Q.16 A boy shot a football vertically up with an initial speed v_o. When the ball was 4 m above the ground, the speed was 0.3 of the initial speed. The initial speed is:

(A) 8.4 m/s (B) 9.3 m/s (C) 4.82 m/s (D) 11.7 m/s

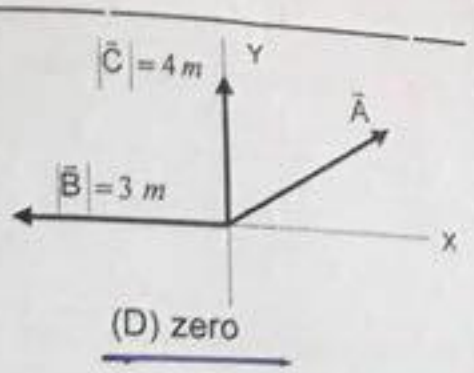
Q.17 Which of the following quantities is a scalar quantity?

(A) Mass (B) Acceleration (C) Force (D) Velocity

Q.18 The component of vector $\bar{A}$ are given as $A_x = 3$ m and $A_y = -4$ m. The magnitude of vector $\bar{A}$ is:

(A) 15 m (B) 5 m (C) 10 m (D) - 5 m

Q.19 In figure, if $2\bar{A}+\bar{B}-\bar{C}=3\hat{i}$ then the vector $\bar{A}$ in unit vector notation is:



(A) $3\hat{i}+2\hat{j}$ (B) $4\hat{i}+3\hat{j}$ (C) $5\hat{i}-4\hat{j}$ (D) $2\hat{i}+3\hat{j}$

Q.20 The result of $\hat{i}\bullet\hat{k}$ is:

(A) $\hat{i}$ (B) $\hat{k}$ (C) $\hat{j}$ (D) zero

Q.21 Given $\bar{a}=6\hat{i}-10\hat{j}+4\hat{k}$, then the magnitude of vector $\bar{a}$ is:

(A) $15.33\hat{i}$ (B) $10.33\hat{j}$ (C) $16.3\hat{k}$ (D) 12.4

Q.22 Given two vectors $\bar{a}=6\hat{i}+10\hat{j}-4\hat{k}$, $\bar{b}=4\hat{i}-7\hat{j}+5\hat{k}$, then $\frac{1}{2}\bar{a}+\bar{b}$ is:

(A) -66 (B) $7\hat{i}-2\hat{j}+3\hat{k}$ (C) $10\hat{i}-3\hat{j}$ (D) $10\hat{i}+3\hat{j}$

Q.23 Given $\bar{a}=3\hat{i}+2\hat{j}+3\hat{k}$, $\bar{b}=2\hat{i}-3\hat{j}+4\hat{k}$ then $(\bar{a}\bullet\bar{b})$ is:

(A) 40 (B) 12 (C) $\hat{i}+\hat{j}-5\hat{k}$ (D) $3\hat{i}+4\hat{j}-5\hat{k}$

Q.24 Given $\vec{A}=\hat{i}+3\hat{j}+3\hat{k}$, , $\vec{B}=2\hat{i}-3\hat{j}+4\hat{k}$, $\hat{C}=3\hat{i}-\hat{j}+2\hat{k}$, then the vector $\vec{D}=2\vec{A}+\vec{B}-\vec{C}$ is:

(A) $3\hat{i}+2\hat{j}5\hat{k}$ (B) $2\hat{i}+\hat{j}+3\hat{k}$ (C) $\hat{i}+4\hat{j}+8\hat{k}$ (D) $-\hat{i}-2\hat{j}+3\hat{k}$

Q.25 Given $\bar{c}=2\hat{i}+\hat{j}+2\hat{k}$ and $\bar{d}=\hat{i}-2\hat{j}+3\hat{k}$, then the angle between vector $\bar{c}$ and $\bar{d}$ is:

(A) 83° (B) 75° (C) 58° (D) 90°

Q.26 If $\bar{A}$ and $\bar{B}$ are vectors with magnitudes 6 and 5 respectively, and the magnitude of their cross product is 20, then the angle between $\bar{A}$ and $\bar{B}$ is:

