# JEE Main 2023 Question Paper April 8 Shift 2 (Memory-Based) 

## JEE Main 2023 Physics Question Paper

Ques. Which of the following is the highest electromagnetic wave?
A. X-ray
B. Infrared
C. Microwaves
D. Radiowave

Ans. A

Ques. Which of the following expressions give the value of acceleration due to gravity $\left(g^{\prime}\right)$ at the altitude $h$ above the surface of Earth. ( $R=$ radius of Earth, $g=$ acceleration due to gravity at surface of Earth)
A. $g^{\prime}=g\left(h^{2} / R^{2}\right)$
B. $g^{\prime}=g\left[R^{2} /(R+h)^{2}\right]$
C. $g^{\prime}=g(1-h / R)$
D. $g^{\prime}=g\left(1-h^{2} / R^{2}\right)$

Ans. B
Ques. Find the distance from a point of charge of magnitude $5 \times 10^{-9} \mathrm{C}$, where the electric potential is 50 V
A. 90 cm
B. 70 cm
C. 60 cm
D. 50 cm

Ans. A
Ques. A Carnot engine working between $27^{\circ} \mathrm{C}$ and $127^{\circ} \mathrm{C}$ performs 2 kJ of work. The amount of heat rejected is equal to:
A. 4 kJ
B. 6 kJ
C. 8 kJ
D. 12 kJ

Ans. B

Ques. Match column / with column II and choose the correct option.

| Column I | Column II |
| :--- | :--- |
| (I) Torque | (a) $\mathrm{M}^{\circ} \mathrm{LT}^{-2}$ |
| (II) stress | (b) $\mathrm{ML}^{-1} \mathrm{~T}^{-1}$ |
| (III) Coefficient of viscosity | (c) $\mathrm{ML}^{-1} \mathrm{~T}^{-2}$ |
| (IV) Potential gradient | (d) $\mathrm{ML}^{27^{-2}}$ |

A. I $\rightarrow \mathrm{a}, \mathrm{II} \rightarrow \mathrm{c}, \mathrm{III} \rightarrow \mathrm{b}, \mathrm{IV} \rightarrow \mathrm{d}$
B. I $\rightarrow \mathrm{d}, \mathrm{II} \rightarrow \mathrm{b}, \mathrm{III} \rightarrow \mathrm{c}, \mathrm{IV} \rightarrow \mathrm{a}$
C. I $\rightarrow \mathrm{d}, \mathrm{II} \rightarrow \mathrm{c}, \mathrm{III} \rightarrow \mathrm{b}, \mathrm{IV} \rightarrow \mathrm{a}$
D. I $\rightarrow \mathrm{a}, \mathrm{II} \rightarrow \mathrm{c}, \mathrm{III} \rightarrow \mathrm{d}, \mathrm{IV} \rightarrow \mathrm{b}$

Ans. C

Ques.
Statement -I : Electromagnets are made of soft iron.
Statement -II : Soft iron has lower permeability and high retentivity.
Choose the correct option related to statements.
A. Statement - I is true but Statement - II is false
B. Statement - I is false but Statement - II is true
C. Statement - I is false and Statement - II is also false
D. Statement -l is true and Statement -ll is also true

Ans. B

Ques. A body of mass 5 kg has the linear momentum of $100 \mathrm{~kg} \mathrm{~ms}-1$ and acted upon by the force of 2 N for 2 sec . Then change in kinetic energy in joule is

Ans. 81.6

## JEE Main 2023 Chemistry Question Paper

Ques. Compounds of Xenon have one electron pain on central atom:
A. $\mathrm{XeO}_{3}$
B. $\mathrm{XeOF}_{2}$
C. $\mathrm{XeF}_{4}$
D. $\mathrm{XeF}_{5}{ }^{-}$

Ans. A

Ques. Which of the following acts as a stabilizer in the decomposition of $\mathrm{H}_{2} \mathrm{O}_{2}$ ?
A. Urea
B. Alkali
C. Glass
D. Dust

Ans. A

Ques. What is the ratio of $\sigma$ and pi bonds in pyrophosphoric acid?

Ans. $6: 1$

Ques. IUPAC name of the compound?

Ans. 2 methyl 5 hexenoic acid

Ques. Find out the oxidation number of the central metal atom of $\mathrm{fe}(\mathrm{CO})_{5}, \mathrm{VO}^{2+}$, and $\mathrm{WO}_{3}$. Then calculate the sum of their oxidation state.

Ans. 10

## JEE Main 2023 Mathematics Question Paper

Ques. The absolute difference of the coefficient of $x 7$ and $x 9$ in the expansion of $(2 x+1 / 2 x)^{11}$ is?
A. $11 \times 2^{5}$
B. $11 \times 2^{7}$
C. $11 \times 2^{4}$
D. $11 \times 2^{3}$

Ans. B

Ques. The area of the quadrilateral having vertices as $(1,2),(5,6),(7,6),(-1,-6)$ is ?
Ans. 24

Ques. Let $f(x)=\{1,2,3,4,5,6,7\}$, the relation $R=\{(x, y) \in A x A, x+y=7\}$ is
A. Symmetric
B. Reflexive
C. Transitive
D. Equivalence

Ans. A

Ques. The number of words with or without meaning can be formed from the word MATHEMATICS where $C, S$ does not come together is
A. $9 / 8 \times 10$ !
B. $1 / 8 \times 10$ !
C. $5 / 8 \times 10$ !
D. $1 / 2 \times 10$ !

Ans. A

