
3. The refractive index is higher than 3.0.

A 1 and 2 only

B 1 and 3 only

C 2 and 3 only

D 1, 2 and 3

Question 100

Which of the following is not the effect of refraction?

A Chopsticks appear to bent in clear soup.

B A fish appears to be larger than its actual size in water.

C Light travelling through optical fibre.

D A man appears to be smaller than his actual size from the point of view of a fish underwater.

Question 101

What is/are the condition(s) needed for total internal reflection to take place?

1. Light ray travels from an optically denser medium to an optically less dense medium.
2. The angle of incidence is not 0 deg.
3. The angle of incidence must be greater than the critical angle.

A 1 and 2 only

B 1 and 3 only

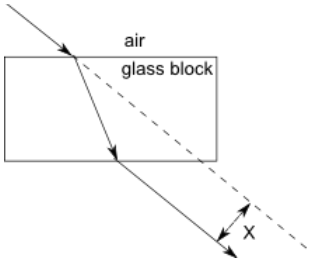
C 2 and 3 only

D 1, 2 and 3

Question 102

Which of the following minimize the gap *x*?

1. Use a thinner glass block
2. Use a glass of smaller refractive index
3. Use a stronger light ray



A 1 and 2 only

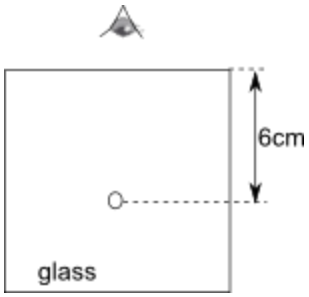
B 1 and 3 only

C 2 and 3 only

D 1, 2 and 3

Question 103

An air bubble is trapped 6 cm from the edge of a glass block as shown. Given that the refractive index of glass is 1.5, how far does the air bubble seem to be away from the observer when viewed from the position shown?



A 4 cm

B 6 cm

C 9 cm

D 12 cm

Question 104

A fish seems to be 6.0 cm below the water surface. Given that the refractive index of water is 1.4, what is the actual depth of the fish below the water?

A 4.3 cm

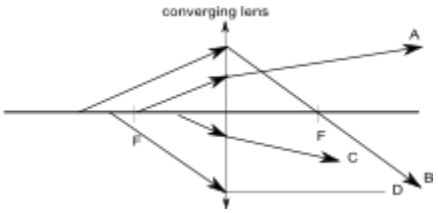
B 6.0 cm

C 8.4 cm

D 14.4 cm

Question 105

Which of the following light rays behave correctly when it passes through the converging lens?



A A

B B

C C

D D

Question 106

A slide with an image 4 cm x 2 cm is placed at a distance of 10 cm behind a converging lens and a clear image is formed on a screen 1.1 m from the slide. The size of the image on the screen is

A 40 cm x 20 cm

B 20 cm x 40 cm

C 36 cm x 18 cm

D 18 cm x 36 cm

Question 107

Which of the following does not affect the focal length of a convex lens?

A refractive index of the material making the lens

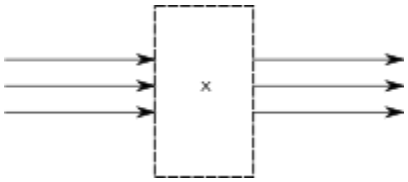
B material of the lens

C object distance

D thickness of the lens

Question 108

The diagram below shows rays of light passing through an object X. What could X be?



A a diverging lens

B a converging lens

C a glass block

D a plane mirror

Question 109

A converging lens has a focal length of 20 cm. If an object is placed 50 cm from the optical centre of the lens, how far will the image be from the optical centre of the lens?

A 10 cm

B 20 cm

C 30 cm

D 33 cm

Question 110

A converging lens has a focal length of 10 cm. If an object is placed 18 cm from the optical centre of the lens, how far will the image be from the optical centre of the lens?

A 20.0 cm

B 22.5 cm

C 22.5 cm

D 25.5 cm

Question 111

A converging lens has a focal length of 10 cm. If an object is placed 5 cm from the optical centre of the lens, how far from the optical centre of the lens will the virtual image appear?

A 5.0 cm

B 10.0 cm

C 15.0 cm

D 18.5 cm

Question 112

A converging lens has a focal length of 10 cm. If a real image is formed 20 cm away from the optical centre, how far away is the object placed from the optical centre of the lens?

A 10 cm

B 15 cm

C 20 cm

D 25 cm

Question 113

A converging lens has a focal length of 10 cm. If a virtual image is formed 20 cm away from the optical centre, how far away is the object placed from the optical centre of the lens?

A 5.0 cm

B 6.7 cm

C 10 cm

D 20 cm

Question 114

In an experiment to determine the focal length of a converging lens, the object distance and the image distance recorded were 20 cm and 30 cm respectively. What is the focal length of the converging lens?

A 10 cm

B 12 cm

C 15 cm

D 18 cm

Question 115

A student used a converging lens, light source and a transparency to produce an image on the screen. He found out that the picture on the transparency was 5 cm and the image formed on the screen was 25 cm. If the screen is 3 m away from the lens, how far away will the transparency be from the lens?

A 10 cm

B 50 cm

C 60 cm

D 1500 cm

Question 116

A converging lens is used to magnify a real image to three times its original size. Given that the object is placed 20 cm from the converging lens, what is the image distance?

A 10 cm

B 6.7 cm

C 60 cm

D 80 cm

Question 117

A converging lens is used to magnify a real image to four times its original size. Given that the focal length of the converging lens is 20 cm, what is the object distance?

A 5 cm

B 25 cm

C 40 cm

D 100 cm

Question 118

A converging lens is used to magnify a virtual image to four times its original size. Given that the focal length of the converging lens is 20 cm, what is the object distance?

A 5 cm

B 10 cm

C 15 cm

D 25 cm

END