Modern Education Operators

Student's Name: _____ **Date:** _____ **Marks:**_____/35 **(45mininutes)**

SECTION-A (Marks 2)

Q.1. Circle the correct option i.e. A / B / C / D. Each part carries one mark.

(i) The steel makes a good permanent magnet and is called
(A). Soft (B). Hard (C). In between (D). None of these

(ii) If a material sets up a magnetic field which opposes the applied magnetic field it is said to be:
(A). Electromagnetic (B). Diamagnetic (C). Paramagnetic (D). None of these

SECTION - B (Marks 15)

Q.2. The answer to each part should not exceed 3 to 5 lines. (5 x 3 = 15)

(i) Distinguish between crystalline, amorphous and polymeric solid
(ii) What is meant by hysteresis loss? How is it used in the construction of a transformer?
(iii) Show that the units of modulus of elasticity and stress are the same
(iv) What is meant by strain energy?
(v) Distinguish between intrinsic and extrinsic semi-conductors.

SECTION – C (Marks 13)

Q.3. Define modulus of elasticity. Show that the units of modulus of elasticity and stress are the same. Also discuss its three kinds.

Q.4. Draw a stress-strain curve for a ductile material, and then define the terms: Elastic limit, Yield point and Ultimate tensile stress.

Q.5. A cylindrical copper wire and a cylindrical steel wire each of length 1.5 and diameter 2.0 mm are joined one end to form a composite wire of 3.0 m long. The wire is loaded until its length becomes 3.003 m. Calculate the strain in copper and steel wire and the force applied to the wire. (Young's Modules of Copper is 1.2x1011 Pa and for steel is 2.0x1011 Pa).