



PHYSICS

BOOKS - SELINA PHYSICS (ENGLISH)

SAMPLE PAPER 1

Questions

1. Which of the following systems of the body is the focal point in movement?

A. Circulatory system

B. Nervous system

C. Respiratory system

D. Muscular system

Answer: D



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2. Which of the following are considered as the Social Inheritance of Man?

A. Traditions

B. Habits

C. Conditional reflexes

D. Religious practices

Answer: C



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3. Find the odd from the following: Soft tissue injuries types -

A. Laceration

B. Abrasion

C. Contusion

D. None of these

Answer: D



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4. Physical activity is basically a

A. Social attribute

B. Psychological tendency

C. Biological necessity

D. Philosophical concept

Answer: C



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5. In the technical terms, muscle pull is known

as:

A. Sprain

B. Strain

C. Abrasion

D. Contusion

Answer: B



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6. Physical education is:

A. Part of the total education program that

contributes, primarily through

movement to the total growth and development of children

B. A program that only provides recreational and play experiences for children

C. Most important for those children who are interested in playing sports

D. A subject with the primary objective to improve the fitness of children

Answer: A



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7. _____ is a dynamic state of well being that implies living fully and deriving the most from life.

A. Dynamic health

B. Healthiness

C. Liveliness

D. Wellness

Answer: D



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8. What is the Aim of Physical Education?

A. Physical Development

B. Mental Development

C. Whole Development of Individuals

D. Social Development

Answer: C



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9. What is the meaning of posture?

A. Way of sit

B. Way of walk

C. Way of stand

D. The way a person sits, stands, walks, etc

Answer: D



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10. Which is not a component of health related physical fitness?

- A. Body Composition
- B. Balance
- C. Cardiorespiratory Fitness
- D. Flexibility

Answer: B



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11. Which among the following are the type of fracture?

A. Open fracture

B. Closed fracture

C. Only 2

D. Both 1 and 2

Answer: D



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12. Which of the following is not a component of physical fitness?

A. Agility

B. Anaerobic capacity

C. Flexibility

D. Muscle composition

Answer: B



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13. _____ is the ability to perform smooth and accurate movements involving different parts of the body

A. Differentiation

B. Coordination

C. Subjugation

D. Adaptation

Answer: B



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14. Which of the following is not a type of endurance?

- A. Speed endurance
- B. Aerobic endurance
- C. Power endurance
- D. Strength endurance

Answer: C



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15. Which of the following is not a cause of sports injuries?

- A. Age related causes
- B. Equipment selection related
- C. Related to poor technique
- D. None of these

Answer: D



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16. Select the incorrect option that does not describes strength.

A. Maximum strength

B. Knock-out strength

C. Explosive strength

D. Strength endurance

Answer: B



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17. Which of the following best describes the usual progression of physical growth in infants and toddlers?

A. Physical growth occurs first in the lower body and proceeds upward to the torso and head.

B. Physical growth occurs in all major regions of the body simultaneously at about the same rate.

C. Physical growth occurs first in the head and proceeds downward to the trunk and outward toward the extremities.

D. Physical growth occurs variably in individuals with no typical starting point or progression of growth.

Answer: C



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18. Which of the following statement is incorrect about the principles of child development?

A. Development follows a definite and predictable pattern

B. All individuals are similar in their development.

C. Development is product of hereditary and environment.

D. Development works on the principle of integration.

Answer: B



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19. Which of the following statement is not correct?

A. Development is a quantitative process.

B. Education is a goal-oriented process.

C. Learning is a process of behavioural change.

D. Growth is a biological process

Answer: A



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20. 'Development is a never-ending process'.

This statement is related to which principle of development?

A. Principle of continuity

B. Principle of integration

C. Principle of interaction

D. Principle of inter-relationship

Answer: A



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21. Human development starts from -

A. Stage of infancy

B. Pre-childhood stage

C. Pre-natal stage

D. Post-childhood stage

Answer: C



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22. Growth of a child is mainly related to -

A. Moral Development

B. Social Development

C. Physical Development

D. Emotional Development

Answer: C



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23. What is the full form of "P.R.I.C.E" to treat sprain?

