

Class – XI



Date - 19.06.20

Chapter – Motion in 1D

Topic –Integration

Choose the correct option for the following questions.

 $1 \times 15 = 15$ 

- 1. Integrating  $\int (5x^4 3)dx$ , we will get a.  $x^5 + c$ b.  $x^5 - 3x + c$ 
  - c.  $\frac{x^5}{5} 3x + c$
  - d. None of these Ans: b.  $x^5 - 3x + c$
- 2.  $\int_{-\frac{\pi}{2}}^{5\pi} \cos\theta \ d\theta =$ 
  - a. 0
  - b. 1
  - c. -1
  - d. None of these Ans: b. 1

3. 
$$\int_{0}^{7} (4y^{3} - 98y) dy =$$
  
a. 1  
b. -1  
c. 0  
d. 49  
Ans: c. 0  
4. 
$$\int_{0}^{2} (9t^{2} - 3) dt =$$
  
a. 30  
b. 18  
c. 0  
d. None of these  
Ans: b. 18

5.  $\int_0^{\pi} (\sin\theta - \cos\theta) \, d\theta =$ 

Ans: d. +2

a. -2b. -1c. +1d. +2

- 6. A body starts moving with a velocity  $v_0 = 10m/s$ . It experiences a retardation equal to  $0.2v^2$ . Its velocity after 2s is given by
  - a. 2 m/s
  - b. 4m/s
  - $c. \quad -2m\!/\!s$
  - d. 6 m/s
    - Ans: a. 2 m/s
- 7. A lift starts from rest. Its acceleration is plotted against time. When it comes to rest its height above its starting point is
  - a. 20m
  - b. 64m
  - c. 32m
  - d. 36m

<mark>Ans: b. 64m</mark>



- 8. Starting from rest, the acceleration of a particle is a = 2t 2. The velocity of the particle at t = 5sec is
  - a. 15m/s
  - b. 25m/s
  - c. 5m/s
  - d. None of these
    - Ans: a. 15m/s
- 9. From the given velocity time graph of a body, the distance travelled by the body and its displacement during 5 sec in metres will be
  - a. 75,75
  - b. 110, 70
  - c. 110, 110
  - d. 110, 40

Ans: b. 110, 70



- 10. A rocket is launched upward from earth's surface whose velocity time graph is shown in the figure. The maximum height attained by the rocket is
  - a. 1km
  - b. 10km
  - c. 100km
  - d. 60km

## <mark>Ans: d. 60km</mark>

- 11. In the above question, the retardation of the rocket is
  - a.  $50 m/s^2$
  - b.  $100 m/s^2$
  - c.  $500m/s^2$
  - d.  $10m/s^2$ 
    - Ans: d. 10 *m/s*<sup>2</sup>



12. In question number 10), the acceleration of the rocket is -

- a.  $50 m/s^2$
- b.  $100 m/s^2$
- c.  $10m/s^2$
- d.  $1000m/s^2$ Ans: a. 50  $m/s^2$

13. In question number 10), the rocket goes up and comes down on the following parts relatively -

- a. OA and AB
- b. AB and BC
- c. OA and ABC
- d. OAB and BC Ans: d. OAB and BC
- 14. The variation of velocity of a particle moving along a straight line is shown in the figure. The distance travelled by the particle in 4 sec is
  - a. 60m
  - b. 25m
  - c. 55m
  - d. 30m

<mark>Ans: c. 55m</mark>



- 15. A particle starts from res. Its acceleration at time t = 0 is  $5m/s^2$  which varies with time as shown in the figure. The maximum velocity of the particle will be –
  - a. 7.5 m/s
  - b. 15 m/s
  - c. 30 m/s
  - d. 37.5 m/s

<mark>Ans: b. 15 m/s</mark>



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