

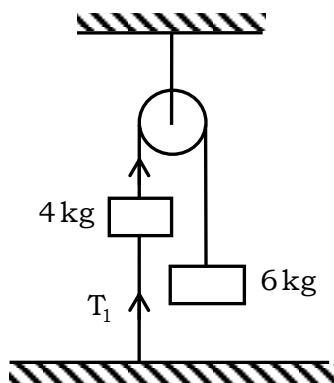
3. The unit of force is kg m.s^{-2} , if the unit of length is halved and that of mass is doubled, then the unit of force will
 (A) be doubled (B) be quadrupled
 (C) become half of the original value (D) remain unaltered
4. A force F acting on a body of mass ' m ' produces an acceleration ' a ' on it. The same force when acting on another body produces an acceleration of ' $2a$ ' on it. The mass of second body is

- (A) $\frac{M}{2}$ (B) $2M$ (C) $4M$ (D) $\frac{M}{4}$

5. A body is standing on a spring balance. The reading of the spring balance is ' W '. If the boy jumps outside the balance, then the reading of the spring balance will

- (A) Increase (B) First decreases and then increases
 (C) First increase then decrease (D) Decrease

6. Two bodies of mass 4 kg and 6 kg are attached to the ends of a string passing over a pulley. A 4kg mass is attached to the table top by another string the tension in this string T_1 is equal to



- (A) 20 N (B) 25N (C) 15N (D) 10N

7. A fast bowler bowls a 126 kmph ball at a batsman and his bat has contact with the ball for 1 milli second. It now moves straight towards the bowler at 144 kmph. The ball has a mass 160g what is the impulse of the force exerted on the ball by bat?

- (A) 12000 NS (B) 12 NS (C) 800 NS (D) 0.8 NS

8. In the following question, a statement of assertion is followed by a statement of reason.

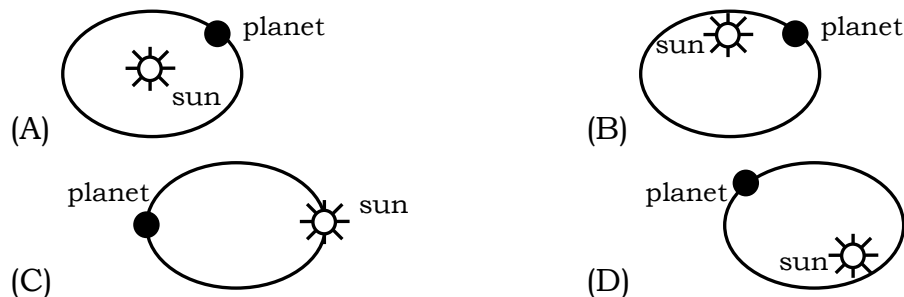
Assertion: A light body and a heavy body have same momentum. Then they also have same kinetic energy.

Reason: Kinetic energy does not depend on mass of the body.

Choose the correct option.

- (A) If both assertion and reason are true and reason is the correct explanation of assertion.
- (B) If both assertion and reason are true and reason is not the correct explanation of assertion.
- (C) If assertion is true but reason is false
- (D) If both assertion and reason are false

9. A block moving in air breaks into two parts and the parts separate from each other. In this process
- (A) Both have same velocities
 - (B) The total momentum is not conserved
 - (C) The total kinetic energy must be conserved
 - (D) The total momentum must be conserved
10. How many joules are there in 1 kilo watt hour?
- (A) 100 joule
 - (B) 1 joule
 - (C) 36 joule
 - (D) 3.6×10^3 kilo joule
11. Which of the following orbits is a possible orbit for a planet

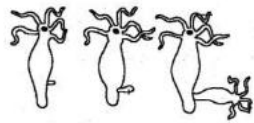


- (A)
 - (B)
 - (C)
 - (D)
12. The masses of two planets are in the ratio 1 : 2 their radii are in the ratio 1 : 2. The acceleration due to gravity on the planets are in the ratio.
- (A) 1 : 2
 - (B) 2 : 1
 - (C) 3 : 5
 - (D) 5 : 3
13. A rectangular wooden block 5cm × 10cm × 10cm in size is kept on a horizontal surface with its face of largest area on the surface. A minimum force of 1.5N applied parallel to the surface sets the block in sliding motion along the surface. If the block is now kept with its face of smaller area in contact with the surface, the minimum force applied parallel to the surface, to set block in motion is
- (A) Greater than 1.5 N
 - (B) Less than 1.5 N
 - (C) Equal to 1.5 N
 - (D) May be greater (or) less than 1.5 N

14. The lever for which mechanical advantage is less than one has.
 (A) The fulcrum between the load and the effort
 (B) Load between the effort and the fulcrum
 (C) Effort between the fulcrum and the load
 (D) Load and the effort acting at the same point.
15. A block of wood floating in water in a beaker is kept in the left-hand pan (L.H.P) of a physical balance it is balanced using weights in the right – hand pan (R.H.P). The block is now taken out of water and kept by the side of the beaker in L.H.P. Then
 (A) L.H.P goes up (B) R.H.P goes up
 (C) L.H.P. and R.H.P remain balanced
 (D) First L.H.P. goes up and then R.H.P goes up
16. Identify the type of reproduction.



