

NEW STANDARD ACADEMY

Marks: 60

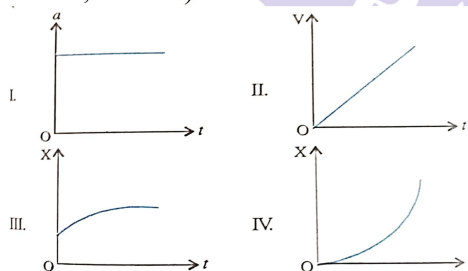
Date : 21-05-24

CLASS : 11TH (JEE)

Time: 90 min.

PHYSICS

- A car moves for half of its time at 80 km/h and for rest half of time at 40 km/h. Total distance covered is 60 km. what is the average speed of the car
 - 60km/hr
 - 80 km/hr
 - 120 km/hr
 - 180 km/hr
- A body starts from rest. What is the ratio of the distance travelled by the body during the 4th and 3rd seconds
 - $\frac{7}{5}$
 - $\frac{5}{7}$
 - $\frac{7}{3}$
 - $\frac{3}{7}$
- A body goes 20 km north and then 10 km due east. The displacement of body from starting point is
 - 30 km
 - 25.2 km
 - 22.36km
 - 10km
- The numerical ratio of average speed to average velocity is
 - Always equal to one
 - Always less than one
 - Always more than one
 - Equal to or more than one
- A particle start from origin O from rest and moves with a uniform acceleration along the positive x-axis. Identify all figure that correctly represent the motion qualitatively. (a=acceleration, v= velocity, x = displacement, t = time)



- I
 - I,II,IV
 - II,III
 - I,II,III
- The acceleration of a moving body can be found from
 - Area under velocity- time graph

- Area under distance- time graph
 - Slope of the velocity- time graph
 - Slope of the distance - time graph
- A motor car moving with a uniform speed of 20m/sec comes to stop on the application of brakes after travelling a distance of 10m. Its acceleration is
 - 20 m/sec
 - 14 m/sec
 - 16 m/sec
 - 18 m/sec
 - The initial velocity of a body moving along a straight line is 7 m/s. It has a uniform acceleration of 4m/ sec². The distance covered by the body in 5th second of its motion is
 - 25m
 - 35m
 - 50m
 - 85m
 - Which of the following four statements is false
 - A body can have zero velocity and still be accelerated
 - A body can have constant velocity and still have a varying speed
 - A body can have constant speed and still have a varying speed
 - The direction of the velocity of a body can change when its acceleration is constant
 - Water drops are falling from a nozzle of a shower onto the floor from a height of 9.8m. The drop fall at a regular interval of time. When the first drop strikes the floor, at that instant, the third drop begins to fall .Locate the position of second drop from the floor when the first drop strikes the floor
 - 2.94m
 - 4.18m
 - 2.45 m
 - 7.35m

CHEMISTRY

- The ionic sizes decrease in the order
 - $K^+ > S^{2-} < Sc^{3+} < V^{5+} < Mn^{7+}$
 - $S^{2-} < K^+ > Sc^{3+} > V^{5+} > Mn^{7+}$
 - $Mn^{7+} > V^{5+} < Sc^{3+} > K^+ > S^{2-}$
 - $Mn^{7+} < V^{5+} < Sc^{3+} < S^{2-} > K^+$
- The size of Mo is very similar to W due to

- a) The difference of atomic number by one
 b) The contraction in size in the the first transition series elements
 c) Lanthanide contraction
 d) Actinide contraction
13. For which of the elements of different groups the change in non polar covalent radii is maximum?
 a) Groups 1 and 2
 b) Groups 13 and 14
 c) Group 14 and 15
 d) Groups 16 and 17
14. Which of the following orders regarding metallic atomic radii is correct?
 a) ${}_{45}\text{Rh} > {}_{46}\text{Pd} < {}_{47}\text{Ag}$
 b) $\text{Rh} < \text{Ag} < \text{Pd}$
 c) $\text{Pd} < \text{Rh} < \text{Ag}$
 d) $\text{Pd} < \text{Ag} < \text{Rh}$
15. The set representing the correct order of ionic radius is
 a) $\text{Li}^+ > \text{Be}^{2+} > \text{Na}^+ > \text{Mg}^{2+}$
 b) $\text{Na}^+ > \text{Li}^+ > \text{Mg}^{2+} > \text{Be}^{2+}$
 c) $\text{Li}^+ > \text{Na}^+ > \text{Mg}^{2+} > \text{Be}^{2+}$
 d) $\text{Mg}^{2+} > \text{Be}^{2+} > \text{Li}^+ > \text{Na}^+$
16. $\frac{1}{4}$ th of Avogadro number of atoms of an element absorb energy 'X' kJ the ionization energy of the element is
 a) $\frac{2X}{N_0}$
 b) $\frac{4X}{N_0}$
 c) $\frac{4N_0}{X}$
 d) $\frac{N_0}{4X}$

