T1 B slide 12

An object is moving along a straight line. Which of the following displacement-time graphs represents a motion which is impossible?

2 slide 12

An object is moving along a straight line. Which of the following displacement-time graphs definitely represents the motion in which the acceleration is constant?

3 D slide 13

A bullet of mass M [kg] and velocity u [m.s-1] is brought to rest in time t [s] with a uniform acceleration a [m.s-2]. The magnitude acceleration a of the bullet is

A u M t

B u t

C u t / 2 M

D u t / 2

E 2 u T / M

4 D

Which of the following motions has/have a constant velocity?

(1) An object rolling down a ramp

(2) An object moving in a circle with constant speed

(3) An object at the bottom of a swing pendulum

(4) An object travelling in a straight line with constant speed

A (2) and (4) only

B (1), (2) and (4) only

C (1) and (2) only

D 4 only

E 2 only

5 E

In which of the following is the average velocity zero in the time interval of one period?

1 The motion of a pendulum.

2 The motion of an object moving with a constant speed in a circle.

3 The motion of a particle moving around an arbitrary closed path.

A 1 only

B 2 only

C 3 only

D None of them

E All of them

6 D

A train slips (releases) its end carriage which stops at a station 300 m ahead 60 s after being slipped. Find the velocity of the train, assuming the acceleration [m.s-2] of the carriage is uniform.

A 2.5

B 3.3

C 5

D 10

E Cannot be calculated since the acceleration is an unknown quantity.

7 B slide 14

The velocity-time graph of an object moving in a straight line is shown. The displacement [m] of the object after 10 s is:

a 24

b 4

c -4

d 2

e -24

8 A slide 14

The velocity-time graph of an object moving in a straight line is shown. The distance [m] travelled by the object after 10 s is:

a 24

b -24

c 4

d -4

e 0

9 B slide 15

The velocity-time graph of an object moving in a straight line is shown. If the average velocity is 20 m.s-1. The acceleration [m.s-2] from A to B is

a 3/2

b 3/4

c 1/3

d 1/2

e 2/3

10 C slide 16

An object moves along a straight-line. It starts with a speed u [m.s-1] and after a time interval of dt [s] returns to its starting point with the same speed. The magnitude of the average acceleration of the object is