A. P= Protection, R = Rest, I=ICE, C=

Compression, E= Elevation

B. P= Protection, R = Rest, I= ICE, C=

Compress, E= Exercise

C. P = Protection, R=Rest, I=ICE, C=

Compound, E= Elevation

D. P = Protection, R=Rest, I=ICE, C=

Conditioning, E= Exercise

Answer: A



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24. The strong muscular and fit body type is

- A. Mesomorph
- B. Ectomorph
- C. Endomorph
- D. None of these

Answer: A



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25. What physical traits are associated with an Ectomorph?

- A. Thin Build
- B. Large Frame
- C. Broad Shoulders
- D. Small Feet

Answer: A



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26. What does 'Somato' stand for?

A. Rear

B. Physique

C. Size

D. Build

Answer: B



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27. What does an Endomorph refer to?

A. Wider hips than shoulders

B. Longer legs than arms

C. Tall

D. Muscular

Answer: A



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28. The time period between childhood and adulthood that includes physical, social, emotional and mental changes is called _____

A. Puberty

B. Maturity

C. Adolescence

D. Rebellion

Answer: C



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29. This ligament is located internally and crosses at the back of the knee joint -

A. MCL

B. ACL

C. PCL

D. LCL

Answer: B



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30. Hormone responsible for the secondary sexual characteristic changes in males -

A. Estrogen

B. Endocrine

C. Testosterone

D. Pituitary Gland

Answer: C



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31. Which age does infants start having teeth?

A. 5-6 months

B. 3-4 months

C. 6-8 months

D. 10-12 months

Answer: B::C



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32. The process of learning the rules of behaviour of the culture within which an individual is born and will live -

A. Socialisation

B. Egocentric

C. Learning

D. Maturation

Answer: A



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33. The ability to touch your toes is mainly an example of -

A. Muscular Endurance

B. Muscular Strength

C. Aerobic Fitness

D. Flexibility

Answer: D



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34. The ability to use two or more body parts together at the same time -

- A. Coordination
- B. Balance
- C. Reaction Time
- D. Strength

Answer: A



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35. The 3 bones that articulate at the knee are

-

- A. Femur/tibia/fibula
- B. Tibia/patella/femur
- C. Patella/fibular/tibia
- D. None of these

Answer: B



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36. The amount of time it takes to move once you realize you need to act.

A. Reaction Time

B. Balance

C. Speed

D. Coordination

Answer: A



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37. The ability to move quickly or cover a distance in a short period of time.

A. Cardiovascular Fitness

B. Muscular Strength

C. Speed

D. Muscular Endurance

Answer: C



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38. Physical Education is used for -

- A. Health
- B. Body development
- C. Fitness promotion
- D. All of these

Answer: D



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39. Which of the following is not a factor affecting human growth and development?

A. Nutrition

B. Gender

C. Heredity

D. None of these

Answer: D



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40. Age-related changes that are orderly, cumulative, and directional -

A. Development

B. Growth

C. Adolescent

D. Adulthood

Answer: C



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41. List two Safety precautions that can help you avoid injuries during physical activity.

A. Warm up, cool down

B. Ride a bike with no helmet wear baggy clothes

C. Horse play, wearing tight clothes

D. No helmet, no worries

Answer: A



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42. Sprains are injuries to -

A. Ligaments

B. Tendons

C. Bones

D. Skin

Answer: A



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43. Which statement is true?

A. Warm-ups are important for increasing flexibility

B. Cool-downs are important to relax muscles used during exercise.

C. Warm-ups and cool-downs are equally important.

D. They are all true statements.

Answer: D



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44. If you don't use it you'll lose it is best described as _____

- A. Specificity
- B. Progression
- C. Reversibility
- D. Individuality

Answer: C



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45. Specificity means what?

A. Making training specific to the sport or activity

B. Making training difficult

C. Making training easy

D. Making training hard enough to challenge you

Answer: A



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46. What additional principle of training could be incorporate into the program to stop getting bored?

