

JEE Main 2024 Question Paper Jan 27 Shift 1

(B.E./B.Tech)

JEE Main Physics Questions

Ques 1. A body of mass 1000 kg has a velocity of 6 m/s. If an extra 2000 kg mass is embedded in it, then what will be the velocity of the combined mass?

- A. 5 m/s
- B. 4 m/s
- C. 2 m/s
- D. 3 m/s

Ans. A

Ques 2. Two infinite current carrying wires having current I in opposite directions are shown below. Find the magnetic field in S.I units, at point

- A. $7\mu_0 I/\pi$
- B. $10\mu_0 I/\pi$
- C. $5\mu_0 I/\pi$
- D. $\mu_0 I/\pi$

Ans. B

Ques 3. If the diameter of earth becomes half keeping mass to be constant, then the acceleration due to gravity at surface of earth becomes

- A. half
- B. four times
- C. twice
- D. three times

Ans. C

Ques 4. Two masses $m_1 = 4$ gm and $m_2 = 25$ gm are having same kinetic energy; find the ratio of linear momentum

- A. 1:5
- B. 2:5

C. 1:1

D. 1:6

Ans. B

Ques 5. A rod of length l having resistance R , is cut into two equal parts. These parts are connected in parallel then new resistance shall be?

A. R

B. $R/2$

C. $R/4$

D. $2R$

Ans. C

Ques 6. A charge $Q=10^{-6}\text{C}$ is placed at origin. Find the potential difference between two points A and B whose position vectors are $(\sqrt{3}\hat{i} + \sqrt{3}\hat{j})\text{ m}$ and $\sqrt{6}\hat{j}$ respectively

A. zero

B. 1000 Volts

C. 2000 Volts

D. 500 Volts

Ans. A

Ques 7. Consider the system shown. Find the moment of inertia about the diagonal shown.

A. 1 kg.m^2

B. 2 kg.m^2

C. 4 kg.m^2

D. 6 kg.m^2

Ans. C

Ques 8. Statement 1: Linear momentum and moment of force have same dimensions.

Statement 2: Planck's constant and angular momentum have same Dimension.

A. Statement 1 is correct while statement 2 is false

B. Statement 1 is false while Statement 2 is correct

C. Both statements are correct

D. Both statements are false

Ans. B

JEE Main Chemistry Questions

Ques 1. Which of the following can not show variable oxidation state?

