JEE Mains 2024 Shift 1 Question Paper (29 January)

Shift 1 of JEE MAins 2024 Day 2 is over. According to the student's initial reaction, the JEE Main 2024 January 29 Shift 1 exam was moderate in nature. Students considered the Mathematics paper to be lengthy, tricky, and a little difficult and hard.
The Physics paper was straightforward because the majority of the questions were formula-based. The Chemistry paper in shift 1 was easy, according to the pupils. Most of the questions were in organic chemistry and metallurgy.

The Memory Based JEE Mains 2024 29 January Shift 1 is Updated here.

JEE Main Physics Questions 2024 Shift 1

1. A body of mass 100 kg travelled 10 m before coming to rest. If $\mu = 0.4$, then find the work done against friction.
2. Assume the motion is happening on a horizontal surface and $g = 10$ m/s².
   If an object has the same weight at the same distance above and below the surface of the earth. Find its distance from the surface of the earth.
3. A solid sphere of radius 4a units is placed with its centre at the origin. Two charges -2q at (-5a, 0) and 5q at (3a, 0) are placed. If the flux through the sphere is xq/ε_0 , then find x.
4. The voltage applied across the resistance R is 200+5 and the current in resistance is 20+0.2 then find % error in resistance.
   A. 3.5 %
   B. 5 %
   C. 7 %
   D. 3 %
5. If a particle starting from rest having constant acceleration covers distance S1 in the first (P - 1) seconds & S2 in the first P seconds, then determine the time for which displacement is S1 + S2.
6. If the ratio of the centripetal acceleration of two particles moving on the same circular path is 3: 4, then find the ratio of their speed.
7. If the De-Broglie wavelength of a proton and an electron is the same, then find the ratio of the kinetic energy of the electron to that of the proton.

JEE Main Chemistry Questions 29 Jan 2024 Shift 1

1. Calculate the Molarity of a Solution having density = 1.25 g/ml. %(w/w) of Solute is 36% and the Molecular weight of Solute is 36 g/mol
2. Which of the following pairs will be formed by the decomposition of $KMnO_4$?
   i. MnO_4, MnO_2
   ii. K_2MnO_4 , MnO_2

iii. KMnO4, MnO2

iv. MnO2, H2O

3. Appearance of Red color on treatment with Na fusion extract of an organic compound with FeSo4 in the presence of Conc. H2SO4indicate element

   A. N

   B. Br

   C. S

   D. N & S

4. Determine products A and B when toluene reacts with Cl2 in the presence of sunlight (Product A) and in the presence of CCl4 (Product B).

5. Determine the major product for a given reaction.

6. What is the energy difference between the actual structure and its most stable resonating structure having the least energy is called as?

7. Energy difference between actual structure and its most stable resonating structure having least energy is called

   A. Electromeric effect

   B. Resonance Energy

   C. Inductive effect

   D. Hyperconjugation

8. Interaction b/w π bond & Lone pair of e-s on adjacent atoms

   A. Resonance

   B. Hyperconjugation

   C. Inducting Effect

   D. Electronic & effect

9. If alkaline KMnO4 is oxidised iodide to give a particular product (A), then determine the oxidation state of iodine in the compound (A).

10. Which of the following statements is incorrect?

    i. $\Delta G = 0$ for reversible reaction

    ii. $\Delta G < 0$ for spontaneous process

    iii. $\Delta G > 0$ for spontaneous process

    iv. $\Delta G < 0$ for non-spontaneous process

11. Energy difference between actual structure and its most stable resonating structure having least energy is called

    A. Electromeric effect

    B. Resonance Energy

    C. Inductive effect

    D. Hyperconjugation

12. What is the energy difference between the actual structure and its most stable resonating structure having the least energy is called as?

JEE Main Maths Question Paper 29 Jan 2024 Shift 1

1. If a die is rolled until 2 is obtained, then what is the probability that 2 is obtained on an even-numbered toss?

2. Let a die roll till 2 is obtained. The probability that 2 obtained on even numbered toss is equal to:

A. 5/11

B. ⅚

C. 1/11

D. 6/11

3. A GP has 64 terms such that (Sn) total = 7(Sn)odd. Find the common ratio r.

4. What is the rank of the word GTWENTY in the dictionary?

5. $$\frac{C_1^{11}}{2} + \frac{C_2^{11}}{3} + \cdots + \frac{C_9^{11}}{10} = \frac{m}{n}$$

6. Evaluate: $$\lim_{x \to \frac{\pi}{2}^-} \frac{\int_{x^3}^{\left(\frac{\pi}{2}\right)^3} \cos t^{\frac{1}{3}} \, dt}{\left(x - \frac{\pi}{2}\right)^2}$$