PHYSICS

BOOKS - SELINA PHYSICS (ENGLISH)

SPECIMEN QUESTION PAPER

Question

1. Choose the correct statement with respect to Refraction of light.

A. The colour always changes when light enters from one optical medium to another.

B. Absorption of light when it strikes the surface of a medium is refraction.

C. Speed of light changes when it enters from one optical medium to another of different optical density.

D. Speed of light does not change when it enters from one optical medium to another of different optical density.

Answer: C

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2. When a light ray enters from a denser medium to a rarer medium.

A. The light ray bends towards the normal.

B. Angle of incidence is less than angle of refraction.

C. Speed of light decreases.

D. Speed of light remains unchanged.

Answer: B

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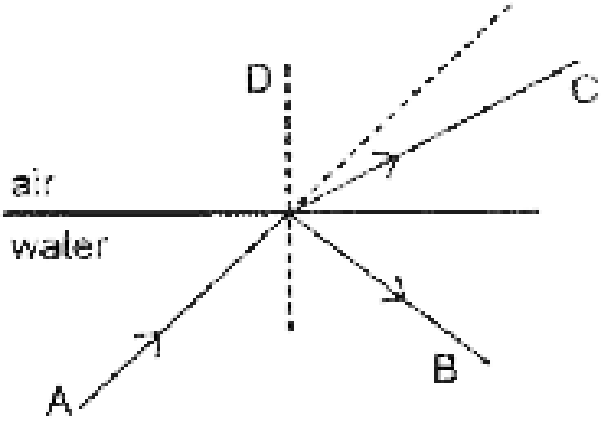
3. In the diagram shown below:



A. B is incident ray and C is refracted ray.

B. A is incident ray and B is refracted ray.

C. C is incident ray and Bis refracted ray.

D. A is incident ray and C is refracted ray.

Answer: D

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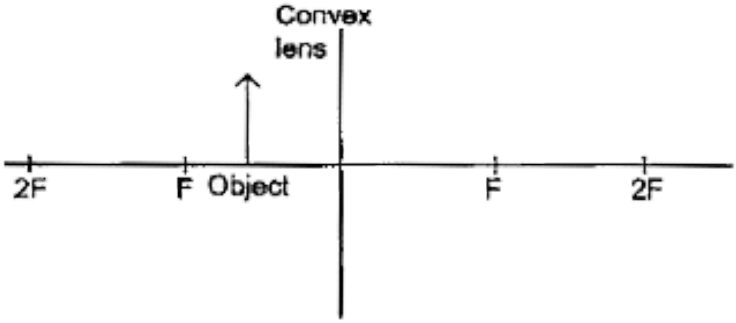
4. From the diagram shown below, identify the characteristics of the image that will be formed.



A. Real.

B. Diminished.

C. Formed within the focal length.

D. Virtual.

Answer: B

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5. The wavelength of light in a medium A is 600 nm. The wave enters medium B of refractive index 1.5

Steps to find the wavelength of light in medium B are given below. Choose an option which has the correct sequence of steps, to find the wavelength.

(i) $\lambda = 1.5 \times 600$

(ii) $\lambda = \frac{600}{1.5}$

(iii) $\lambda = 400 \ \ \text{nm}$

(iv) $\lambda = 900 \ \ \text{nm}$

(v) $1.5 = \frac{\lambda}{600}$

A. (i) then (iii)

B. (ii) then (iii)

C. (i) then (iv)

D. (ii), (i) then (iv)

Answer: B

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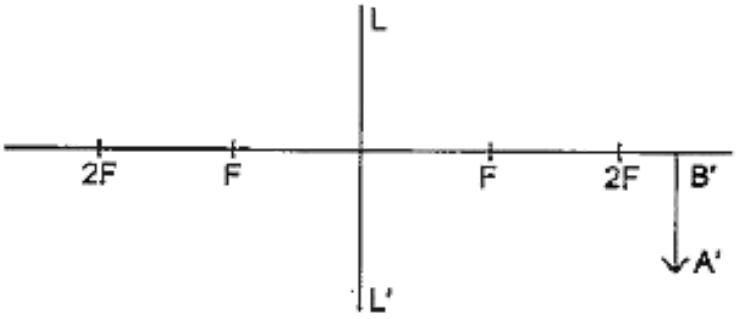
6. The diagram below shows an image formed at a distance 36 cm from the lens LL' of focal length 12 cm. With respect to this answer the questions that follow.



The position of the object on the left-hand side should be:

A. between 12 cm to 30 cm from the lens.

B. beyond 24 cm from the lens.

C. between 12 cm to 24 cm from the lens.

D. within 12 cm from the lens.

Answer: C

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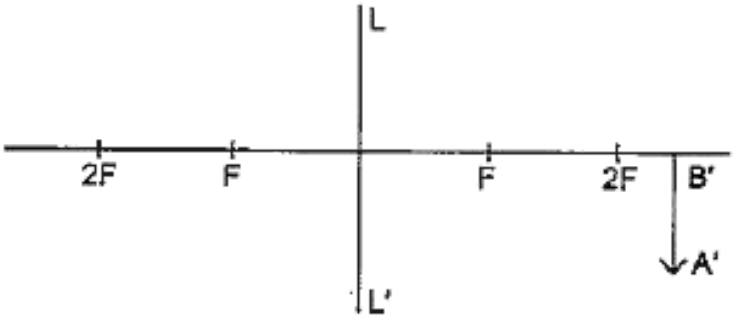
7. The diagram below shows an image formed at a distance 36 cm from the lens LL' of focal length 12 cm. With respect to this answer the questions that follow.



Power of this lens is:

A. -8.33 D

B. $+8.4$ D

C. $+8.33$ D

D. -8.4 D

Answer: C

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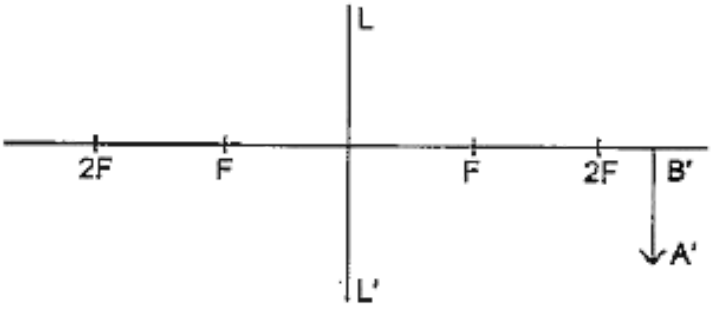
8. The diagram below shows an image formed at a distance 36 cm from the lens LL' of focal length 12 cm. With respect to this answer the questions that follow.