A. Chlorine

B. Fluorine

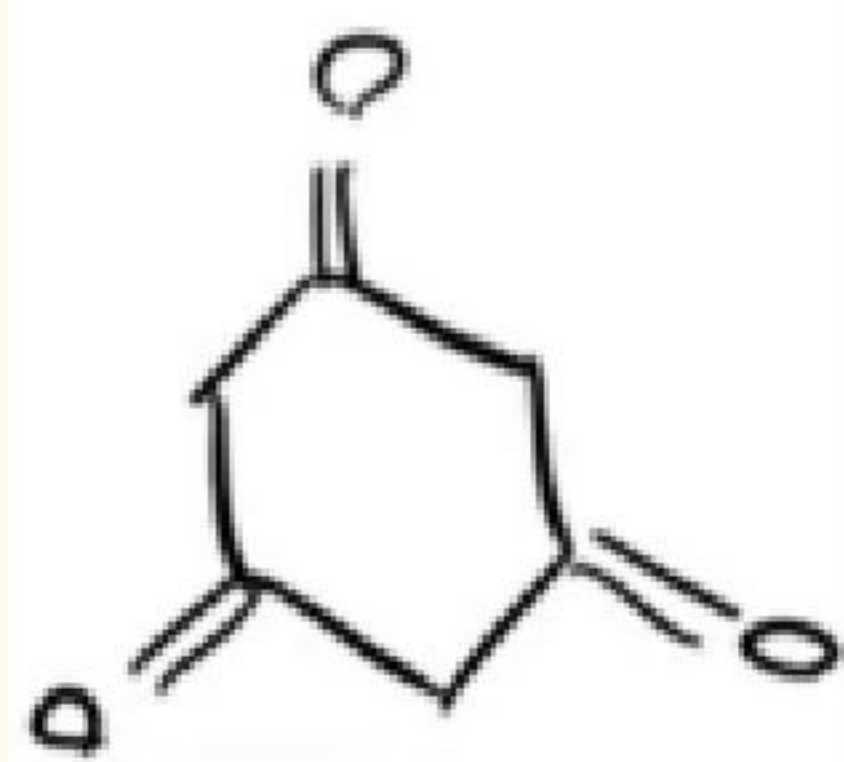
C. Bromine

D. Iodine

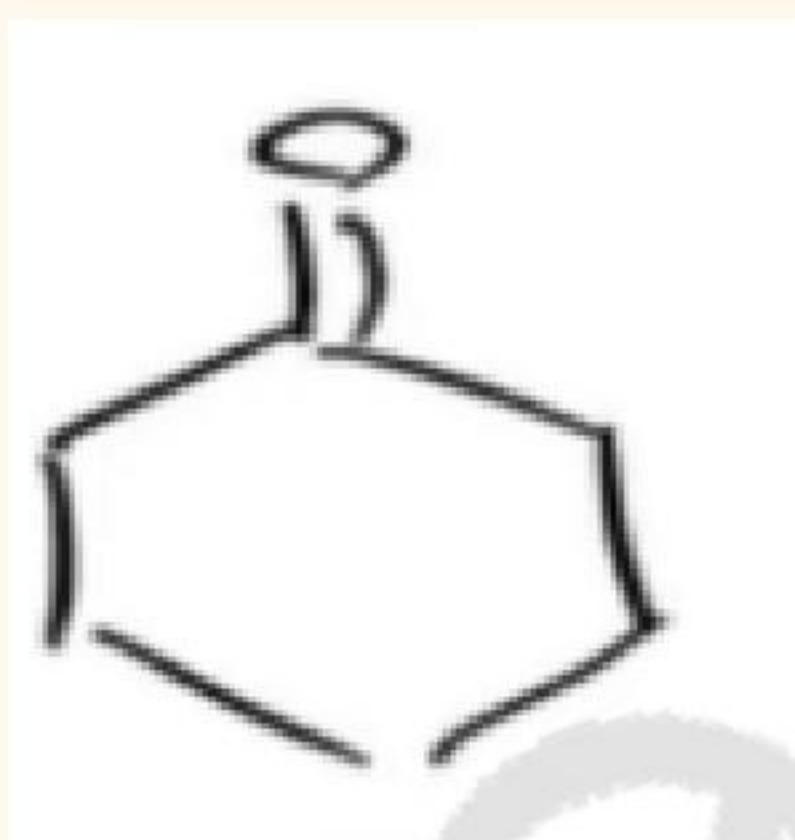
Ans. B

Ques 2. Which of the following has the highest enol content.

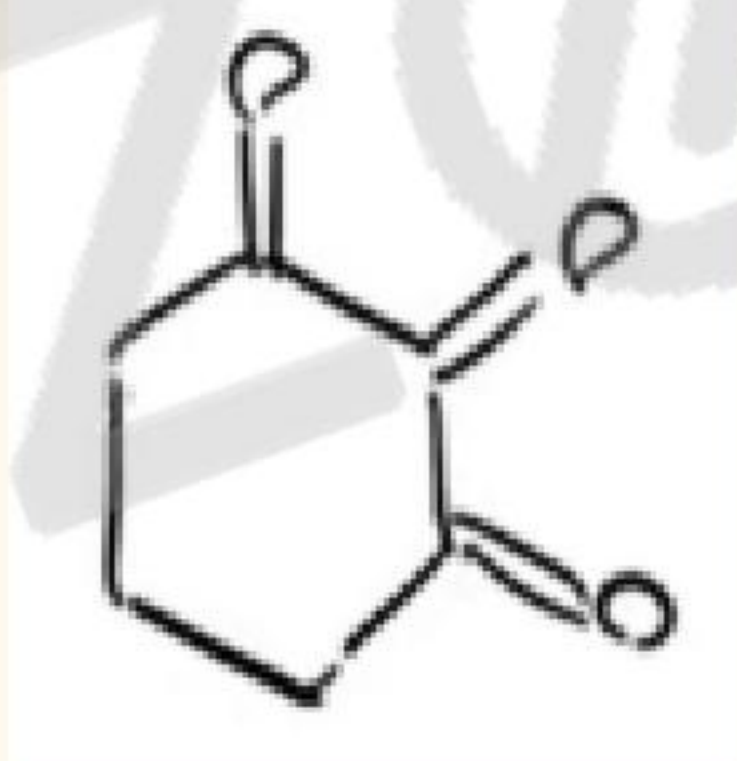
A.



