

## ARJUNA (NEET)

PXIM1 Pg50~

## Kinematics

DPP-04

- 50 1. The displacement  $y$  (in meters) of a body varies with time (in seconds) according to the equation  $y = -\frac{2}{3}t^2 + 16t + 2$ . How long does the body come to rest ?

(A) 8 seconds (B) 10 seconds  
(C) 12 seconds (D) 14 seconds

- 50-51 2. The initial velocity of a particle (at  $t = 0$ ) is  $u$  and the acceleration of particle at time  $t$  is given by  $f = at$ , where  $a$  is a constant. Which of the following relation for velocity  $v$  of particle after time  $t$  is true?

(A)  $v = u + at^2$  (B)  $v = u + at^2/2$   
(C)  $v = u + at$  (D) None of these

- 51 3. The relation between time  $t$  and displacement  $x$  is expressed by  $x = 2 - 5t + 6t^2$ . What will be the initial velocity of the particle ?

(A)  $-5$  m/sec (B)  $-3$  m/sec  
(C)  $6$  m/sec (D)  $3$  m/sec

- 51 4. Which one of the following equations represent the motion of a body with finite constant acceleration. In these equations  $y$  denotes the position of the body at time  $t$  and  $a$ ,  $b$  and  $c$  are the constant of the motion –

(A)  $y = a/t + bt$   
(B)  $y = at$   
(C)  $y = at + bt^2$   
(D)  $y = at + bt^2 + ct^3$

- 51-52 5. The relation between time  $t$  and distance  $x$  is  $t = \alpha x^2 + \beta x$ , where  $\alpha$  and  $\beta$  are constant. The retardation is –

(A)  $2\alpha v^2$  (B)  $2\alpha v^3$   
(C)  $2\alpha\beta v^3$  (D)  $2\beta^2 v^3$

- 52 6. The velocity-time relation of an electron starting from rest is given by  $u = kt$ , where  $k = 2$  m/s<sup>2</sup>. The distance traversed in 3 sec is –

(A) 9 m (B) 16 m  
(C) 27 m (D) 36 m

- 53 7. The position  $x$  of a particle varies with time ( $t$ ) as  $x = at^2 - bt^3$ . The acceleration at time  $t$  of the particle will be equal to zero, where  $t$  is equal to –

(A)  $\frac{2a}{3b}$  (B)  $\frac{a}{b}$   
(C)  $\frac{a}{3b}$  (D) Zero

- 53 8. A particle moves along a straight line such that its displacement at any time  $t$  is given by  $s = t^3 - 6t^2 + 3t + 4$  metres. The velocity when the acceleration is zero is –

(A) 3 m/s (B)  $-12$  m/s  
(C) 42 m/s (D)  $-9$  m/s

- 53 9. A car moves along a straight line whose equation of motion is given by  $s = 12t + 3t^2 - 2t^3$ , where  $s$  is in metres and  $t$  is in seconds. The velocity of the car at start will be –

(A) 7 m/s (B) 9 m/s  
(C) 12 m/s (D) 16 m/s

- 54 10. The velocity of a body depends on time according to the equation  $v = 20 + 0.1 t^2$ . The body is undergoing–

(A) uniform acceleration  
(B) uniform retardation  
(C) non-uniform acceleration  
(D) zero acceleration

## ANSWERS

1. (C)
2. (B)
3. (A)
4. (C)
5. (B)
6. (A)
7. (C)
8. (D)
9. (C)
10. (C)



**\*Note\*** - If you have any query/issue

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