1



2



3

17. Which of the following has a complete digestive system?
 (A) Hydra (B) Tapeworm (C) Planaria (D) Earth worm
18. Eu coelomates, bilateral symmetry, triploblastic
 The above mentioned characters are present in which set of organisms
 (A) Humans, birds, earthworm
 (B) Starfish, fishes, frogs
 (C) Amoeba, hydra, tapeworm
 (D) Frogs, Crocodiles, sharks
19. Identify the true statement related to gymnosperms
 (I) they have naked seeds (II) They have xylem tracheids
 (III) They have phloem sieve tubes (IV) They have companion cells
 (A) I & II (B) III & IV (C) I & II (D) I & IV
20. Multinucleated cells are present in
 (A) Nerves (B) Kidneys (C) Muscle (D) bones

21. A person with blood group 'A⁺' can donate his blood to a person with
(I) A⁺ group (II) B group (III) AB group (IV) O group
(V) A⁻ group
(A) I & II (B) I & III (C) I, II, IV (D) I, III, V
22. Identify the true statement related to endoplasmic reticulum
(A) In liver cells SER is involved in detoxification
(B) In muscle cells ER is rich in Ca²⁺ ions
(C) In animal cell RER produces proteins
(D) All the above
23. Eutrophication occurs when
(A) BOD increases due to water pollution
(B) Algal bloom causes death of aquatic organisms
(C) Agricultural soil is full of artificial fertilizers
(D) All the above
24. Aquaculture includes
(A) Pisciculture (B) Sericulture (C) Mariculture (D) Apiculture
25. Green manuring involves
(A) Adding green leaves to farm land (B) Adding green colour in fertilizers
(C) Ploughing plants back to soil (D) Adding plant waste to soil.

26 The changes that occur when a substance changes state are shown below.

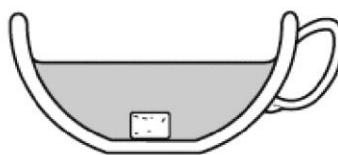


Which process, W, X, Y or Z, is occurring in the following four situations?

1. Butter melts on a warm day.
2. Water condenses on a cold surface.
3. The volume of liquid ethanol in an open beaker reduces.
4. Ice forms inside a freezer.

	1	2	3	4
A	W	X	Y	Z
B	W	Y	X	Z
C	X	Y	Z	W
D	X	Z	Y	W

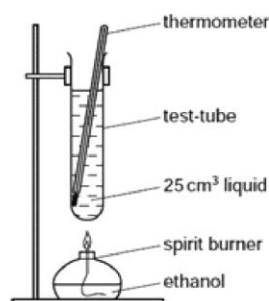
27 The diagram shows a sugar lump in a cup of tea.



Which two processes must happen to spread the sugar evenly in the tea?

- | First process | Second process | First process | Second process |
|----------------------|-----------------------|----------------------|-----------------------|
| A. diffusion | dissolving | B. dissolving | diffusion |
| C. dissolving | melting | D. melting | diffusion |

28 A liquid is heated until it boils. Which result shows that the liquid in the test-tube is pure water?



- A. Condensation forms at the top of the test-tube.
- B. Steam is produced.
- C. The thermometer reads 100 °C.
- D. There is nothing left behind in the test-tube.

29 The results of some tests on a colourless liquid X are shown.

- Boiling point = 102 °C
- Universal Indicator turns green. What is X?

- | | |
|---------------|------------------------------------|
| A. ethanol | B. hydrochloric acid |
| C. pure water | D. sodium chloride (salt) solution |

36. Which of the following have more number of molecules?

- A. 88g of CO_2
- B. 5g of H_2 gas
- C. 1 mole of H_2O
- D. 14 of N_2

37. The formula of an metal oxide is M_2O_3 . What will be the formula of its hydroxide?

- A. MOH
- B. $\text{M}(\text{OH})_3$
- C. $\text{M}(\text{OH})_2$
- D. $\text{M}_2(\text{OH})_3$

38. Teacher asked students to prepare a solution of ethanol having the concentration of 10% by volume. Which of the following student prepared correct concentration?

- A. 5ml of ethanol in 95ml of water
- B. 10ml of ethanol in 100ml of water
- C. 10ml of ethanol 90ml of water
- D. 10ml of ethanol 190ml of water

39. A substance X has the following features:

- i. It does not have fixed melting point
- ii. It does not have a molecular formulae

Based on these identify the nature

- A. Element
- B. Compound
- C. Mixture
- D. None of the above

40. A substance has a melting point -150°C and a boiling point of -50°C . It exists as:

- A. solid
- B. Liquid
- C. Plasma
- D. Gas