The object distance with sign convention is:

A. -18 cm

B. -15 cm

C. -9 cm

D. $+18$ cm

Answer: D

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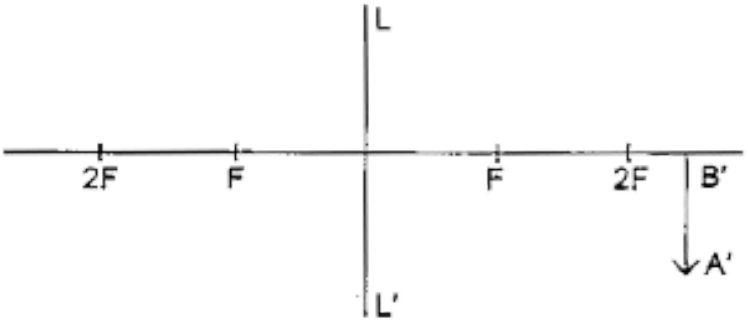
9. The diagram below shows an image formed at a distance 36 cm from the lens LL' of focal length 12 cm. With respect to this answer the questions that follow.



If the lens LL'. is replaced by another lens of same type but focal length 15 cm then for the same object distance.

A. the size of the image decreases.

B. the size of the image increases.

C. the size of the image remains the same.

D. information is insufficient to conclude.

Answer: B

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10. The usable form of mechanical energy is:

A. Elastic potential energy

B. Kinetic energy

C. Gravitational potential energy

D. None of the given options.

Answer: B

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11. One horse power is equal to :

A. 100W

B. 735W

C. 764W

D. 746W

Answer: D

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12. If A and B of the same mass can climb the third floor of the same building in 3 minutes and 5 minutes respectively, then the ratio of their powers of A is to B in an ideal situation is:

A. $1:1$

B. $3:5$

C. The information is insufficient to form a conclusion

D. $5:3$

Answer: D

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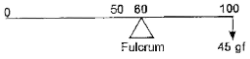
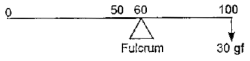
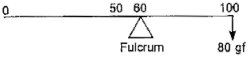
13. If the centre of gravity of a metre scale of mass 80g lies at the 45 cm mark, then which one of the following diagrams will show the balanced position of the scale.

A. 

B. 

C. 

D. 

Answer: A

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14. A body has kinetic energy 250 J. If the mass of the body is 5 kg, then choose its velocity and momentum from the following options.

A. 50 m/s

B. 50 kg.m/s

C. 20kg. m/s

D. 15 m/s

Answer: B

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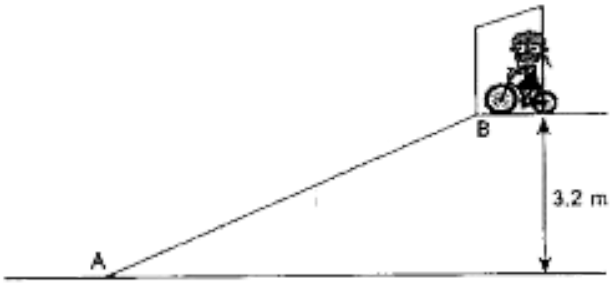
15. A girl at rest at gate of her society which is 3.2 m .above the road comes down the slope AB on a cycle without paddling. [g = 10 N/kg]



The mechanical energy possessed by the girl at B is:

A. Vibrational kinetic energy.

B. Translational kinetic energy

C. Elastic potential energy.

D. Gravitational potential energy.

Answer: D

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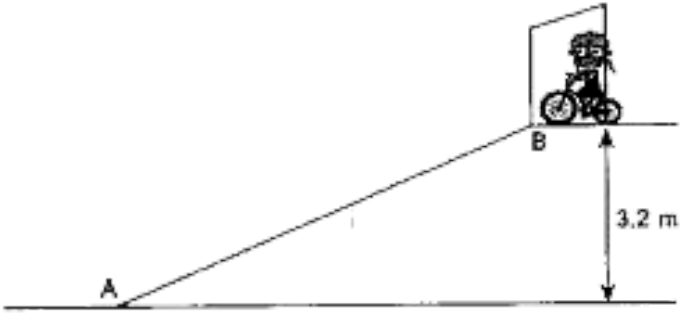
16. A girl at rest at gate of her society which is 3.2 m .above the road comes down the slope AB on a cycle without paddling. [g = 10 N/kg]



The velocity with which girl reaches point A is:

A. 32 m/s

B. 10 m/s

C. 8 m/s

D. Insufficient information to calculate velocity.

Answer: C

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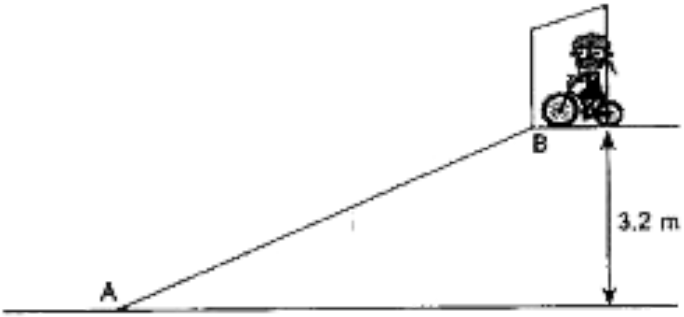
17. A girl at rest at gate of her society which is 3.2 m .above the road comes down the slope AB on a cycle without paddling. [g = 10 N/kg]



If the mass of the girl is 40 kg then the kinetic energy of the girl at A is [Assuming no loss of energy.].

A. 1280 J

B. 1600 J

C. 400 J

D. 3200 J

Answer: A

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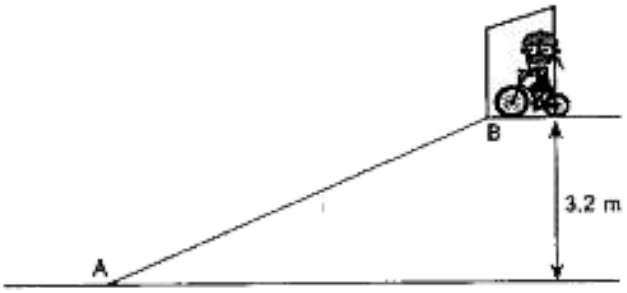
18. A girl at rest at gate of her society which is 3.2 m .above the road comes down the slope AB on a cycle without paddling. [g = 10 N/kg]



The potential energy of the girl (of mass 40 kg) then she reaches the midpoint of the slope of AB:

A. 800 J

B. 200 J

C. 1600 J

D. 640 J

Answer: D

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19. Mechanical advantage (M.A.), load (L), and effort (E) are related as:

A. M.A. = L X E

B. M.A. = E/L

C. M.A. X E = L

D. M.A.X L = E

Answer: C

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20. Which one of the following statements is correct?