(A) 90° (B) 42° (C) 49° (D) 60°

Q.27 Vector $\bar{A}$ is 5 cm long and points along the x axis. Vector $\bar{B}$ is 4 cm long and points at +60° above negative x axis. Determine the sum of these vectors

(A) $2\hat{i}+\hat{j}$ (B) $-\hat{i}+3.8\hat{k}$ (C) $3.8\hat{j}+\hat{k}$ (D) $3\hat{i}+3.5\hat{j}$

Q.28 If $\bar{A}\bullet\bar{B}=0$, the angle between the vectors $\bar{A}$ and $\bar{B}$ is: (Hint: $\bar{A}$ and $\bar{B}$ are non-zero vectors)

(A) 90° (B) 45° (C) Zero (D) 180°

Q.29 The result of $(\hat{i}\times\hat{j})\times\hat{k}$ is:

(A) $\hat{j}$ (B) $\hat{k}$ (C) Zero (D) $\hat{i}$

Q.30 The result of $(\hat{i}\times\hat{j})\bullet\hat{i}$ is:

(A) $\hat{j}$ (B) $\hat{k}$ (C) 1 (D) Zero

Student Name: Student no.: Section:

Q.1 Kg is the unit of
(A) Force (B) Weight (C) Time (D) Mass

Q.2 A car is traveling at 17 m/s. The speed of this car is equivalent to:
(A) 61.2 km/h (B) 72.3 km/h (C) 97.1 km/h (D) 23.2 km/h

Q.3 A cube of edge 37.5 mm, its volume is:
(A) 0.473 m^3 (B) 47.3 m^3 (C) 5.27×10^{-5} m^3 (D) 43 m^3

Q.4 A train moves with a speed of 55 mile per hour. The speed in SI units is: (Hint: 1 mile = 1610 m)
(A) 32.5 (B) 24.6 (C) 37.3 (D) 42.6

Q.5 A bicycle travels 15 km in 60 min. Its average speed is:
(A) 18 km/h (B) 51 km/h (C) 30 km/h (D) 15 km/h

Q.6 The position of a particle moving on an x axis is given by $x = 9t + 2t^2 - t^3$, with x in (m) and t in (s). The velocity at 2 s is:
(A) 2 m/s (B) 5 m/s (C) 0.5 m/s (D) 12 m/s

Q.7 Which unit of these is used to measure the distance ?
(A) m/s^2 (B) m/s (C) m (D) kg

Q.8 A car uniformly changes its speed from 5 m/s to 15 m/s in 5 s. The average acceleration is:
(A) 2 m/s^2 (B) - 4 m/s^2 (C) -6 m/s^2 (D) 9 m/s^2

Q.9 The velocity of a train is given by v(t)=56 – 4t, (where t in seconds and v is in m/s), has an acceleration of:
(A) - 4 m/s^2 (B) 9.8 m/s^2 (C) 0.3 m/s^2 (D) 2 m/s^2

Q.10 A particle starts motion at 10 m/s. If it moves 20 m in 2 s, its final velocity is:
(A) 3 m/s (B) 5 m/s (C) zero (D) 10 m/s

Q.11 A car moving with constant acceleration covers the distance between two points 50 m apart in 3 seconds. If its speed as it passes the second point is 18 m/s, its speed at the first point is:
(A) 15.6 m/s (B) 10 m/s (C) 5 m/s (D) 20 m/s

Q.12 A train changes its velocity from 70 km/h to 20 km/h in 6 s. The distance it covered is:
(A) 9.87 m (B) 15.4 m (C) 20.6 m (D) 75.0 m

Q.13 A speeding car is travelling with 40 m/s when it passes a stationary police car. What must be the constant acceleration of the police car be to catch the speeding car after 400 m distance?
(A) 8 m/s^2 (B) 10 m/s^2 (C) Zero (D) 20 m/s^2

Q.14 A car starts from rest with constant acceleration 2 m/s^2 for 4 s. Then, the car continues for 6 s at constant velocity. How far has the car traveled from its starting point?
(A) 39 m (B) 75 m (C) 64 m (D) 19.5 m

Q.15 A stone is dropped vertically downwards from a height h. If the stone reaches a height of 15 m above the ground in 2 s, the height h is:
(A) 9.6 m (B) 19.6 m (C) 34.6 m (D) 4.9 m