- A. Specificity
- B. Rest and recovery
- C. Adaptation
- D. Variation

Answer: D



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47. If I've been training the same way for a while and my body is used to the exercise intensity, what additional principle of training has occurred?

- A. Adaptation
- B. Reversibility
- C. Rest and recovery
- D. Variation

Answer: A



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48. What is Shin Splints Injury?

- A. Tibialis (Posterior) muscle is injured
- B. Tibialis (anterior) muscle is injured
- C. Pain in two lower legs
- D. Pain in calf

Answer: C



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49. The purpose of a cool down after exercise is to -

- A. Transition back to resting state
- B. Increase heart rate
- C. Prevent injuries
- D. All of these

Answer: D



50. A brain injury that changes the way your brain normally works. A bump, blow or jolt to the head or a blow to the body that causes the head to move rapidly back and forth.

- A. Headache
- B. Concussion
- C. MHR
- D. Spine injury

Answer: B



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51. Choose the correct statement with respect to Total Internal Reflection

A. The ray of light travels at an angle greater than critical angle

B. The ray of light travels from denser medium to rarer medium

C. It does not obey the laws of reflection

D. Both 1 and 2

Answer: D



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52. The phenomenon of faces of person appear to shimmer when sitting near a campfire because of

- A. refraction through different layers of optical density
- B. wind blowing near the camp fire
- C. total internal reflection
- D. dispersion of light

Answer: A



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53. In the diagram below the phenomenon occurring is



- A. refraction of stars
- B. twinkling of stars
- C. Dispersion of light

D. total internal reflection

Answer: B



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54. Identify the position of the object when a lens exhibits the following characteristics of image: real, inverted and same size

A. At F

B. At O

C. At 2F

D. Between F and 2F

Answer: C



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55. A ray of light is incident from air into a glass slab which is silvered at its base such that the ray of light is incident normal to the mirrored surface. If refractive index of air with respect to glass is μ then the refractive index

of glass with respect to air is μ_2 . The relation between the two refractive indices is

A. $\mu_1 > \mu_2$

B. $\mu_1 = \mu_2$

C. $\mu_1 < \mu_2$

D. $\mu_1 = 1/\mu_2$

Answer: D



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56. The diagram below shows a spherical lens worn by an old man in which the image obtained is highly magnified and has a power of +2.0 D. With reference to this answer the following questions:



The spherical lens used is

A. convex

B. convexo concave

C. concave

D. plano convex

Answer: A



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57. The diagram below shows a spherical lens worn by an old man in which the image obtained is highly magnified and has a power of +2.0 D. With reference to this answer the following questions:



The focal length of lens is

A. 100cm

B. 25cm

C. 0.25m

D. 50 cm

Answer: D



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58. The diagram below shows a spherical lens worn by an old man in which the image obtained is highly magnified and has a power of +2.0 D. With reference to this answer the

following questions:



The distance the old man must keep the news paper to read clearly must be

A. 15cm

B. 50 cm

C. 12.5cm

D. 25 cm

Answer: B



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59. The diagram below shows a spherical lens worn by an old man in which the image obtained is highly magnified and has a power

of +2.0 D. With reference to this answer the following questions:



If this lens is covered with moisture in the surrounding air,

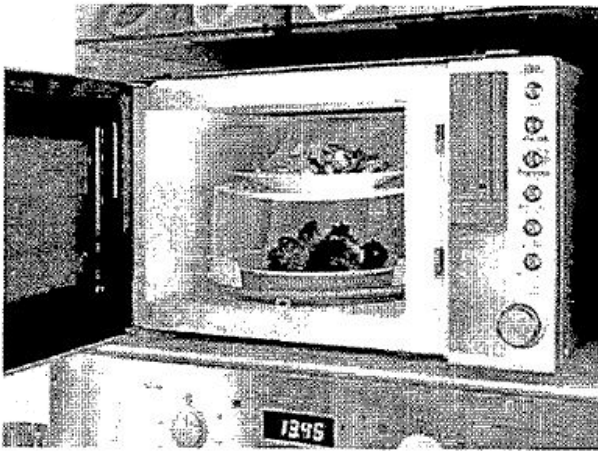
- A. The focal length would be halved
- B. The focal length is doubled
- C. The focal length would be affected
- D. The focal length is $1/4$ th.

