NEW STANDARD ACADEMY

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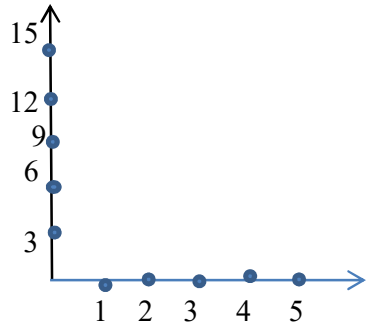
CLASS 11 DPP (PHYSICS)

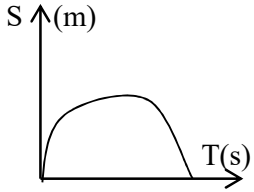
1. Find the velocity of particle if the position of particle is given as
   a. $x = (3t\ 2 - 2)$ m?
   a) $v = (3t - 1)$ m/s
   b) $v = (6t - 1)$ m/s
   c) $v = (6t)$m/s
   d) None of these
2. Find the acceleration of particle if the position of particle is given as $x = (3t\ 2 - 2)$ m?
   a) $a = 6\ m/s\ 2$
   b) $a = 3\ m/s\ 2$
   c) $a = 6t\ m/s\ 2$
   d) None of these
3. Find the acceleration of particle if the velocity of particle is given as $V = (16t\ 2 - 2t + 3)$ m/s?
   a) $a = (32t - 2)m/s\ 2$
   b) $a = (16t\ 2 - 2t)m/s\ 2$
   c) $a = 32t\ m/s\ 2$
   d) None of these
4. Find the acceleration of particle at $t = 2sec$ if the position of particle is given as $x = (t\ 2 - 2t + 1)$ m?
   a) $a = 4\ m/s\ 2$
   b) $a = 2\ m/s\ 2$
   c) $a = 3\ m/s\ 2$
   d) None of these
5. Find the acceleration of particle at $t = 2sec$ if the velocity of particle is given as $v = (t\ 2 - 2t + 1)$ m/s?
   a) $a = 4\ m/s\ 2$
   b) $a = 2\ m/s\ 2$
   c) $a = 3\ m/s\ 2$
   d) None of these

6. displacement-time graph of a body moving with uniform velocity is shown in the figure. Find out its velocity at time t = 4 seconds:



a) $v = 4\ m/s$
b) $v = 2\ m/s$
c) $v = 3\ m/s$
d) None of these

7. A particle moves along a straight line OX. At a time t(in seconds) the distance x(in meters)of the particle is given by $x = 40 + 12t - t\ 3$. How much distance will the particle travel before coming to rest?
   a) 24m
   b) 56 m
   c) 40m
   d) 16m
8. A particle moves in a straight line with an acceleration a ms–2 at time 't' seconds where a = – 1 $t\ 2$. At time t = 1s the particle has a velocity of 3ms–1 then find the velocity when t = 4s
   a) 1.25 m/s
   b) 3.5 m/s
   c) 2.25 m/s
   d) 0.5. m/s
   9. . For a particle moving along x-axis, acceleration is given as a = v. Find the position as a function of time? Given that at t = 0, x = 0, v = 1 m/s
   a) e^{t-1}
   b) e^{2t}-1
   c) $\frac{e^t}{2}$
   d) e^t+1
   10. In Figure as shown below the velocity of the body at topmost point A is:



(a) zero
(b) 1 m/s
(c) Infinite
(d) Maximum

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CLASS 12 DPP (PHYSICS)

1. A hollow metal sphere of radius 5 cm is charged such that the potential on its surface to 10 V. The potential at the centre of the sphere is

a) zero
b) 10 V
c) the same as that at a point 5 cm away from the surface
d) the same as that at a point 25 cm away from the surface

2. Two equal negative charges - q are fixed at points (0, a) and (0, - a) on the y-axis, A positive charge Q is released from rest at a point (2a, 0) on the x-axis. The charge Q will

a) execute simple harmonic motion about the origin
b) move to the origin and remain at rest there
c) move to infinity
d) Execute oscillatory but not simple harmonic motion.

3. Three point charges 4q, Q and q are placed in a straight line of length l at points distant 0,l/2 and l respectively. The net force on charge q is zero. The value of Q is

(a) -q (b) -2q
(c) 1 q 2 – (d) 4

4. Two positive point charges of 12 and 8 microcoulornbs respectively are placed 10 cm apart in air. The work done to bring them 4 cm closer is

(a) zero (b) 3.8 J
(c) 4.8 J (d) 5.8 J

5. The work done is carrying a charge q once round a circle of radius r with a charge Q at the centre is

6. (a) 0 qQ 4 r πε
(b) 0 qQ 1 4 r πε π
(c) 0 qQ 1 4 2 r ⎛⎞ ⎜⎟ πε π ⎝⎠
(d) zero

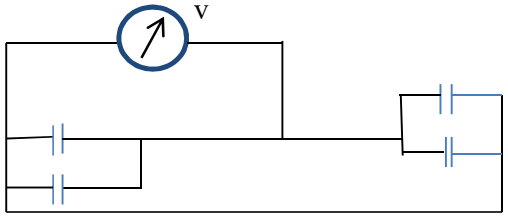
7. A capacitor of capacitance C = 2 μF is connected as shown in Fig. If the internal resistance of the ceil is 0.5 O, the charge on the capacitor plates is

(a) zero (b) 2 μC
(c) 4 μC (d) 6 μC

8. A charge q is placed at the centre of the line joining two equal charges Q. The system of the three charges will be in equilibrium if q is equal to

(a) Q 2 – (b) Q 4 –
(c) Q 2 + (d) Q 4

9. Four capacitors, each of capacitance 50 μF are connected as shown in Fig. If the voltmeter reads 100 V, the charge on each capacitor is



(a) 2 × 10-3 C (b) 5 × 10-3C
(c) 0.2 C (d) 0.5 C

10. Two parallel plate capacitors of capacitances C and 2C are connected in parallel and charged to a potential difference V by a battery. The battery is then disconnected and the space between the plates of capacitor C is completely filled with a material of dielectric constant K. The potential difference across the capacitors now becomes

(a) V K 1+ (b) 2V K 2 +
(c) 3V K 2 + (d) 3V K 3