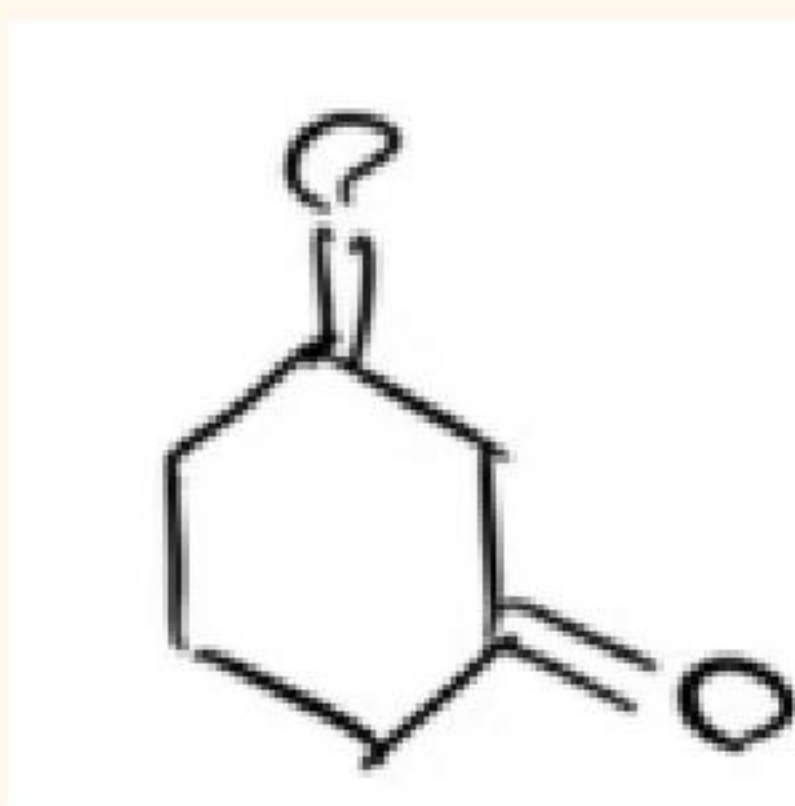
B.



C.

