PHYSICS

BOOKS - PEARSON IIT JEE FOUNDATION

MOCK TEST

Multiple Choice Questions

1. Weightlessness is experienced by _____.

A. a person during his free fall

B. astronauts on moon

C. a person who experiences reaction force

D. a person during climbing a hill

Answer: A

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2. If the mass of a body is increased by 20%, then the momentum of body remains same, if the velocity approximately _____.

A. decreases by 17%

B. increases by 17%

C. decreases by 83%

D. increases by 32%

Answer: A

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3. What is the work done to fits to lift a body of mass 5 kg to a height of 50 m from the ground (in J)? (g = 10 m s^{-2})

A. 250

B. 2.5×10^{10}

C. 2.5×10^{3}

D. 2.5×10^{-4}

Answer: C

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4. A machine is operated by an effort of 25 N and the effort has a downward displacement of 2.5 m in raising a load of weight 100 N

through 10 cm. What is the efficiency of machine (in %)?

A. 250

B. 40

C. 25

D. 16

Answer: D

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5. If V_2 and V_1 are the velocity of sound in soid and liquid, respectively, then $\frac{V_1}{V_2}$.

A. ≤ 1

B. > 1

C. < 1

D. $= 1$

Answer: B

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6. The time period of a pendulum of length 'l' and mass of the bob 'm' is T. Time period of a pendulum with mass of the bob 2m and length l is _____.

A. T

B. 2T

C. 3T

D. 4T

Answer: A

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7. Match the statements of Column A and with those of Column B

Column A	Column B
(A) Temperature	(a) form of energy
(B) Heat	(b) depends on mass
(C) Specific heat	(c) does not depend on mass
(D) Heat capacity	(d) degree of hotness

A. DACB

B. ACBD

C. ACDB

D. BCDA

Answer: A

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8. Specific heat capacity of water is

A. 1 cal $g^{-10}C^{-1}$

B. 4186 cal J $g^{-10}C^{-1}$

C. 4186 cal kJ$g^{-10}C^{-1}$

D. 0.04186 cal J $g^{-10}C^{-1}$

Answer: A

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9. Arrange the following step in proper sequence for the construction and calibration of Fahrenheit thermometer.

(P) The distance between the two fixed points is called fundamental interval. It is divided into 180 equal divisions in Fahrenheit scale.

(Q) Take a thick walled capillary tube with thin walled glasss bulb and fill it with mercury with the help of a funnel.

(R) Mark the upper fixed point with the help of

hyposmeter.

(S) Place the glass bulb in a hot oil bath while filling the mercury to remove the air bubbles.

(T) Lower fixed point is marked by immersing the bulb of the thermometer in melting ice taken in a funnel.

A. SRTPQ

B. QSRPT

C. QSRTP

D. QRSTP

Answer: A

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10. Two identical metallic balls of temperature $20^\circ C$ and $80^\circ C$ are kept in contact with each other. Then the ratio of heat by one ball to heat gained by another ball.

A. $2:1$

B. $3:2$

C. $1:1$

D. $2:3$

Answer: A

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11. The velocity of light through media 'A' and 'B' are V and 2V, respectively. The value of sin C is _____ [where 'C' is the critical angle].

A. $\frac{1}{2}$

B. $\frac{1}{3}$

C. 3

D. 2

Answer: A

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12. An object of height 5 cm is placed in front of a convex lens of focal length 20 cm at a distance of 30 cm. What is the height of the image (in cm)?

A. 20

B. 30

C. 10

D. 40

Answer: C

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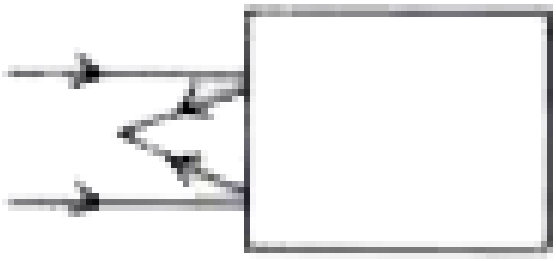
13. An optical instrument is placed inside the box as shown below. The incident rays and emergent rays are also shown. The optical

instrument could be _____.