Student Name: Student no.: Section:

Q.1 Kg is the unit of
(A) Force (B) Weight (C) Time (D) Mass

Q.2 A car is traveling at 17 m/s. The speed of this car is equivalent to:
(A) 61.2 km/h (B) 72.3 km/h (C) 97.1 km/h (D) 23.2 km/h

Q.3 A cube of edge 37.5 mm, its volume is:
(A) 0.473 m^3 (B) 47.3 m^3 (C) 5.27 $\times 10^{-5}$ m^3 (D) 43 m^3

Q.4 A train moves with a speed of 55 mile per hour. The speed in SI units is: (Hint: 1 mile = 1610 m)
(A) 32.5 (B) 24.6 (C) 37.3 (D) 42.6

Q.5 A bicycle travels 15 km in 60 min. Its average speed is:
(A) 18 km/h (B) 51 km/h (C) 30 km/h (D) 15 km/h

Q.6 The position of a particle moving on an x axis is given by $x = 9t + 2t^2 - t^3$, with x in (m) and t in (s). The velocity at 2 s is:
(A) 2 m/s (B) 5 m/s (C) 0.5 m/s (D) 12 m/s

Q.7 Which unit of these is used to measure the distance ?
(A) m/s^2 (B) m/s (C) m (D) kg

Q.8 A car uniformly changes its speed from 5 m/s to 15 m/s in 5 s. The average acceleration is:
(A) 2 m/s^2 (B) - 4 m/s^2 (C) -6 m/s^2 (D) 9 m/s^2

Q.9 The velocity of a train is given by v(t)=56 – 4t, (where t in seconds and v is in m/s), has an acceleration of:
(A) - 4 m/s^2 (B) 9.8 m/s^2 (C) 0.3 m/s^2 (D) 2 m/s^2

Q.10 A particle starts motion at 10 m/s. If it moves 20 m in 2 s, its final velocity is:
(A) 3 m/s (B) 5 m/s (C) zero (D) 10 m/s

Q.11 A car moving with constant acceleration covers the distance between two points 50 m apart in 3 seconds. If its speed as it passes the second point is 18 m/s, its speed at the first point is:
(A) 15.6 m/s (B) 10 m/s (C) 5 m/s (D) 20 m/s

Q.12 A train changes its velocity from 70 km/h to 20 km/h in 6 s. The distance it covered is:
(A) 9.87 m (B) 15.4 m (C) 20.6 m (D) 75.0 m

Q.13 A speeding car is travelling with 40 m/s when it passes a stationary police car. What must be the constant acceleration of the police car be to catch the speeding car after 400 m distance?
(A) 8 m/s^2 (B) 10 m/s^2 (C) Zero (D) 20 m/s^2

Q.14 A car starts from rest with constant acceleration 2 m/s^2 for 4 s. Then, the car continues for 6 s at constant velocity. How far has the car traveled from its starting point?
(A) 39 m (B) 75 m (C) 64 m (D) 19.5 m

Q.15 A stone is dropped vertically downwards from a height h. If the stone reaches a height of 15 m above the ground in 2 s, the height h is:
(A) 9.6 m (B) 19.6 m (C) 34.6 m (D) 4.9 m

Q.16 A boy shot a football vertically up with an initial speed v_o. When the ball was 4 m above the ground, the speed was 0.3 of the initial speed. The initial speed is:

(A) 8.4 m/s (B) 9.3 m/s (C) 4.82 m/s (D) 11.7 m/s

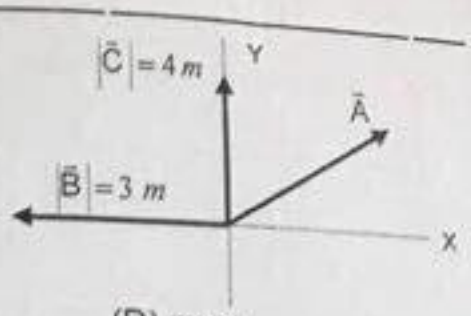
Q.17 Which of the following quantities is a scalar quantity?

