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Date: 11-06-2021

Class: 9th Genesis

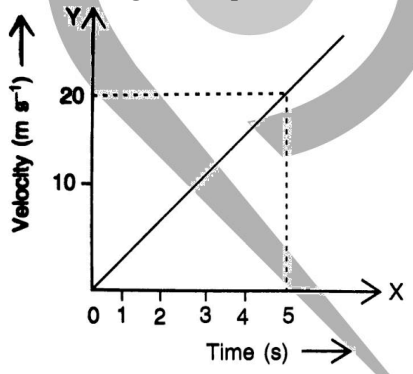
Subject: Science

Test code: SEP07(21021307)

Physics

M. Marks: 20

1. Calculate the magnitude of force which when applied on a body of mass 0.5 kg produces an acceleration of $5\ m\ s^{-2}$. (1 marks)
2. Explain the meaning of the following equation: $p = m \times v$ (1 marks)
   Where symbols have their usual meanings.
3. Name the type of motion in which a body has a constant speed but not constant velocity. (1 marks)
4. A body is acted upon by 2 forces in opposite direction 75 N and 15 N and friction is 10 N. Find the acceleration of body if its mass is 2 kg. (2 marks)
5. Fig. shows the velocity – time graph of a particle of mass 100 g moving in a straight line. Calculate the force acting on the particle. (2 marks)



6. Why do the passengers in a bus tend to fall backward when it starts suddenly? (1 marks)
7. Explain why, it is dangerous to jump out of a moving bus. (2 marks)
8. A cyclist goes around a circular track once every 2 minutes. If the radius of the circular track is 105 metres, calculate his linear and angular speed. $\left(\text{Given } \pi = \frac{22}{7}\right)$ (2 marks)
9. (a) What is meant by uniform circular motion? Given two examples of uniform circular motion. (3 marks)

   (b) The tip of second's hand of a clock takes 60 seconds to move once on the circular dial of the clock. If radius of the dial of the clock be 10.5 cm, calculate the speed of the tip of the seconds hand of the clock in cm/sec. $\left(\text{Given } \pi = \frac{22}{7}\right)$.

10. A ball of mass 10 g is moving with a velocity of $50\ m\ s^{-1}$. On applying a constant force on ball for 2 .0 s, it acquires a velocity of $70\ m\ s^{-1}$. Calculate:

(5 marks)

(i) The initial momentum of ball,
(ii) The final momentum of ball,
(iii) The rate of change of momentum,
(iv) The acceleration of ball, and
(v) The magnitude of force applied.