A. A machine is used to have more output energy as compared to input energy.

B. Mechanical advantage of a machine can never be greater than 1.

C. If a machine gives convenience of direction, then its mechanical advantage should be greater than 1.

D. For a given design of a machine, even if the mechanical advantage increases, the velocity ratio remains the same.

Answer: D

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21. If a block and tackle system with convenient direction has 3 movable pulleys, then its velocity ratio:

A. is either 6 or 7

B. should be 6

C. should be 7

D. is 3

Answer: D

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22. Work done by a body moving on a circular track is zero at every instant because:

A. displacement is zero.

B. displacement is perpendicular to the centripetal force.

C. there is no force acting.

D. reason is not mentioned in the other options.

Answer: B

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23. Identify the conditions required to hear a clear and distinct echo by humans, in air:

A. The reflecting surface should be rough.

B. The size of the reflecting surface should be smaller than the wavelength of sound.

C. Sound should not be reflected back within 0.1 s.

D. The size of the reflecting surface should be larger than the wavelength of sound.

Answer: D

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24. A person standing in front of a vertical cliff fires a gun and hears its echo in 3 s. The speed of sound in air is 340 m/s:

Calculate distance at which the person is standing in front of the cliff? Steps are given to calculate the distance. Select the correct sequence of the steps from the given options:

(i) $340 = \frac{2d}{3}$

(ii) $340 = \frac{d}{3}$

(iii) $d = 170 \times 2 = 510$ m

(iv) $d = 340 \times 3 = 1020$ m

A. (ii) then (iv)

B. (iii) then (ii)

C. (i) then (iii)

D. (iii) then (i)

Answer: C

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25. A person standing in front of a vertical cliff fires a gun and hears its echo in 3 s. The speed of sound in air is 340 m/s:

If the speed of sound changes to 350 m/s then how much distance should the person move towards or away from the cliff in order to hear the echo in the same time. Steps are given to calculate the distance. Select the correct sequence of the steps from the given option.

(i) $\frac{340+350}{2}=\frac{2d}{3}$

(ii) $350-340=\frac{2d}{3}$

(iii) $d=\frac{345\times 3}{2}=517.5\text{m}$

(iv) $d=\frac{30}{2}=15\text{ m}$

(v) 7.5 m

A. (ii), (iii) then (v)

B. (iv) then (ii)

C. (iv) then (v)

D. (ii) then (iv)

Answer: D

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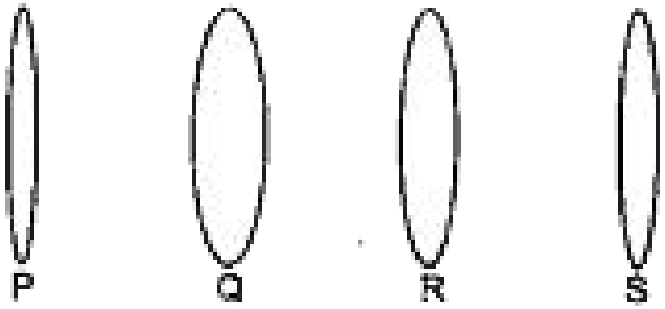
26. Assuming all lenses shown below are of the same material, state which lens has the maximum power.



A. R

B. P

C. Q

D. S

Answer: A

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27. In an electric cell while in use, the change in energy is from:

A. Chemical to mechanical

B. Chemical to electrical

C. Electrical to mechanical

D. Electrical to chemical

Answer: B

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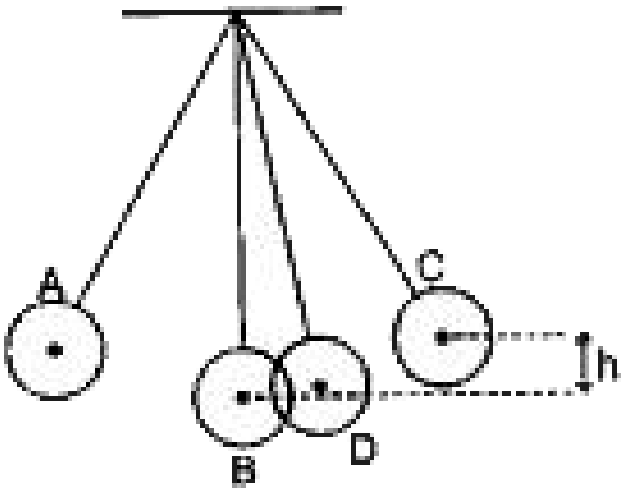
28. The diagram below shows a pendulum having a bob of mass 80 g. A and C are extreme positions and B is the mean position. The bob has velocity 5m/s at position B. Assuming there is no loss of energy, select the correct statements from the options given below:

[g = 10 N/kg]



At point A the bob will have only kinetic energy.

The maximum potential energy gained by the bob will be 1000J.

The maximum height 'h' reached by the bob will be 125 cm.

At point D the bob will have maximum kinetic energy.

The maximum potential energy gained by the bob

will be 1 J

At point B the energy possessed by the bob is 1000 J.

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29. Select correct options for Total internal reflection in a medium.

Can take place in an optically denser medium as compared to an optically rarer medium.

Takes place for any angle of incidence greater than 42 degree.

This reflection does not obey the laws of reflection.

Can take place if the angle of incidence in a denser medium is more than the critical angle.

A. Can take place in an optically denser medium as compared to an optically rarer medium.

B. Takes place for any angle of incidence greater than 42 degree.

C. This reflection does not obey the laws of reflection.

D. Can take place if the angle of incidence in a denser medium is more than the critical angle.

Answer:

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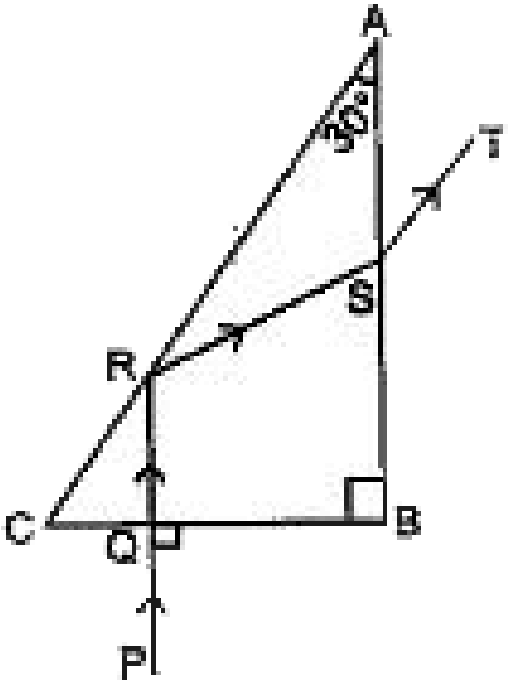
30. The diagram shows the path of light through a right-angled prism of critical angle 42°.

