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 (g') at the altitude h above the surface of Earth. (R = radius of Earth, g = acceleration due to gravity at surface of Earth)

A.
$$g' = g (h^2/R^2)$$

B. $g' = g [R^2 / (R+h)^2]$
C. $g' = g(1-h/R)$
D. $g' = g(1-h^2/R^2)$

Ans. B

Ques. Find the distance from a point of charge of magnitude 5 x 10⁻⁹ 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°C and 127°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) M°LT ⁻²
(II) stress	(b) ML ⁻¹ T ⁻¹
(III) Coefficient of viscosity	(c) ML ^{-I} T ⁻²
(IV) Potential gradient	(d) ML ² 7 ⁻²

A. $I \rightarrow a, II \rightarrow c, III \rightarrow b, IV \rightarrow d$

- $\mathsf{B.} \ \mathsf{I} \to \mathsf{d}, \, \mathsf{II} \to \mathsf{b}, \, \mathsf{III} \to \mathsf{c}, \, \mathsf{IV} \to \mathsf{a}$
- $C. \ \ I \rightarrow d, \ II \rightarrow c, \ III \rightarrow b, \ IV \rightarrow a$
- $\mathsf{D}. \ \ \mathsf{I} \to \mathsf{a}, \, \mathsf{II} \to \mathsf{c}, \, \mathsf{III} \to \mathsf{d}, \, \mathsf{IV} \to \mathsf{b}$

Ans. C

Ques.

Statement —I : Electromagnets are made of soft iron.

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 —I is true and Statement —II is also true

Ans. B

Ques. A body of mass 5 kg has the linear momentum of 100 kg 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. XeO₃
- B. XeOF₂
- C. XeF₄
- D. XeF₅

Ans. A

Ques. Which of the following acts as a stabilizer in the decomposition of H_2O_2 ?

- A. Urea
- B. Alkali
- C. Glass
- D. Dust

Ans. A

Ques. What is the ratio of σ 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 $fe(CO)_5$, VO^{2+} , and 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 x7 and x9 in the expansion of $(2x + 1/2x)^{11}$ is?

- A. 11 x 2⁵
- B. 11 x 2⁷
- C. 11 x 2⁴
- D. 11 x 2³

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 $R = \{(x, y) \in A \times A, x + y = 7\}$ 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 x 10!
- B. 1/8 x 10!
- C. 5/8 x 10!
- D. 1/2 x 10!

Ans. A

