

JEE Main 2023 Answer Key

Date and Shift: April 10 Shift 1

Memory-Based Questions

Physics Answer Key

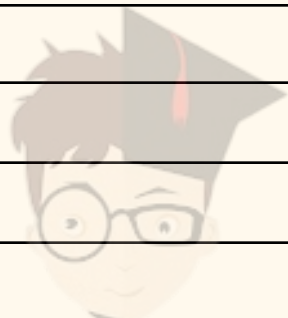
| Question No. | Answer Key |
|--------------|------------|
| 1 | 8 cm |
| 2 | A |
| 3 | C |
| 4 | 200 |
| 5 | A |
| 6 | 16 |
| 7 | B |
| 8 | A |
| 9 | B |
| 10 | C |

Chemistry Answer Key

| Question No. | Answer Key |
|--------------|---|
| 1 | A |
| 2 | C |
| 3 | A |
| 4 | B |
| 5 | Number of moles = 0.1266 moles Number of molecules = 0.7625×10^{23} |
| 6 | B |
| 7 | 1 |
| 8 | C |
| 9 | 2 |
| 10 | 2325.5 mmHg |
| 11 | A |
| 12 | C |
| 13 | 30 |

Mathematics Answer Key

| Question No. | Answer Key |
|--------------|------------|
| 1 | C |
| 2 | 9525 |
| 3 | B |
| 4 | 22 |
| 5 | C |
| 6 | 16 |
| 7 | C |
| 8 | 815 |
| 9 | 85 |
| 10 | B |



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JEE Main 2023 Physics Question Paper

Question 1. An object is placed in front of a plane mirror 12 cm away from it. The object is kept fixed while the plane mirror is shifted towards the object by a distance of 4 cm. The length of shift in the position of the image is equal to _____ cm.

Question 2. Statement (1): An LCR circuit connected to an AC source has maximum average power at resonance.

Statement (2): A resistor only circuit with zero phase difference has maximum average power.

- A. (1) and (2) both are correct
- B. (1) is correct but (2) is incorrect
- C. (1) is incorrect but (2) is correct
- D. Both (1) and (2) are incorrect

Question 3. A point sized object is placed 4 cm from the double convex lens of focal length 8 cm. The change in the position of the image, when the object is moved 2 cm towards the lens, is?

- A. 8
- B. $8/3$
- C. $16/3$
- D. $32/3$

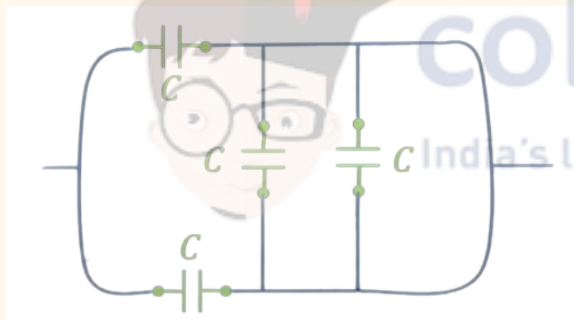
Question 4. The equation of progressive wave is $y=5\sin(6t + 0.03x)$. Find the speed of wave

Question 5. For an object radiating heat at 300 K, the wavelength corresponding to maximum intensity is λ . If the temperature of body is increased by 300 K, the new wavelength corresponding to maximum intensity will be

- A. $\lambda/2$
- B. 2λ
- C. λ
- D. $5\lambda/2$

Question 6. Earth shrinks to $1/64$ times of its initial volume. Time period of Earth rotation is found to be $24/x$ hrs. Find the value of x .

Question 7. Find the equivalent capacitance across points A and B in the given electric circuit.



- A. $C/2$
- B. $2C$
- C. $5C/3$
- D. $3C/4$

Question 8. An object weighs 200N at the surface of earth. Find the weight at a depth of $R/2$, where R is radius of earth

- A. 100N

- B. 300N
- C. 50N
- D. 150N

Question 9. A particle, when projected at 15° horizontally, has a range of 50 m. Find the range when projected at 45° with horizontal.

- A. 50 m
- B. 100 m
- C. 80 m
- D. 120 m

Question 10. A particle of mass m moving with a velocity v collides with a particle of mass $2m$ at rest and sticks to it. Velocity of the combined mass equal to?

- A. v
- B. $v/2$
- C. $v/3$
- D. $v/4$

JEE Main 2023 Chemistry Question Paper

Question 1. One which does not stabilize secondary and tertiary protein?