17. Successive ionization energies of an element X are given below (in Kcal):

IP ₁	IP ₂	IP ₃	IP ₄
165	195	556	595

Electronic configuration of the element X is

- a) $1s^2, 2s^2 2p^6, 3s^2 3p^2$
 b) $1s^2, 2s^1$
 c) $1s^2, 2s^2 2p^2$
 d) $1s^2, 2s, 2p^6, 3s^2$
18. (A) $\text{M}^-(\text{g}) \rightarrow \text{M}(\text{g})$, (B) $\text{M}(\text{g}) \rightarrow \text{M}^+(\text{g})$,
 (C) $\text{M}^+(\text{g}) \rightarrow \text{M}^{2+}(\text{g})$, (D) $\text{M}^{2+}(\text{g}) \rightarrow \text{M}^{3+}(\text{g})$
 Minimum and maximum I.P would be of:

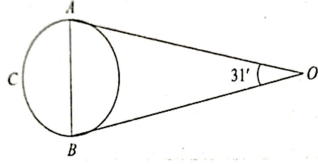
- a) A
 b) B
 c) C
 d) D
19. In which case the energy released is minimum?
 a) $\text{Cl} \rightarrow \text{Cl}^-$
 b) $\text{P} \rightarrow \text{P}^-$
 c) $\text{N} \rightarrow \text{N}^-$
 d) $\text{C} \rightarrow \text{C}^-$

20. The first ionization potential of Na is 5.1eV. The value of electron gain enthalph of Na^+ will be
 a) -10.2eV
 b) +2.55eV
 c) -2.55eV
 d) -5.1 eV

MATHS

21. Find the value of the trigonometric function of : $\text{Cosec}(-1410^\circ)$
 a) 1
 b) 2
 c) -2
 d) 0
22. Solve $\text{Sin}(-420^\circ) (\text{cos}390^\circ) + \text{cos}(-660^\circ) \text{sin}330^\circ$ is
 a) 1
 b) -1
 c) 2
 d) -2
23. $\text{sin}^2 5^\circ + \text{sin}^2 10^\circ + \text{sin}^2 15^\circ \dots \dots + \text{sin}^2 90^\circ$
 a) $9\frac{1}{2}$
 b) 9
 c) 6
 d) 2
24. If $\text{sin} \theta = \frac{24}{25}$ and θ lies in the second quadrant, then $\text{sec} \theta + \text{tan} \theta$ is
 a) -3
 b) -5
 c) -7
 d) -9
25. If θ lies in the second quadrant then the value of $\sqrt{\frac{1-\text{sin} \theta}{1+\text{sin} \theta}} + \sqrt{\frac{1+\text{sin} \theta}{1-\text{sin} \theta}}$ is
 a) $2\text{sec} \theta$
 b) $-2\text{sec} \theta$
 c) $2\text{cos} \theta$
 d) None of these
26. If $5 \tan \theta = 4$, then $\frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 2 \cos \theta}$
 a) 0
 b) 1
 c) $\frac{1}{6}$
 d) 6
27. If $\text{cosec} A + \cot A = \frac{11}{2}$, then $\tan A =$
 a) $\frac{21}{22}$
 b) $\frac{15}{16}$
 c) $\frac{44}{117}$
 d) $\frac{117}{43}$
28. If $\text{sin}(\alpha - \beta) = \frac{1}{2}$ and $\text{cos}(\alpha + \beta) = \frac{1}{2}$, where α and β are positive acute angles, then
 a) $\alpha = 45^\circ, \beta = 15^\circ$
 b) $\alpha = 15^\circ, \beta = 45^\circ$
 c) $\alpha = 60^\circ, \beta = 15^\circ$
 d) None of these
29. Assuming the distance of the earth from the moon to be 38400 km and the angle subtended by the moon at the eye of a person on the earth to be 31' find the diameter of the moon.

- a) $3464\frac{8}{63}$ km
 b) $3464\frac{8}{53}$ km
 c) $4464\frac{8}{63}$ km
 d) 0



30. Find in degrees and radians the angle between the hour hand and the minute hand of a clock at half past three.

- a) 55° or $5\pi/12$
 b) 75° or $5\pi/12$
 c) 75° or $4\pi/12$
 d) 75° or $5\pi/22$