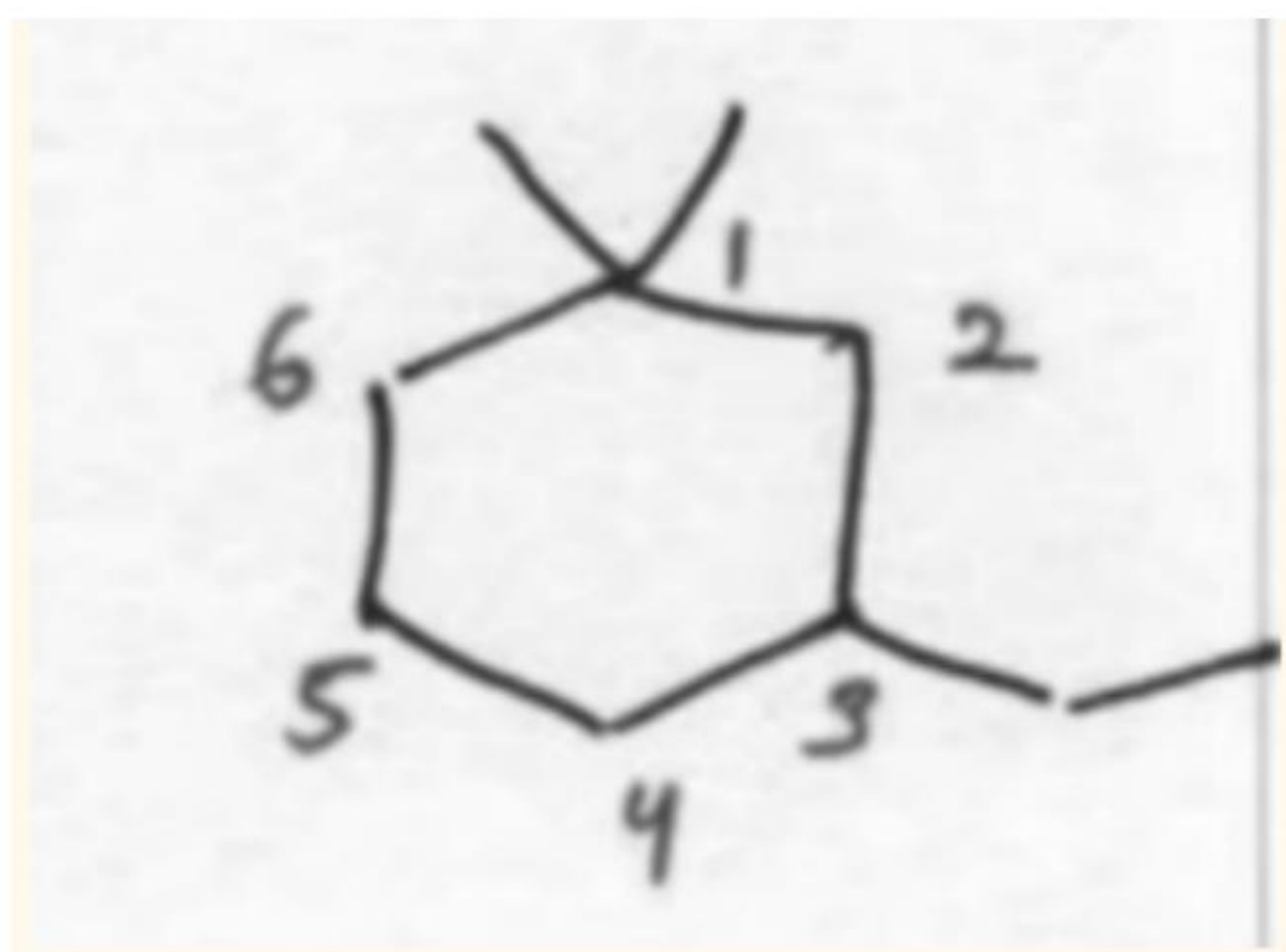


D.



Ans. A

Ques 3. IUPAC name of this compound is?



- A. 1 - ethyl - 3,3-dimethyl cyclohexane
- B. 3 - ethyl - 1,1- dimethyl cyclohexane
- C. 1 - ethyl - 3,3-dimethyl cyclohexene
- D. 3 - ethyl - 1,1- dimethyl cyclohexene