Answer: C



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60. The energy change taking place in the following appliance is



- A. Electrical to sound energy
- B. Electrical to heat energy
- C. Electrical to light energy
- D. none of the above

Answer: B



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61. 1 MJ is equal to

A. 36kW-h

B. 0.278 kW-h

C. 746 kW-h

D. 0.36kW-h

Answer: B



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62. Pravin and Rajesh each having mass of 45 kg reach the fourth floor of a building in time 4 sec and 5 sec respectively. The ratio of their power consumed is :

A. 4: 5

B. 5: 4

C. 1: 1

D. Information is incomplete.

Answer: B



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63. Identify in which of the cases rotational equilibrium can be attained.

A.

Beam balance



B.

See saw



C.

balancing elegant art work



D. All of the above

Answer: D



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64. For a given mass if kinetic energy increases

16 times the momentum:

A. increases four times

B. increases twice

C. decreases four times

D. decreases twice

Answer: A



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65. Observe this antique figure and answer the questions below:



Name the unit obtained from this experiment

A. kW

B. watt

C. horsepower

D. Tesla

Answer: C



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66. Observe this antique figure and answer the questions below:



What type of unit is it?

A. Mechanical unit

B. SI unit

C. CGS unit

D. FPS unit

Answer: A

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67. Observe this antique figure and answer the questions below:



How many horses were there on each side of the two hemispheres?

A. 8

B. 16

C. 20

D. 14

Answer: A



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68. Observe this antique figure and answer the questions below:



How is this mechanical unit related to the SI unit of power?

A. $1\text{H.P.} = 756\text{ W}$

B. $1\text{H.P.} = 764\text{ W}$

C. 1 H.P. = 746W

D. None of the above

Answer: C



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69. The relationship to evaluate the velocity ratio is

A. velocity of effort/ velocity of load

B. displacement of effort / displacement of load

C. Mechanical advantage / efficiency

D. all of the above

Answer: D



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70. State which of the following statements are true.

- A. Efficiency of an ideal machine is equal to one
- B. Efficiency of a practical machine is less than one
- C. Efficiency is always expressed in fraction
- D. both 1 and 2

Answer: D



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71. A single fixed pulley is used because :

A. force multiplier

B. Torque multiplier

C. to achieve convenience of direction of
force applied

D. none of the above

Answer: C



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72. A baseball player shown in the figure runs over the entire pitch to complete one run by hitting the baseball hard enough. Work done by the player is



A. $0J$

B. $10J$

C. 100J

D. 1000 J

Answer: A



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73. For an ideal echo to occur the medium must be

A. Elastic

B. Inertial

C. Frictionless

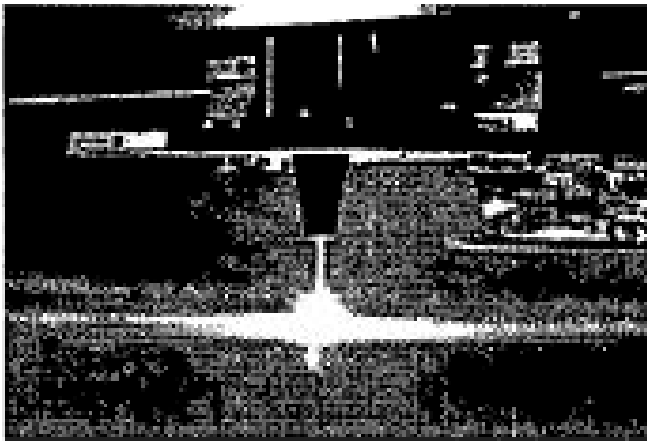
D. all of the above

Answer: D



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74. The diagram below shows a spherical lens used to focus a beam of laser in medical field. With reference to this answer the following questions:



