Q1 Given, $\vec{P} = 2\hat{i} - 3\hat{j} + 4\hat{k}$ and $\vec{Q} = \hat{j} - 2\hat{k}$.
The magnitude of their resultant is:

(A) $\sqrt{3}$ (B) $2\sqrt{3}$

(C) $3\sqrt{3}$ (D) $4\sqrt{3}$

Q2 The resultant of $\vec{F_1} = 4\hat{i} - 3\hat{j}$ and
$\vec{F_2} = 6\hat{i} + 8\hat{j}$ is;

(A) $5\sqrt{5}$

(B) $10\hat{i} + 5\hat{j}$

(C) 125

(D) $-2\hat{i} - 3\hat{j}$

Q3 Given two vectors $\vec{A} = 3\hat{i} + 4\hat{j}$ and
$\vec{B} = \hat{i} - 2\hat{j}$. Then match the following
columns:

	List-I		List-II
(A)	Magnitude of vector $\vec{A}$	(I)	5
(B)	Unit vector of $\vec{A}$	(II)	$\left(0.6\hat{i} + 0.8\hat{j}\right)$
(C)	The magnitude of $\vec{A} + \vec{B}$	(III)	$\left(2\hat{i} + 6\hat{j}\right)$
(D)	The difference of vector $\vec{A} - \vec{B}$	(IV)	$\sqrt{20}$

Choose the **correct** answer from the options
given below:

(A) A-IV,   B-I,   C-II,   D-III

(B) A-I,   B-II,   C-IV,   D-III

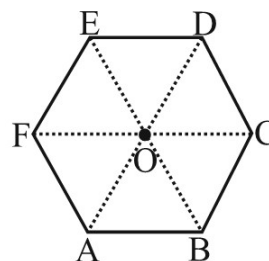(C) A-III,   B-II,   C-IV,   D-I

(D) A-II,   B-IV,   C-I,   D-III

Q4 For the figure, which of the following is **correct**?
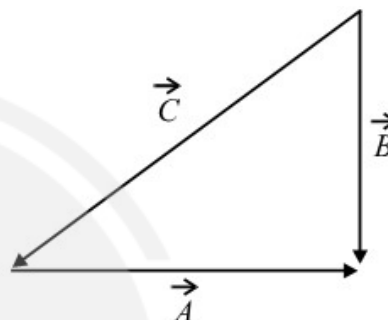
(A) $\vec{A} + \vec{B} = \vec{C}$

(B) $\vec{B} + \vec{C} = \vec{A}$

(C) $\vec{C} + \vec{A} = \vec{B}$

(D) $\vec{A} + \vec{B} + \vec{C} = 0$

Q5 Figure shows ABCDEF as a regular hexagon.
What is the value of
$\overrightarrow{AB} + \overrightarrow{AC} + \overrightarrow{AD} + \overrightarrow{AE} + \overrightarrow{AF}$

(A) $\overrightarrow{AO}$ (B) $2\overrightarrow{AO}$

(C) $4\overrightarrow{AO}$ (D) $6\overrightarrow{AO}$

Q6 If a vector $2\hat{i} + 3\hat{j} + 8\hat{k}$ is perpendicular to the vector $4\hat{j} - 4\hat{i} + \alpha\hat{k}$, then the value of α is:

(A) 1/2   (B) –1/2

(C) 1   (D) –1

Q7 Two forces, each equal to F act at an angle 60°, their resultant is?

(A) $F/2$ (B) F

(C) $\sqrt{3}F$ (D) $\sqrt{5}F$

Q8 A force of 8 N makes an angle 30° with x-axis. Find the x and y components of the force.

(A) $F_x = 4\sqrt{3}N,\ F_y = 4N$

(B) $F_x = 4N,\ F_y = 4\sqrt{3}N$

(C) $F_x = 2N,\ F_y = 2\sqrt{3}N$

(D) $F_x = 2\sqrt{3}N,\ F_y = 2N$

Q9 If a unit vector is represented by $0.3\hat{i} - 0.4\hat{j} + c\hat{k}$, then the value of '$c$' is:

(A) $\sqrt{0.75}$ (B) $\sqrt{0.25}$

(C) $\sqrt{0.01}$ (D) $\sqrt{0.39}$

Q10 The unit vector along $\hat{i} - 2\hat{j}$ is :

(A) $\dfrac{\hat{i} - 2\hat{j}}{\sqrt{5}}$ (B) $\hat{i} + \hat{j}$

(C) $\dfrac{\hat{i} + \hat{j}}{\sqrt{2}}$ (D) $\dfrac{\hat{i} - \hat{j}}{\sqrt{5}}$

Q11 If two vectors $2\hat{i} + 3\hat{j} - \hat{k}$ and $-4\hat{i} - 6\hat{j} + \lambda\hat{k}$ are parallel to each other then value of λ be:

(A) 0   (B) 2

(C) 3   (D) 4

Q12 If $A = 3\hat{i} + 4\hat{j}$ and $B = 7\hat{i} + 24\hat{j}$, the vector having the same magnitude as B and parallel to A is;

(A) $5\hat{i} + 20\hat{j}$ (B) $15\hat{i} + 10\hat{j}$

(C) $20\hat{i} + 15\hat{j}$ (D) $15\hat{i} + 20\hat{j}$

Q13 A vector $\overrightarrow{P} = 3\hat{i} - 2\hat{j} + a\hat{k}$ is perpendicular to the vector $\overrightarrow{Q} = 2\hat{i} + \hat{j} - \hat{k}$. The value of a is:

(A) 2   (B) 1

(C) 4   (D) 3

Q14 If force $\left(\overrightarrow{F}\right) = 4\hat{i} + 5\hat{j}$ and displacement $\left(\overrightarrow{s}\right) = 3\hat{k} + 6\hat{j}$, then the work done is: $\left(W = \overrightarrow{F} . \overrightarrow{S}\right)$

(A) 4 × 3   (B) 5 × 6

(C) 6 × 3   (D) 4 × 6

Q15 Find work done, if force $\overrightarrow{F} = 3\hat{i} + 2\hat{j} + \hat{k}$ and displacement $\overrightarrow{s} = 2\hat{i} - 5\hat{j} + 3\hat{k}$

(A) 1 J   (B) -1J

(C) 2J   (D) -2J

Answer Key

Q1	(B)		Q9	(A)
Q2	(B)		Q10	(A)
Q3	(B)		Q11	(B)
Q4	(C)		Q12	(D)
Q5	(D)		Q13	(C)
Q6	(B)		Q14	(B)
Q7	(C)		Q15	(B)
Q8	(A)			

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