Observe the diagram and answer the questions that follow:



The phenomenon at the surface AC is:

A. Refraction

B. Partial reflection

C. Total internal reflection

D. Scattering.

Answer: C

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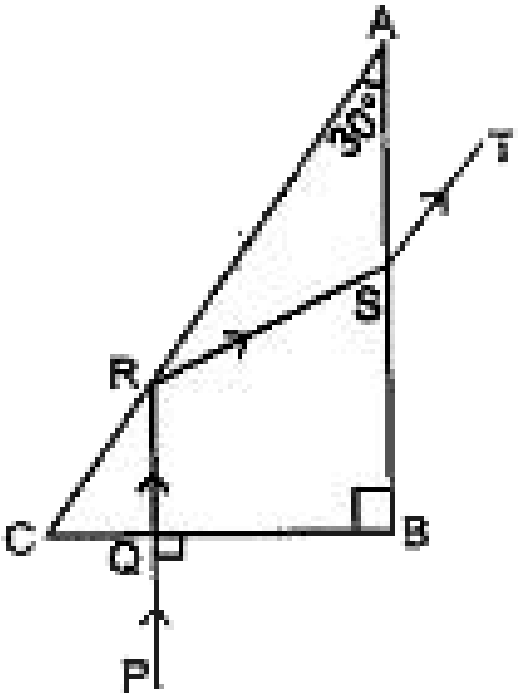
31. The diagram shows the path of light through a right-angled prism of critical angle 42°.

Observe the diagram and answer the questions that follow:



The angle of incidence at the surface AC is

A. 30°

B. 45°

C. 0°

D. 60°

Answer: D

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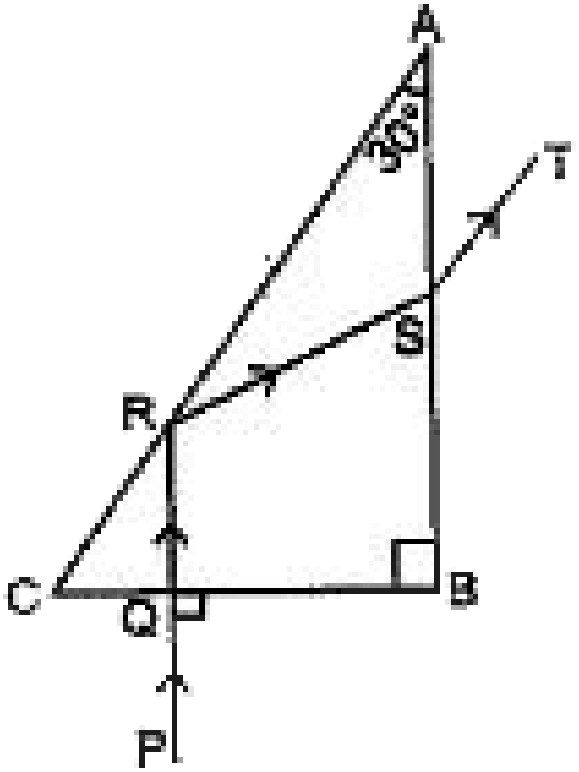
32. The diagram shows the path of light through a right-angled prism of critical angle 42°.

Observe the diagram and answer the questions that follow:



The angle of incidence at the surface AB is

A. 90°

B. 0°

C. 45°

D. 60°

Answer: A

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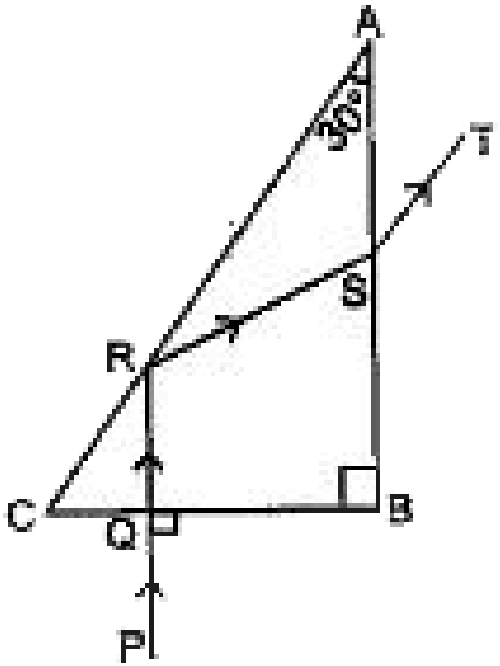
33. The diagram shows the path of light through a right-angled prism of critical angle 42°.

Observe the diagram and answer the questions that follow:



Which of the following statement is wrong?

A. Speed of light ray PQ is equal to the speed of light ray ST

B. Speed of light ray QR is equal to the speed of light ray RS.

C. Speed of light ray PQ is greater than the speed of light ray RS

D. Speed of light ray RQ is greater than the speed of light ray ST.

Answer: D

View Text Solution

Questions

1. Physical growth and development is called:

A. Readiness

B. Maturation

C. Heredity

D. Mobility

Answer: B

View Text Solution

2. What is a Tennis elbow injury?

A. It is an inflammation of the tendon that joins the muscle of the forearm to the outside of the

elbow.

B. It is a disorder involving the muscles, nerves, and bones of the back.

C. It is inflammation of the bursa at the part of the hip called the greater trochanter.

D. It is a traumatic injury to the brain that alters mental status.

Answer: A

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3. What does Mesomorph refer to?

A. They gain weight easily, lose weight slowly.

B. They gain and lose weight easily.

C. It is hard to gain weight.

D. It is difficult to gain muscles

Answer: B

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4. Which physical fitness test is used to assess cardiovascular endurance?

A. Push-ups test.

B. Sit and reach test.

C. Sit-ups test

D. Cooper run test

Answer: D

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5. To prevent an injury, one should always:

A. Warm up properly.

B. Have appropriate fitness levels before playing

C. Wear the appropriate equipment.

D. All of these.

Answer: D

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6. The ability to maintain equilibrium when stationary or moving :

A. Accuracy

B. Flexibility

C. Balance

D. Agility

Answer: D

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7. The influence of peer group is more in:

A. Adulthood Stage

B. Adolescence Stage

C. Infancy Stage

D. Childhood Stage

Answer: B

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8. It is the ability to use the senses together with body parts during movement:

A. Power

B. Agility

C. Speed

D. Coordination

Answer: D

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9. The systematic planning of athletic or physical training is called:

A. Periodization

B. Specificity

C. Frequency

D. Variance

Answer: B

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10. Factors that influence human growth and development are:

A. Heredity

B. Environment

C. Gender

D. All of these

Answer: D

View Text Solution

11. What is the most common symptom of an ACL injury?

A. Pain, swelling along the inner part of the leg

B. A loud "pop" or a "popping" sensation in the knee with severe pain.

C. Pain on the bottom of the foot near the heel

D. Tenderness when you touch the ankle. Instability in the ankle

Answer: B

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12. Which of the following statements is correct?

