Instructions:
1. All questions are compulsory.
2. Please give the explanation for the answer where applicable.

Q1 - A light body and a heavy body have same momentum, which will have greater kinetic energy?

Q2 - A ball is dropped from height h1 and it rebounds to a height h2. Find the Values of Coefficient of restitution.

Q3 - What is the minimum energy released in the annihilation of an electron positron pair?

Q4 - A truck and a car are moving with the same kinetic energy on a straight road. Their engines are simultaneously switched off. Which one will stop at a lesser distance?

Q5 - A ball of mass m1 moving with velocity v collides head on with stationary ball of mass m2. The velocity of the ball becomes v/4 after the collision. Assuming the collision to be elastic, find the ratio m2/m1.

Q6 - Derive an expression for the final velocities of two bodies of masses m1 and m2 that undergoes a head on elastic collision.

Q7 - What happens to the potential energy of a spring when it is compressed or stretched?

Q8 - A spring is cut into two equal halves. How is the spring constant of each half affected?

Q9 - What is the work done in holding a suitcase of 20 kg for 16 minutes while waiting for a bus?