A. only a plane mirror

B. only a convex mirror

C. only a concave mirror

D. both plane mirror and convex mirror

Answer: C

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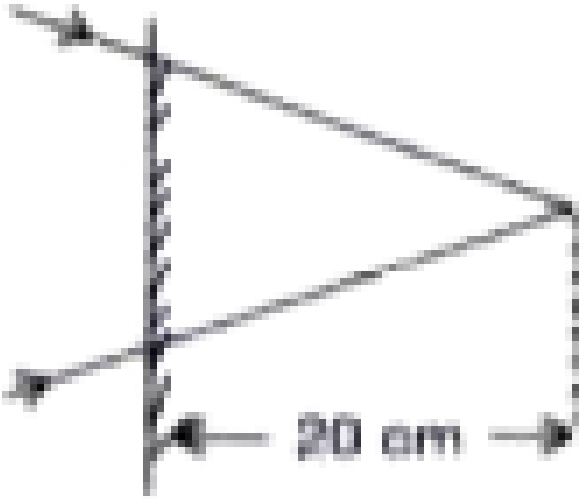
14. Light rays are incident on a plane mirror as shown below. What is the image distance with proper sign convention?



A. $+20cm$

B. $-20cm$

C. $+40cm$

D. $-40cm$

Answer: B

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15. Which of the following has ammonium chloride as an electrolyte?

A. Voltaic cell

B. Dry cell

C. Leclanche cell

D. Both (b) and (c)

Answer: D

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16. When a neutral body conceded to earth is brought closer to a negatively charged body, then

A. it becomes negatively charged.

B. it consists of equal positive and negative charge.

C. it becomes positively charged.

D. no change in charge on it.

Answer: C

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17. If it takes 8 min and 20 s for sunlight to reach the Earth, the distance between the

Earth and the Sun is _____. (The velocity of light is $3 \times 10^8 ms^{-1}$)

A. $5 \times 10^{10} m$

B. $10 \times 10^{10} m$

C. $15 \times 10^{10} m$

D. $20 \times 10^{10} m$

Answer: C

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18. The angle made by the Earth's magnetic field with its vertical components is $60^\circ C$, the angle of dip at the place is _____.

A. 60°

B. 30°

C. 90°

D. 0°

Answer: C

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19. Match the statements of Column A and with those of Column B

Column A	Column B
(A) SI unit of pole strength	(a) A – m^2
(B) Magnetic keeper	(b) Tesla
(C) SI unit of magnetic moment	(c) A – m
(D) SI unit of magnetic field induction	(d) Prevents loss of magnetism.

A. $A \rightarrow c, B \rightarrow b, C \rightarrow d, D \rightarrow a$

B. $A \rightarrow c, B \rightarrow d, C \rightarrow b, D \rightarrow a$

C. $A \rightarrow c, B \rightarrow d, C \rightarrow a, D \rightarrow b$

D. $A \rightarrow d, B \rightarrow c, C \rightarrow a, D \rightarrow b$

Answer: C

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20. Following are the steps ro magenetize a steel bar. Arrange them in a sequential order.

(A) The end at which current enters in an anticlockwise direction will become the north pole and the other end becomes the south pole.

(B) Keep the steel bar to the magnetized inside a long coil of insulated copper wire.

(C) Pass a strong direct current through the coil for sometime.

(D) The specimen of steel bar will get magnetized.

A. CBDA

B. BDCA

C. BADC

D. BCDA

Answer: D

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21. A cyclist moves the first-half of the distance with 10 kmh^{-1} speed and the second-half of the distance with speed V km h^{-1}. If the average speed of the cycle is 15 km h^{-1}, then the value of V is _____ km h^{-1}.

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22. A person on a rotating plateform of radius 7 m, makes 3 rotations in 4 min. What is the

magnitude of the displacement of the person (in m)?

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23. A car start moving with uniform acceleration from its position of rest and it moves 100 m is 10 s. On applying brakes, it stops after covering 50 m. Then the magnitude of acceleration in the second part of its motion is _____ m s^{-2}.

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24. To make two bodies A and B experience an equal acceleration, forces 6 N and 4 N are applied, respectively. If the bodies are combined, then to produce the same acceleration, the force applied should be _____ N.

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25. An object of height 5 cm is placed in front of a convex lens of focal length 20 mc at a

distance of 30 cm. What is the height of the image (in cm)?

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