

JEE Main 2023 Question Paper with Answer Key April 10 Shift 2 (Memory-based)

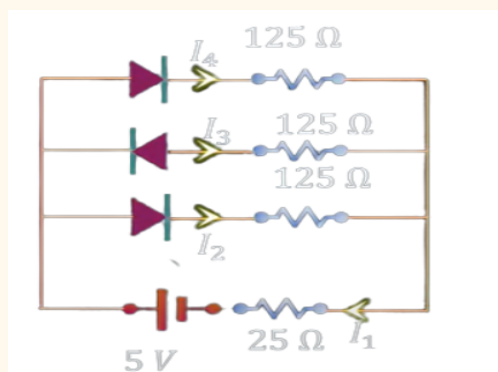
JEE Main 2023 Physics Question Paper

Question 1. An object moves x distance with speed v_1 and next x distance with speed v_2 . The average velocity v is related to v_1 and v_2 as

- A. $v = (v_1 + v_2)/2$
- B. $1/v = 1/v_1 + 1/v_2$
- C. $v = (2v_1 v_2) / (v_1 + v_2)$
- D. $v = (v_1 - v_2) / 2$

Answer. C

Question 2. Following circuit contains diodes with forward bias having resistance 25Ω , and reverse bias having infinite resistance. The ratio of I_1/I_2 is equal to

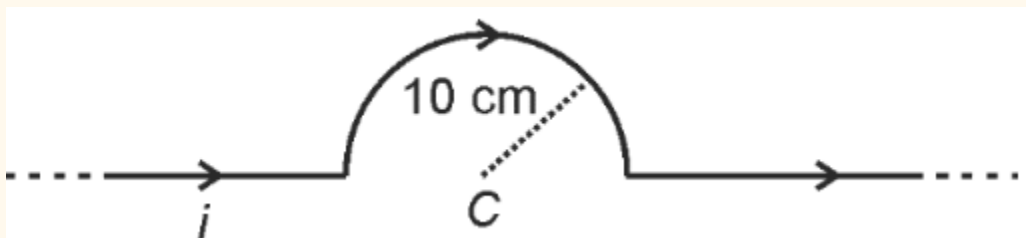


- A. 1
- B. 2
- C. 3

D. 4

Answer. B

Question 3. An infinitely-long conductor has a current 14 A flowing as shown in the figure. Find the magnetic field at centre C.



- A. $88 \mu\text{T}$
- B. $44 \mu\text{T}$
- C. $10 \mu\text{T}$
- D. $120 \mu\text{T}$

Answer. B

Question 4. If half life for a radioactive decay reaction is T. Find the time after which 7/8th of initial mass decays

- A. 3T
- B. 2T
- C. T/2
- D. 4T

Answer. A

Question 5. Assertion (A):- fan spins even after switch is off

Reason (R) :- Fan in rotation has rotational inertia.

- A. A is correct and R is correct explanation of A
- B. A is correct and R is incorrect explanation of A
- C. A is correct and R is correct but R is not correct explanation of A

D. Both (A) and (R) are incorrect

Answer. A

Question 6. When electric field is applied to the electrons in a conductor it starts

- A. Moving in straight line
- B. Drifting from higher potential to lower potential
- C. Drifting from lower potential to higher potential
- D. Moving with constant velocity

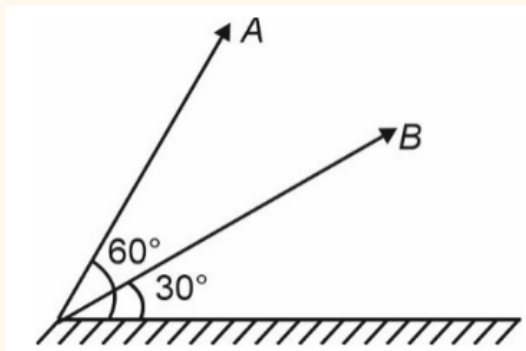
Answer. C

Question 7. Wire A and B have their Young's moduli in the ratio 1:3, area of cross section in the ratio of 1:2 and lengths in ratio of 3:4. If same force is applied on the two wires to elongate then ratio of elongation is equal to

- A. 8:1
- B. 1:12
- C. 1:8
- D. 9:2

Answer. D

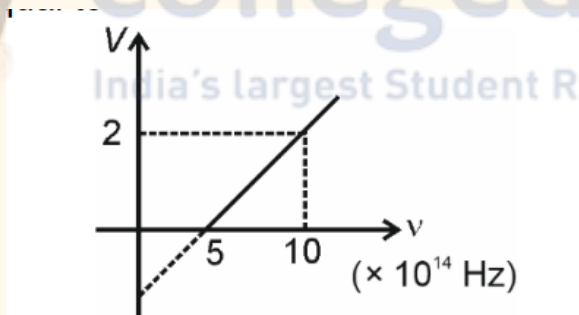
Question 8. Two projectiles A and B are projected from the same point on ground with same speed of projection as shown. Find the ratio of maximum height attained by A to that of B.