A. Language acquisition is faster in girls in their teens.

B. Skills like catching, jumping throwing are slower in boys.

C. Girls don't grow taller.

D. Gender does not influence growth and development.

Answer: A

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13. _____ is essential for the healthy development of the child.

A. Proper nutrition

B. Recreation

C. Fibrous food

D. Exertion

Answer: A

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14. Which among the following are the objectives of physical education?

A. Physical development and psychological development.

B. Social development, emotional development

C. Neuro-muscular development, mental development.

D. All of the above.

Answer: D

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15. If someone has a broken bone, which of the following statements is true?

A. If we do not support the limb, it may cause further injury and pain.

B. If we do not support the limb, the person will be able to move the limb more easily and reduce the pain.

C. If we do not support the limb, it doesn't matter.

D. None of the above.

Answer: A

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16. Which is not the psychological development objective of physical education?

A. To develop self-confidence and self-esteem.

B. To develop the ability to use one's body to express one's ideas, attitudes and emotions.

C. To develop the ability to plan, implement and evaluate decisions.

D. To develop alertness of mind, deep concentration through various physical activities.

Answer: B

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17. The best way to prevent sports injuries is:

A. Stay calm.

B. Good warming up and stretching.

C. Not to do too much effort.

D. Not to play at all.

Answer: B

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18. The risk for shin splint injury is more if you:

A. Cycle for a longer duration

B. Have flat feet or very rigid foot arches

C. Swim a lot

D. Have a collision in football

Answer: B

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19. The process by which a child learns to interact with others around them is called:

A. Physical development

B. Psychological development

C. Emotional development

D. Social development

Answer: D

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20. Which of the following is the Psychological Development objective of Physical Education?

A. To develop organ systems such as the muscular system, digestive system properly.

B. To develop understanding and appreciation of the culture which is worldwide.

C. To develop the ability to deal with success and failure with equanimity.

D. To develop alertness of mind, deep concentration through various physical activities.

Answer: D

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21. The physical makeup of a person's body is called their _____

A. Size

B. Height

C. Shape

D. Body type

Answer: D

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22. What does the principle of variance suggest?

A. Major changes in training helps in sports performance.

B. Minor changes in training helps in sports performance.

C. No changes in training helps in Sports performance

D. None of the above

Answer: B

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23. Mesomorph tends to have ..... Metabolism.

A. Slow metabolism.

B. Average to Fast metabolism

C. Medium metabolism.

D. High metabolism

Answer: B

View Text Solution

24. Which of the following statements is true with respect to Growth:

A. It stops when maturity has been attained.

B. Is continuous throughout life.

C. Is a progressive series of changes.

D. Cannot be measured

Answer: B

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25. What physical traits are associated with an Ectomorph?

A. Broad Shoulders.

B. Thin Build.

C. Large Frame.

D. Small Feet.

Answer: B

View Text Solution

26. What is physical fitness?

A. Any physical activities that improve your ability to complete tasks.

B. The ability to do everyday tasks without getting tired.

C. The way your body adapts to the stress of exercise.

D. All of the above

Answer: D

View Text Solution

27. Which of the following is most likely to increase the risk of leg and foot fracture:

A. Gradual increase in intensity of training

B. Warm up and cool down

C. Stretching the leg muscle

D. High arches and low flexibility of the lower body.

Answer: A

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28. The progressive series of changes that occur in an orderly predictable pattern as a result of maturation and experience is called:

A. Development

B. Growth

C. Both

D. None

Answer: A

View Text Solution

29. How does a MCL injury occur?

A. Falling on the outside of the hip or banging the hip on any hard surface.

B. Putting strain on calf muscle during repeated exercise or physical activity.

C. Car accident

D. Improper landing after a jump.

Answer: D

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30. The ability of your joints to move through a full range of motion is called:

A. Agility

B. Co-ordination

C. Flexibility

D. Speed

Answer: C

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31. What is the name of the fitness test for power?

A. 100 m run

B. Standing broad jump

C. Cooper Run test.

D. Zig zag test

Answer: A

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32. What is an ACL injury?

A. It is a pain along the inside edge of the shin bone

B. It is a tear or sprain of the anterior cruciate ligament.

C. It is the inflammation of the plantar fascia ligament.

D. It is a tear or sprain of the Medial Collateral ligament.

Answer: B

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33. The years between the onset of puberty and beginning of adulthood is the stage of:

A. Adolescence

B. Childhood

C. Adulthood

D. Infancy

Answer: A

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34. Being able to change direction quickly in a game of basketball is a good example of which skill related component?

A. Speed

B. Coordination

C. Agility

D. Power

Answer: C

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35. The power of memory, thinking and decision making gets increased in which stage of Growth and Development?

A. Childhood stage

B. Infancy

C. Adulthood

D. Adolescence

Answer: D

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36. Which somatotypes are at a greater risk of becoming obese?

A. Endomorph

B. Mesomorph

C. Ectomorph

D. Athletic

Answer: B

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37. According to the Principle of Continuity, training program should be:

A. Regular

B. Irregular

C. Once a week

D. Once a month

Answer: A

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38. The stage from the age of 19-65 years is called:

A. Childhood Stage

B. Infancy Stage

C. Adolescence Stage

D. Adulthood Stage

Answer: D

View Text Solution

39. What is a muscle strain?

A. It is an inflammation of the tendon that joins the muscle of the forearm to the outside of the elbow.

B. It is an injury of muscles caused by the overstress or overstretch of muscles or due to violent pull.

C. It is a tear or sprain of the anterior cruciate ligament.

D. It is an inflammation of the bursa.

Answer: A

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40. The mnemonic RICE stands for:

A. Rest Innervate, Compression, Elevation.

B. Rest, Ice, Compression, Elevation

C. Rest, Ice, Contusion, Elevation.

D. Rest, Ice Contraction, Elevation.

Answer: B

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41. The ability to move from one point to another in the shortest period of time:

A. Power

B. Agility

C. Speed

D. Balance

Answer: C

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42. The transmission of traits from parents to off-springs is called:

A. Environment

B. Genes

C. Heredity

D. Biology

Answer: C

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43. The ability of the muscle to exert maximum force is:

A. Muscular endurance

B. Flexibility

C. Agility

D. Muscular strength

Answer: A

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44. Which of the following is NOT the objective of physical education?

A. Physical development.

B. Psychological development.

C. Neuro-muscular development.

D. Sedentary lifestyle.

Answer: D

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45. A stress fracture is a:

A. It is a fatigue induced a tiny crack or a small sliver in a bone

B. It occurs when the ligaments that support the ankle are stretched.

C. It is a traumatic injury to the brain that alters mental status.

D. It is the inflammation of the plantar fascia ligament.

Answer: A

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46. What is cardiovascular endurance?