The spherical lens used is

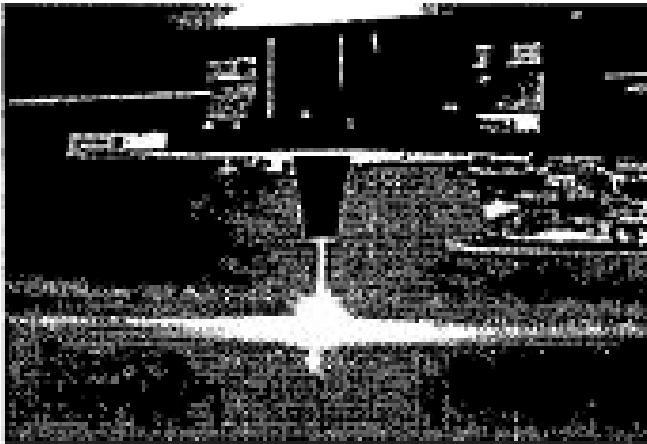
- A. convex
- B. convexo concave
- C. concave
- D. plano convex

Answer: A



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75. The diagram below shows a spherical lens used to focus a beam of laser in medical field. With reference to this answer the following questions:



The type of lens is

A. diverging

B. converging

C. neither converging

D. both converging and diverging

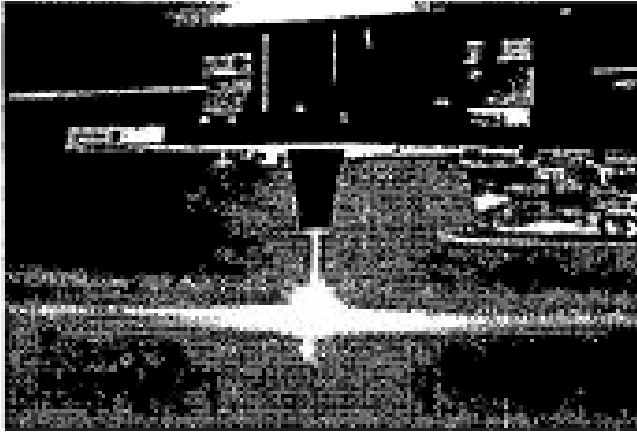
Answer: B



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76. The diagram below shows a spherical lens used to focus a beam of laser in medical field. With reference to this answer the following

questions:



The power of such a lens is

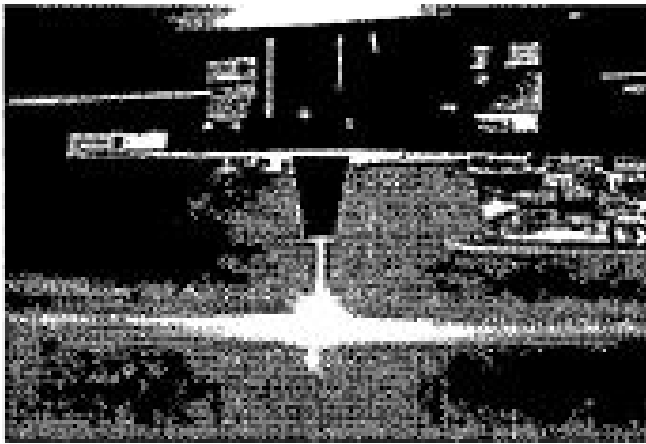
- A. positive
- B. negative
- C. zero
- D. none of the above

Answer: A



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77. The diagram below shows a spherical lens used to focus a beam of laser in medical field. With reference to this answer the following questions:



If such a lens is dipped in benzene having less refractive index than glass.

- A. The focal length would increase
- B. The focal length is decrease
- C. The focal length would be infinite
- D. The focal length would be zero

Answer: A



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78. Select the correct reason for the cause that is responsible for mirage in deserts