- A. 3:1
- B. 1:3
- C. $\sqrt{3}:1$
- D. $\sqrt{3}:2$

Answer. A

Question 9. Based on given graph between stopping potential and frequency of irradiation, work function of metal is equal to



- A. 1 eV
- B. 3 eV
- C. 2 eV
- D. 4 eV

Answer. C

Question 10. Assertion (A): Acceleration due to gravity is minimum at equator.

Reason (R): Rotation of earth influences acceleration.

- A. A is correct, R is correct explanation of A
- B. A is correct, R is incorrect explanation of A
- C. A is correct and R is incorrect
- D. Both A and R are incorrect

Answer. A

JEE Main 2023 Chemistry Question Paper

Question 1. Delicate balance of CO₂ and O₂ is not disturbed by:

- A. Deforestation
- B. Photosynthesis
- C. Burning of coal
- D. Burning of petroleum

Answer. B

Question 2. For a metal ion magnetic moment is calculated to be 4.9BM. Find the number of unpaired.

Answer. 4

Question 3. The increasing order of metallic character

- A. Be > Ca > K
- B. K > Ca > Be
- C. Ca > K > Be
- D. K > Be > Ca

Answer. B

Question 4. What process is used to make soap from fat?

- A. Saponification
- B. Electrolysis
- C. Solvay process
- D. Haber process

Answer. A

Question 5. An unknown organic compound is heated with fuming HNO_3 . The reaction mixture is treated with aq BaCl_2 solution which gives white precipitate. Identify the unknown organic compound.

- A. Phenylalanine
- B. Proline
- C. Cysteine
- D. Valine

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Answer. C

Question 6. During bleeding from cut FeCl_3 is used to stop bleeding as

- A. Cl^- cause coagulation
- B. Ferric ion cause coagulation
- C. FeCl_3 dilutes blood
- D. Bleeding does not stop

Answer. B

Question 7. How many electrons are gained by MnO_4^- in strongly alkaline medium?

Answer. 1

Question 8. For a first-order reaction, if the value of $t_{1/2}$ is T, then the value of $t_{7/8}$ will be _____ T.

Answer. 3

Question 9. Find out difference in oxidation state of Xe in completely Hydrolysed form of XeF_4 and XeF_6

Answer. 0

Question 10. NH_3 , NO , N_2 , F_2 , CO , CO_2 , H_2O , and XeF_4
Fill the number of above molecules having only two lone pair of electrons.

Answer. 3 (N_2 , CO and H_2O)

JEE Main 2023 Mathematics Question Paper

Question 1. Let a circle of $x^2 + y^2 = 16$ and line passing through (1,2) cuts the circle at A and B then the locus of the mid-point of AB is:

- A. $x^2 + y^2 + x + y = 0$
- B. $x^2 + y^2 - x + 2y = 0$

- C. $x^2 + y^2 - x - 2y = 0$
 D. $x^2 + y^2 + x + 2y = 0$

Answer. C

Question 2. The sum of all 4 digit numbers using the digits 1,2,2,3 is?

Answer. 26464

Question 3. 4,11,21,34..... Find the value of $(S_{29} - S_9) / 60$?

Answer. 223

Question 4. The coefficient of x and x^2 in $(1 + x)^p (1 - x)^q$ are 4 and -5 , then $2p + 3q$ is

Answer. 63

Question 5. If a dice is thrown n-times and probability of getting 7 times odd is equal to 9 times even. Then $P(2 \text{ even})$ is $K/2^{15}$ then K is

- A. 58
 B. 60
 C. 48
 D. 65

Answer. B

Question 6. If area bounded by region $\{x, y\} | |x^2 - 2| \leq y \leq x$ is A, then $6A + 16\sqrt{2}$ is?

Answer. 27

Question 7. $y = f(x)$ is a quadratic function passing through $(-1, 0)$ and tangent to it at $(1, 1)$ is $y = x$. Find x intercept by normal at point $(\alpha, \alpha + 1)$, $(\alpha > 0)$

- A. 7
- B. -7
- C. 5
- D. -5

Answer. A

Question 8. The equation of conic is $19x^2 + 15y^2 = 285$. A concentric circle with radius 4 units is given then angle of common tangent made by minor axis of ellipse is

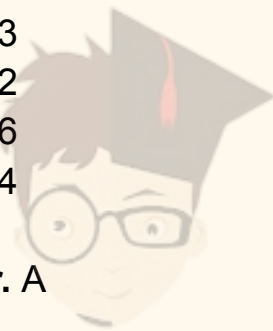
- A. $\pi/3$
- B. $\pi/2$
- C. $\pi/6$
- D. $\pi/4$

Answer. A

Question 9. 8 persons has to travel from A to B in 3 allotted cars. If a car can carry maximum 3 persons. Then find the number of ways they can travel.

- A. 1880
- B. 1800
- C. 1680
- D. 1600

Answer. C



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Question 10. Let α be the remainder $(22)^{2022} + (2022)^{22}$ is divided by 3 and β be the remainder when the same is divided by 7 then $\alpha^2 + \beta^2$ is?

Answer. 5



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