A. It is the ability of a muscle or group of muscles to sustain repeated contractions.

B. It is the ability of the heart and lungs to supply oxygen-rich blood to the working muscle tissues.

C. It is the ability of muscles to overcome resistance and produce force.

D. It is the range of motion in a joint or group of joints or the ability to move joints effectively through a complete range of motion.

Answer: B

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47. Following is the objective of psychological development in physical education:

A. To guide a person to make his body strong, well-shaped and good looking

B. To develop positive thoughts, ideas, behaviour, attitude, conduct and responses.

C. To develop the ability to respect the attitudes and values of others.

D. To develop the ability to control various emotions like fear, pleasure, hope, anger.

Answer: B

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48. In which part of the body can you suffer a "Concussion":

A. Leg

B. Elbow

C. Head

D. Knee

Answer: C

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49. The cool-down period is designed to:

A. Help reduce muscle stiffness and soreness.

B. Lower body temperature.

C. Redistribute pooled blood after exercise.

D. All of these.

Answer: D

View Text Solution

50. In which stage the physical growth is rapid ?

A. Early childhood

B. Adolescence

C. Old age

D. Infancy

Answer: D

View Text Solution

51. Choose the correct statement with respect to Refraction of light

A. The colour always changes when light enters from one optical medium to another

B. Absorption of light when it strikes the surface of a medium is refraction.

C. Speed of light changes when it enters from one optical medium to another of different optical density.

D. Speed of light does not change when it enters from one optical medium to another of

different optical density.

Answer:

View Text Solution

52. When a light ray enters from a denser medium to a rarer medium

A. The light ray bends towards the normal.

B. Angle of incidence is less than angle of refraction,

C. Speed of light decreases.

D. Speed of light remains unchanged

Answer:

View Text Solution

53. In the diagram shown below:

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(##OSW_GRU_SQP_ICSE_X_SM1_PHY_QP_E01_003_Q01.png"

width="80%">

A. B is incident ray and C is refracted ray.

B. A is incident ray and B is refracted ray.

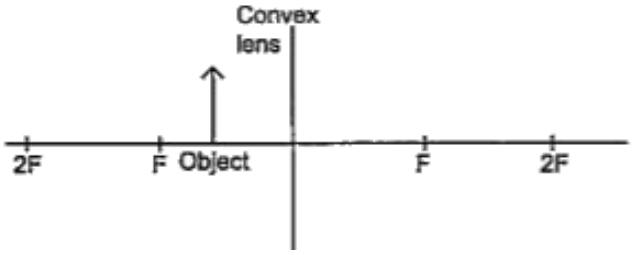
C. C is incident ray and B is refracted ray.

D. A is incident ray and C is refracted ray.

Answer:

View Text Solution

54. From the diagram shown below, identify the characteristics of the image that will be formed.



A. Real

B. Diminished

C. Formed within the focal length.

D. Virtual

Answer:

View Text Solution

55. The wavelength of light in a medium Ais 600 nm. The wave enters medium B of refractive index 1.5 Steps to find the wavelength of light in medium B are given below. Choose an option which has the correct sequence of steps, to find the wavelength.

$(i)\lambda = 1.5 \times 600$

$(ii)\lambda = 6001.5$

$(iii)\lambda = 400nm$

$(iv)\lambda = 900nm$

$(v)1.5 = \lambda 600$

A. (i) then (iii)

B. (ii) then (iii)

C. (i) then (iv)

D. (ii), (i) then (iv)

Answer:

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56. The diagram below shows an image formed at a distance 36 cm from the lens LL' of focal length 12 cm. With respect to this answer the questions that follow.

The position of the object on the left-hand side should be

A. between 12 cm to 30 cm from the lens

B. beyond 24 cm from the lens.

C. between 12 cm to 24 cm from the lens.

D. within 12 cm from the lens.

Answer:

View Text Solution

57. The diagram below shows an image formed at a distance 36 cm from the lens LL' of focal length 12 cm. With respect to this answer the questions that follow.

Power of this lens is

A. $-8.33D$

B. $+8.4D$

C. $+8.33D$

D. $-8.4D$

Answer:

View Text Solution

58. The diagram below shows an image formed at a distance 36 cm from the lens LL' of focal length 12 cm. With respect to this answer the questions that follow.

The object distance with sign convention is

A. $-18cm$

B. $-15cm$

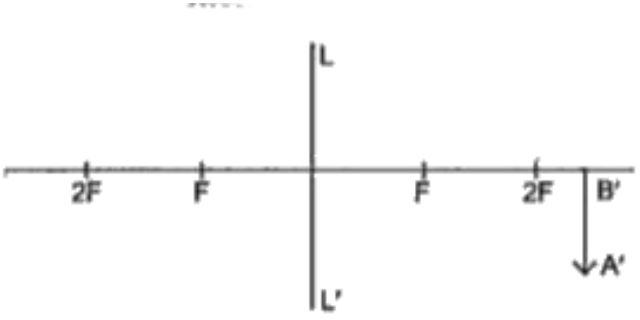
C. $-9cm$

D. $+18cm$

Answer:

View Text Solution

59. The diagram below shows an image formed at a distance 36 cm from the lens LL' of focal length 12 cm. With respect to this answer the questions that follow.



If the lens LL' is replaced by another lens of same type

but focal length 15 cm then for the same object distance

A. the size of the image decreases,

B. the size of the image increases.

C. the size of the image remains the same.

D. information is insufficient to conclude.

Answer:

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60. The usable form of mechanical energy is

A. Elastic potential energy

B. Kinetic energy

C. Gravitational potential energy

D. None of the given options.

Answer:

View Text Solution

61. One horsepower is equal to

A. 100 W

B. 735 W

C. 764 W

D. 746 W

Answer:

View Text Solution

62. If A and B of the same mass can climb the third floor of the same building in 3 minutes and 5 minutes respectively, then the ratio of their powers of A is to B in an ideal situation is

A. $1:1$

B. $3:5$

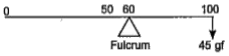
C. The information is insufficient to form a conclusion.

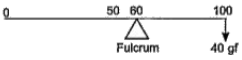
D. $5:3$

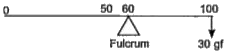
Answer:

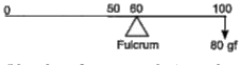
View Text Solution

63. If the centre of gravity of a metre scale of inass 80 g lies at the 45 cm mark, then which one of the following diagrams will show the balanced position of the scale.

A. 

B. 

C. 

D. 

Answer:

View Text Solution

64. A body has kinetic energy 250 J. If the mass of the body is 5 kg, then choose its velocity and momentum from the following options.

