JEE Main Jan 28 Shift 1 Question Paper

Physics

1. An object is dropped from a height. Apart from gravity, a resistive force proportional to velocity (F=−kv)(F = -kv)(F=−kv) acts on it. Identify the correct velocity–time graph for the motion.

2. A ray optics problem is given. Using the provided focal length, object distance, or refractive index values, calculate the image position or magnification.

3. In a current electricity circuit with a resistive network, calculate the current through a specified resistor or the potential difference across it.

4. For a given arrangement of charges, calculate the electric field or electric potential at a specified point.

5. A rotational mechanics problem is given. Using the provided data, calculate torque, angular momentum, or moment of inertia.

6. A modern physics question involving energy levels or wave properties is given. Find the required quantity.

Chemistry

1. A coordination compound is given. Determine a property such as oxidation state, magnetic nature, or hybridisation.

2. An organic reaction sequence is given. Identify the final major product.

3. A physical chemistry numerical involving equilibrium, buffer solution, or concentration calculation is given. Find the required value.

4. An inorganic chemistry question based on periodic trends or compound properties is given. Select the correct option.

5. A thermochemistry problem is given. Calculate the enthalpy change or energy value using the provided data.

6. A mixed-concept chemistry question combining multiple topics is given. Determine the correct result.

Mathematics

1. A bag contains kkk red balls and (10−k)(10-k)(10−k) black balls. Three balls are drawn at random and all are black. Find the probability that the bag originally had 9 black balls and 1 red ball.

2. A vectors and 3D geometry question is given. Find the angle between lines or determine a relation between vectors.

3. A conic sections problem is given involving circle, parabola, or ellipse. Find the required parameter.

4. A sequences and series problem is given. Calculate the sum of terms or a specific term of an AP/GP.

5. A calculus question involving limits, definite integrals, or differential equations is given. Find the required value.

6. A coordinate geometry problem is given. Calculate distance, locus, or point of intersection.

7. An algebra question is given involving quadratic equations, matrices, or determinants. Solve for the required value.