- A. H-H linkage
- B. S-S linkage

- C. Vanderwoal's force
- D. Hydrogen bonding

Question 2. Stabilizer used for concentrating sulphide ore

- A. Fatty acids
- B. Pine oil
- C. Cresol
- D. Xanthates

Question 3. Which of the following is diamagnetic with low spin?

- A. $[\text{CO}(\text{NH}_3)_6]^{3+}$
- B. $[\text{COF}_6]^{3-}$
- C. $[\text{COCl}_6]^{3-}$
- D. $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$

Question 4. The compound which does not exist.

- A. BeCl_2
- B. NaO_2
- C. PbEt_4
- D. $(\text{NH}_4)_2 \text{BeF}_4$

Question 5. Number of molecules and moles in 2.8375 litre of O_2 at STP.

Question 6. Select the correct option :



Then ΔH for , $\text{C}(\text{graphite}) + \frac{1}{2} \text{O}_2 (\text{g}) \rightarrow \text{CO} (\text{g})$:

- A. $x - y/2$
- B. $x - 2y / 2$
- C. $x + 2y / 2$
- D. $x - y / 2$

Question 7. The Sum of number of lone pairs in central atom in IF_5 and IF_7 is:

Question 8. Enthalpy of adsorption and enthalpy of formation of micelle are respectively

- A. Positive, Positive
- B. Positive, Negative
- C. Negative, Positive
- D. Negative, Negative

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**Question 9. How many of the following are bent in shape?
 $\text{SO}_2, \text{O}_3, \text{I}_3^-, \text{N}_3^-$**

Question 10. The pressure value of a gas is 930.2 mm Hg. The volume is then reduced to 40% of its initial value at a constant temperature. Then what is the final pressure (in mmHg)

Question 11. Prolonged heating of ferrous ammonium sulphate is avoided to prevent :

- A. Oxidation

- B. Reduction
- C. Hydrolysis
- D. Breaking

Question 12. Read the following two statements.

Statement I : Potassium dichromate is used in volumetric analysis.

Statement II : $K_2Cr_2O_7$ is more soluble in water than $Na_2Cr_2O_7$

- A. Both statements I and II are correct.
- B. Both statements I and II are incorrect.
- C. Statement I is correct and II is incorrect
- D. Statement I is incorrect and II is correct.

Question 13. The degree of dissociation of monobasic acid is 0.3. By what percent is the observed depression in freezing point greater than the calculated depression in freezing point ?

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JEE Main 2023 Mathematics Question Paper

Question 1. Find the number of integral values of x which satisfy the inequality $x^2 - 10x + 19 < 6$.

- A. 5
- B. 11
- C. 7
- D. 8

Question 2. 3, 8, 13,, 373 are in arithmetic series. The sum of numbers not divisible by three is

- A. 9310
- B. 8340
- C. 9525
- D. 7325

Question 3. Using the number 1, 2, 3 ... 7, total numbers of 7 digit number which does not contain string 154 or 2367 is (Repetition is not allowed)

- A. 4897
- B. 4898
- C. 4896
- D. 4899

Question 4. If the coefficient of x^7 in expansion of $(ax - 1/bx^2)^{13}$ is equal to the coefficient of x^{-5} in expansion of $(ax + 1/bx^2)^{13}$, then a^4b^4 is?

Question 5. From a square of side 30 cm the squares of side x cm is cut off to make a cuboid of maximum volume. The surface area of cuboid with open top is?

- A. 400 cm^2
- B. 464 cm^2
- C. 800 cm^2
- D. 900 cm^2

Question 6. If the number of ways in which a mixed double badminton can be played such that no couples played into a same game is 840. Then find the number of players?

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Question 7. The coefficient of x^7 in $(1 - 2x + x^3)^{10}$ is?

- A. 5140
- B. 2080
- C. 4080
- D. 6234

Question 8. The mean of the data

| 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|------|-------|-------|-------|-------|
| 5 | 2 | 5 | x | 6 |

is 26 , then variance of the data is?

Question 9. Two dice are rolled and sum of numbers of two dice is N then probability that $2^N < N!$ is m/n , where m and n are co-prime, then $11m - 3n$ is?

Question 10. If the order of matrix A is 3×3 and $|A| = 2$, then the value of $|3\text{adj}(|3A|A^2)|$ is?

- A. $3^{10} \cdot 2^{21}$
- B. $2^{10} \cdot 3^{21}$
- C. $2^{12} \cdot 3^{15}$
- D. $3^{12} \cdot 2^{15}$



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