A. 50 m/s

B. 50 kg.m/s

C. 20 kg.m/s

D. 15 m/s

Answer:

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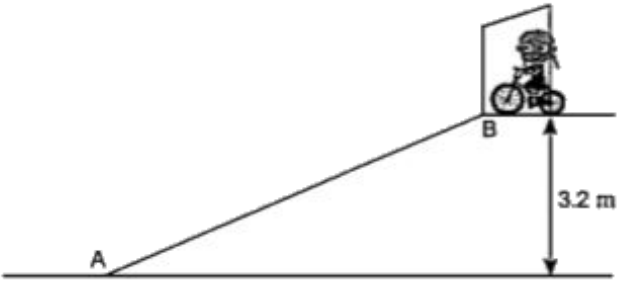
65. A girl at rest at gate of her society which is 3.2 m above the road comes down the slope AB on a cycle without paddling. (g = 10 N/kg]



The mechanical energy possessed by the girl at B is

A. Vibrational kinetic energy.

B. Translational kinetic energy

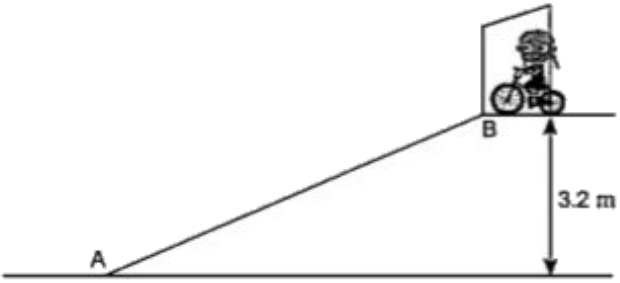
C. Elastic potential energy.

D. Gravitational potential energy.

Answer:

View Text Solution

66. A girl at rest at gate of her society which is 3.2 m above the road comes down the slope AB on a cycle without paddling. (g = 10 N/kg]



The velocity with which girl reaches point A is

A. 32 m/s

B. 10 m/s

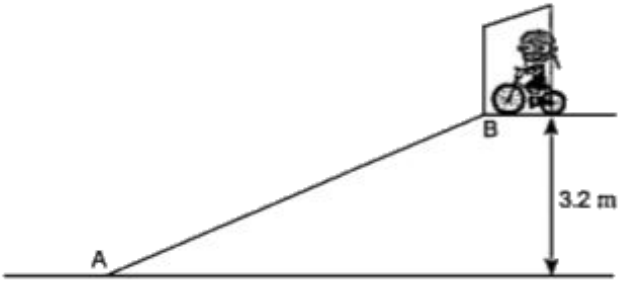
C. 8 m/s

D. Insufficient information to calculate velocity.

Answer:

View Text Solution

67. A girl at rest at gate of her society which is 3.2 m above the road comes down the slope AB on a cycle without paddling. (g = 10 N/kg]



If the mass of the girl is 40 kg then the kinetic energy of the girl at A is [Assuming no loss of energy.]

A. 1280 J

B. 1600 J

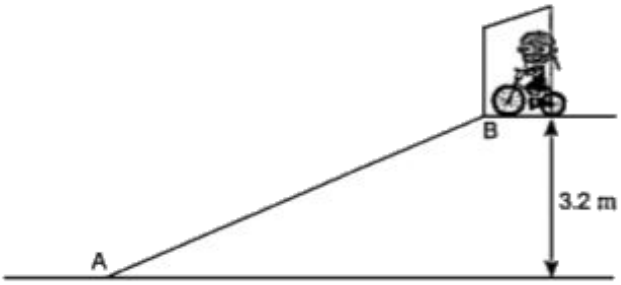
C. 400 J

D. 3200 J

Answer:

View Text Solution

68. A girl at rest at gate of her society which is 3.2 m above the road comes down the slope AB on a cycle without paddling. (g = 10 N/kg]



The potential energy of the girl (of mass 40 kg) when she reaches the midpoint of the slope of AB

A. 800 J

B. 200 J

C. 1600 J

D. 640 J

Answer:

View Text Solution

69. Mechanical advantage (M.A.), load(L), and effort(E) are related as

A. M.A. = LXE

B. M.A. = E/L

C. M.A. XE=L

D. M.A. XL=E

Answer:

View Text Solution

70. Which one of the following statements is correct?

A. A machine is used to have more output energy as compared to input energy.

B. Mechanical advantage of a machine can never be greater than 1.

C. If a machine gives convenience of direction, then its mechanical advantage should be greater than 1

D. For a given design of a machine, even if the mechanical advantage increases, the velocity ratio remains the same.

Answer:

View Text Solution

71. If a block and tackle system with convenient direction has 3 movable pulleys, then its velocity ratio

A. is either 6 or 7

B. should be 6

C. should be 7

D. is 3

Answer:

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72. Work done by a body moving on a circular track is zero at every instant because

A. displacement is zero.

B. displacement is perpendicular to the centripetal force.

C. there is no force acting.

D. reason is not mentioned in the other options.

Answer:

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73. Identify the conditions required to hear a clear and distinct echo by humans, in air

A. The reflecting surface should be rough.

B. The size of the reflecting surface should be smaller than the wavelength of sound.

C. Sound should not be reflected back within 0.1 s.

D. The incident sound should have frequency more than 25000 Hz.

Answer:

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74. The size of the reflecting surface should be larger than the wavelength of sound.

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75. A person standing in front of a vertical cliff fires a gun and hears its echo in 3 s. The speed of sound in air is 340 m/s

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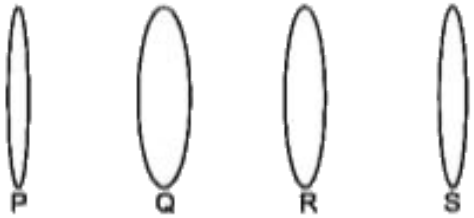
76. Assuming all lenses shown below are of the same material, state which lens has the maximum power.



A. R

B. P

C. Q

D. S

Answer:

View Text Solution

77. In an electric cell while in use, the change in energy is from:

A. Chemical to mechanical

B. Chemical to electrical

C. Electrical to mechanical

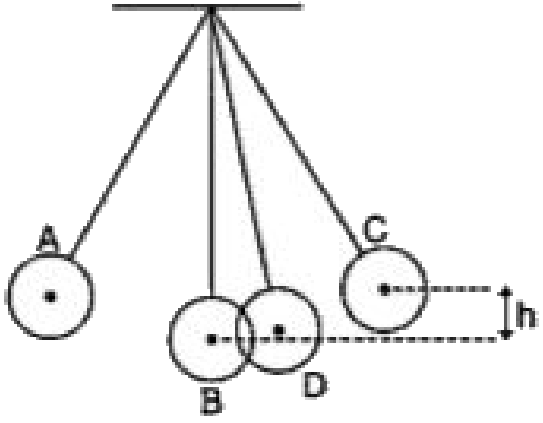
D. Electrical to chemical

Answer:

View Text Solution

78. The diagram below shows a pendulum having a bob of mass 80 g. A and C are extreme positions and B is the mean position. The bob has velocity 5 m/s at position B. Assuming there is no loss of energy, select the correct statements from the options given below:

[g = 10 N/kg]



A. At point A the bob will have only kinetic energy.

B. The maximum potential energy gained by the bob will be 1000J

C. The maximum height 'h' reached by the bob will be 125 cm.

D. At point D the bob will have maximum kinetic energy.

Answer:

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79. Select correct options for Total internal reflection in a medium.

