MCQ (1*10)

1. An object of mass 2 kg is sliding with a constant velocity of 4 m/s on a friction less horizontal table. The force required to keep the object moving with the same velocity is:

(a) 32 N

(b) 0 N

(c) 2 N

(d) 8 N

2. Which of the following tissues has dead cells?
(a) Parenchyma
(b) Sclerenchyma
(c) Collenchyma
(d) Epithelial tissue

3. CO_2 can be easily liquefied and even solidified because

(a) It has weak forces of attraction
(b) It has comparatively more force of attraction than other gases
(c) It has more intermolecular space
(d) It is present in atmosphere.

4. Girth of stem increases due to
(a) apical meristem
(b) lateral meristem
(c) intercalary meristem
(d) vertical meristem

5. The colour of vapours formed on sublimation of iodine solid is

(a) Purple (violet)
(b) Colourless
(c) Yellow
(d) Orange

6. Newton's third law of motion explains the two forces namely 'action' and 'reaction' coming into action when the two bodies are in contact with each other. These two forces:

(a) Always act on the same body

(b) Always act on the different bodies in opposite directions

(c) Have same magnitude and direction

(d) Acts on either body at normal to each other

7. A water tank filled upto 2/3 of its height is moving with a uniform speed. On sudden application of the brake, the water in the tank would

(a) Move backward

(b) Move forward

(c) Come to the rest

(e) Be unaffected

8. Under which of the following conditions we can boil water at room temperature?

(a) At low pressure
(b) At high pressure
(c) At very high pressure
(d) At atmospheric pressure

9. Meristematic tissues in plants are
(a) localised and permanent
(b) not limited Lo certain regions
(c) localised and dividing cells
(d) growing in volume

10. The seat belts are provided in the cars so that if the car stops suddenly due to an emergency braking, the persons sitting on the front seats are not thrown forward violently and saved from getting injured. Can you guess the law due to which a person falls in forward direction on the sudden stopping of the car?

(a) Newton's first law of motion

(b) Newton's second law of motion

(c) Newton's third law of motion

(d) Newton's law of gravitation

Short Questions(2*10)

1. How do safety belts of cars help in preventing accidents?

2. Describe the structure and function of stomata.

3. When a crystal of potassium permanganate is placed in a beaker containing water, its purple colour spreads throughout the water. What do you conclude from this observation about the nature of potassium permanganate and water?

4. Why are gases compressible but not liquids?

5. Why are xylem and phloem called complex tissues? How are they different from one other ?

6. Explain inertia and momentum.

7. From a rifle of mass 5kg, a bullet of mass 50gram is fired with an initial velocity of 50m/s. Calculate the initial recoil velocity of the rifle.

8. Can a rubber band change its shape on stretching? Is it a solid?

9. What are involuntary muscles? Where are they found?

10. . What is a balanced force?

Long answer questions (2.5*8)

1. Differentiate between voluntary and involuntary muscles. Give one example of each type.

2. Why does the temperature of a substance remain constant during its melting point or boiling point?

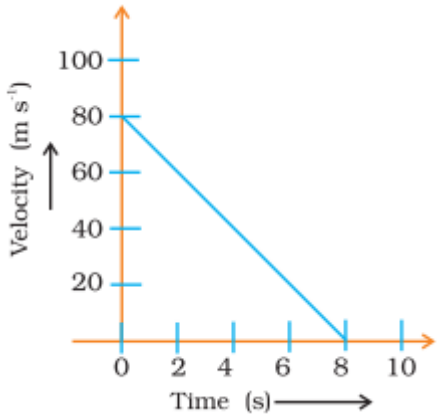
3. Explain mathematical formulation of Newton's second law of motion.

4. When we kick a football it flies high but a stone of the same size hardly moves a distance on kicking with the same force. Why?

5. How does evaporation differ from boiling?

6. Differentiate between parenchyma and collenchyma.

7. Velocity versus time graph of a ball of mass 50 g rolling on a concrete floor is shown in Fig. Calculate the acceleration and frictional force of the floor on the ball.



8. Discuss the various factors which affect the rate of evaporation. Latent heat of evaporation of two liquids A and B is 100 J/kg and 150 J/kg respectively. Which one can produce more cooling effect and why?