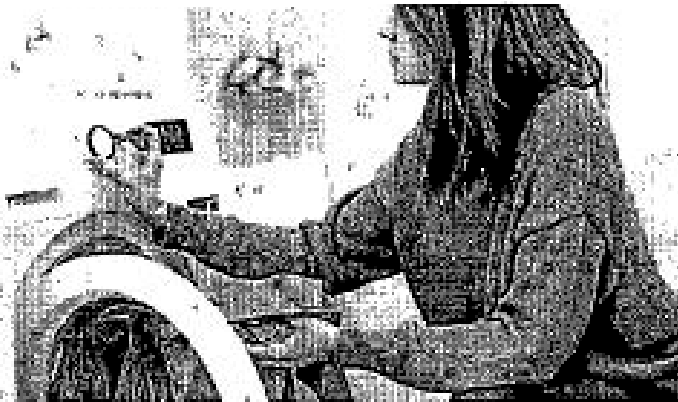
- A. It has a low critical angle
- B. Due to total internal reflection.
- C. Due to total internal reflection followed by successive refraction of light

D. Due to diffraction

Answer: C

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79. The energy transformation taking place in appliance shown below is



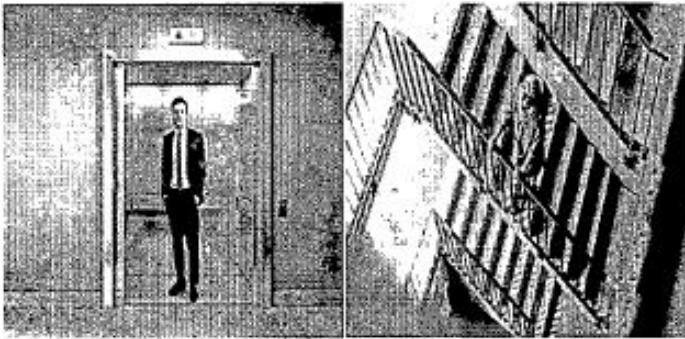
- A. Mechanical energy to electrical energy
- B. electrical energy to mechanical energy
- C. Mechanical kinetic rotational energy to electrical energy
- D. Electrical energy to Mechanical kinetic rotational energy

Answer: D



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80. Aman reaches the 26th floor by using an elevator while a lady climbs up a flight of stairs to reach the 26th floor as shown in the figure



- A. Both possess same gravitational potential energy on the 26th floor
- B. Both possess the same total energy at any instant of time

C. Both 1 and 2

D. Can't say

Answer: D



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81. Can a concave lens be used to burn a piece of paper.

(ii) What is its focal length and power if object is at infinite distance

A. (i) Yes (ii) Not defined

B. (i) No (ii) Apparent intersection of rays

and power is (focal length)⁻¹

C. (i) Not sure (ii) Not defined

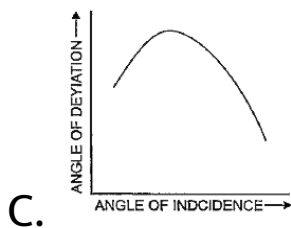
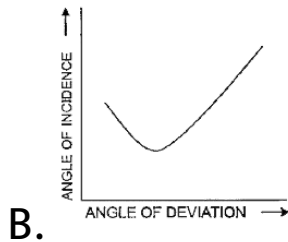
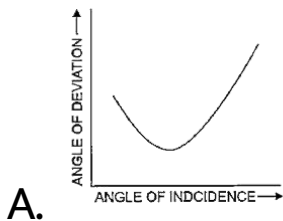
D. (i) None of the above (ii) all of the above

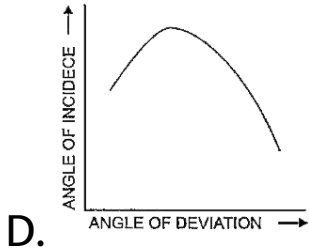
Answer: B



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82. Which graph shows the correct variation of angle of incidence and angle of minimum deviation





Answer: A



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83. Minimum deviation position is possible in

A. Isosceles right-angled prism

B. Equiangular prism

C. Equilateral prism

D. all of the above

Answer: D



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84. The relation between angle of prism and minimum angular deviation is

A. angle of prism-angle of deviation

B. angle of prism is twice angle of deviation

C. angle of prism = 2[angle of incidence] -
angle of minimum deviation

D. angle of prism is half the angle of
deviation

Answer: C



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85. The measure of angular deviation for a particular colour of light while passing

through a glass prism ----- with increase in wavelength

A. increases

B. decreases

C. remains same

D. none of the above

Answer: B



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