Ans. B

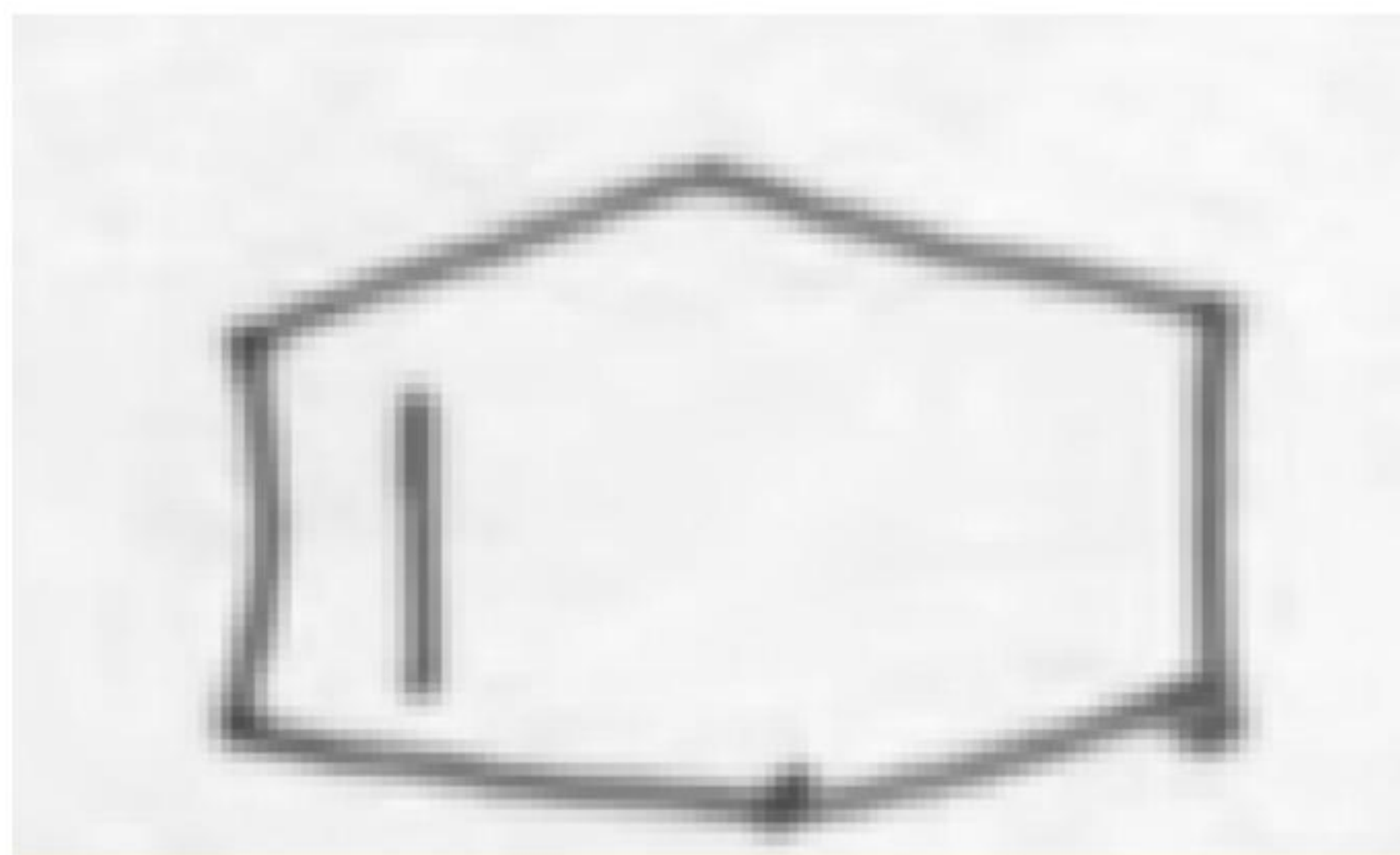
Ques 4. The compound given below is?



- A. Alicyclic
- B. Aromatic
- C. Antiaromatic
- D. Acyclic

Ans. A

Ques 5. Which of the following is a Polar molecule?



- A. $\text{CH}_2=\text{CH}_2$
- B. CHCl_3
- C. CCL_4
- D. CH_4

Ans. B

JEE Main Mathematics Questions

Ques 1. If $\vec{a} = \hat{i} + 2\hat{j} + k$, $\vec{b} = 3(\hat{i} - \hat{j} + k)$, $\vec{a} \cdot \vec{c} = 3$ and $\vec{a} \times \vec{c} = \vec{b}$, then $\vec{a} \cdot ((\vec{x}\vec{b}) - \vec{b} - \vec{c}) =$

- A. 24
- B. 38
- C. 10
- D. None of these

Ans. A

Ques 2. The vertices of a triangle ABC are A(1,2), B(-3,4) and C(5,8) then orthocentre of $\triangle ABC$ is

- A. $(\frac{2}{3}, 1)$
- B. $(-\frac{7}{3}, 2)$
- C. (2, 3)
- D. $(\frac{3}{2}, 1)$

Ans. D

Ques 3. $S_1 = 3, 9, 15, \dots$ 25 terms and $S_2 = 3, 8, 13, \dots$ 37 terms, then the number of common terms in S_1, S_2 is equal to

- A. 3
- B. 4
- C. 5
- D. 6

Ans. C

Ques 4. The value of k for $(2k, 3k)$, (0, 0), (1,0) and (0,1) to be on the circle is:

- A. $\frac{2}{13}$

B. 5/13
C. 1/13
D. 2/13
Ans. B

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