A. Can take place in an optically denser medium as compared to an optically rarer medium.

B. Takes place for any angle of incidence greater than 42 degree

C. This reflection does not obey the laws of reflection.

D. Can take place if the angle of incidence in a denser medium is more than the critical angle.

Answer:

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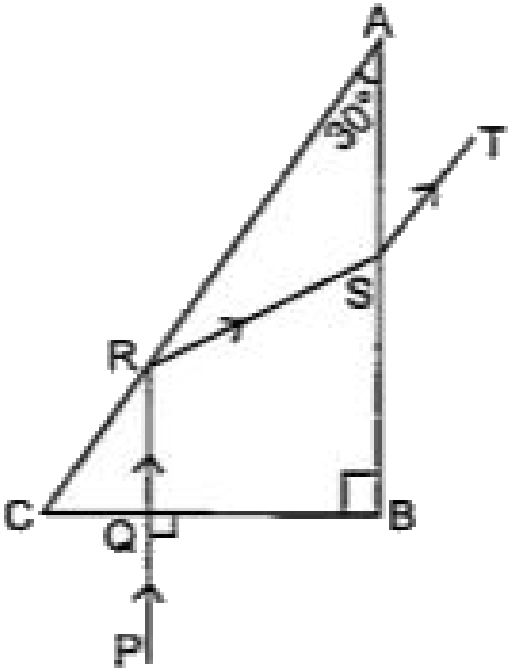
80. The diagram shows the path of light through a right-angled prism of critical angle 42° Observe the diagram and answer the questions that follow.



The phenomenon at the surface AC is

A. Refraction

B. Partial reflection

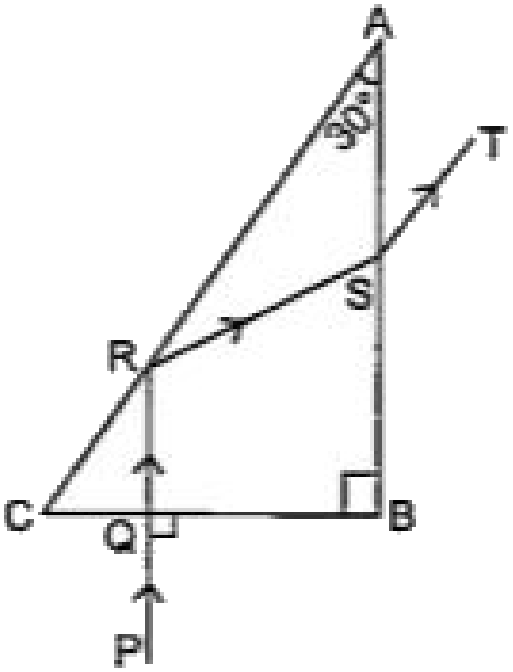
C. Total internal reflection

D. Scattering

Answer:

View Text Solution

81. The diagram shows the path of light through a right-angled prism of critical angle 42° Observe the diagram and answer the questions that follow.



The angle of incidence at the surface AC is

A. 30°

B. 45°

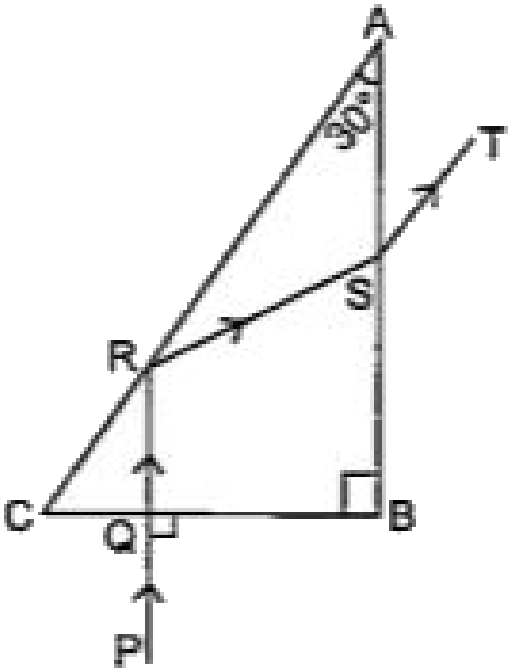
C. 0°

D. 60°

Answer:

View Text Solution

82. The diagram shows the path of light through a right-angled prism of critical angle 42° Observe the diagram and answer the questions that follow.



The angle of incidence at the surface AB is

A. 30°

B. 0°

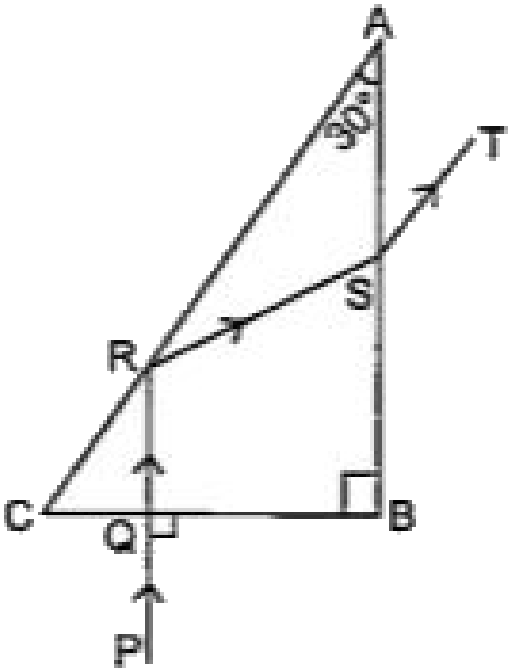
C. 45°

D. 60°

Answer:

View Text Solution

83. The diagram shows the path of light through a right-angled prism of critical angle 42° Observe the diagram and answer the questions that follow.



Which of the following statement is wrong?

A. Speed of light ray PQ is equal to the speed of light ray ST

B. Speed of light ray QR is equal to the speed of light ray RS

C. Speed of light ray PQ is greater than the speed of light ray RS.

D. Speed of light ray RQ is greater than the speed of light ray ST.

Answer:

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