(A) Mass (B) Acceleration (C) Force (D) Velocity

Q.18 The component of vector $\bar{A}$ are given as $A_x = 3$ m and $A_y = -4$ m. The magnitude of vector $\bar{A}$ is:

(A) 15 m (B) 5 m (C) 10 m (D) - 5 m

Q.19 In figure, if $2\bar{A}+\bar{B}-\bar{C}=3\hat{i}$ then the vector $\bar{A}$ in unit vector notation is:



(A) $3\hat{i}+2\hat{j}$ (B) $4\hat{i}+3\hat{j}$ (C) $5\hat{i}-4\hat{j}$ (D) $2\hat{i}+3\hat{j}$

Q.20 The result of $\hat{i}\bullet\hat{k}$ is:

(A) $\hat{i}$ (B) $\hat{k}$ (C) $\hat{j}$ (D) zero

Q.21 Given $\bar{a}=6\hat{i}-10\hat{j}+4\hat{k}$, then the magnitude of vector $\bar{a}$ is:

(A) $15.33\hat{i}$ (B) $10.33\hat{j}$ (C) $16.3\hat{k}$ (D) 12.4

Q.22 Given two vectors $\bar{a}=6\hat{i}+10\hat{j}-4\hat{k}$, $\bar{b}=4\hat{i}-7\hat{j}+5\hat{k}$, then $\frac{1}{2}\bar{a}+\bar{b}$ is:

(A) -66 (B) $7\hat{i}-2\hat{j}+3\hat{k}$ (C) $10\hat{i}-3\hat{j}$ (D) $10\hat{i}+3\hat{j}$

Q.23 Given $\bar{a}=3\hat{i}+2\hat{j}+3\hat{k}$, $\bar{b}=2\hat{i}-3\hat{j}+4\hat{k}$ then $(\bar{a}\bullet\bar{b})$ is:

(A) 40 (B) 12 (C) $\hat{i}+\hat{j}-5\hat{k}$ (D) $3\hat{i}+4\hat{j}-5\hat{k}$

Q.24 Given $\vec{A}=\hat{i}+3\hat{j}+3\hat{k}$, , $\vec{B}=2\hat{i}-3\hat{j}+4\hat{k}$, $\hat{C}=3\hat{i}-\hat{j}+2\hat{k}$, then the vector $\vec{D}=2\vec{A}+\vec{B}-\vec{C}$ is:

(A) $3\hat{i}+2\hat{j}5\hat{k}$ (B) $2\hat{i}+\hat{j}+3\hat{k}$ (C) $\hat{i}+4\hat{j}+8\hat{k}$ (D) $-\hat{i}-2\hat{j}+3\hat{k}$

Q.25 Given $\bar{c}=2\hat{i}+\hat{j}+2\hat{k}$ and $\bar{d}=\hat{i}-2\hat{j}+3\hat{k}$, then the angle between vector $\bar{c}$ and $\bar{d}$ is:

(A) 83° (B) 75° (C) 58° (D) 90°

Q.26 If $\bar{A}$ and $\bar{B}$ are vectors with magnitudes 6 and 5 respectively, and the magnitude of their cross product is 20, then the angle between $\bar{A}$ and $\bar{B}$ is:

(A) 90° (B) 42° (C) 49° (D) 60°

Q.27 Vector $\bar{A}$ is 5 cm long and points along the x axis. Vector $\bar{B}$ is 4 cm long and points at +60° above negative x axis. Determine the sum of these vectors

(A) $2\hat{i}+\hat{j}$ (B) $-\hat{i}+3.8\hat{k}$ (C) $3.8\hat{j}+\hat{k}$ (D) $3\hat{i}+3.5\hat{j}$

Q.28 If $\bar{A}\bullet\bar{B}=0$, the angle between the vectors $\bar{A}$ and $\bar{B}$ is: (Hint: $\bar{A}$ and $\bar{B}$ are non-zero vectors)

(A) 90° (B) 45° (C) Zero (D) 180°

Q.29 The result of $(\hat{i}\times\hat{j})\times\hat{k}$ is:

(A) $\hat{j}$ (B) $\hat{k}$ (C) Zero (D) $\hat{i}$

Q.30 The result of $(\hat{i}\times\hat{j})\bullet\hat{i}$ is:

(A) $\hat{j}$ (B) $\hat{k}$ (C) 1 (D) Zero