Dr. SSBUICET, Panjab University, Chandigarh.

Subject: Strength Of Materials   **Class: BE Chemical (3ʳᵈ Sem)**

Max. Marks: 20

Note: Attempt all questions.

Question1: (5 marks each)

a) Derive the relation between elastic modulus and bulk modulus.
b) A steel rod of 10mm diameter and 5m long is rigidly fixed at both ends and the rod is maintained at temp 100 °C. Determine the stresses and pull exerted when the temp falls to 25 °C if the ends yield by 0.15cm. (Take $E = 2 \times 10^5$ N/mm² and $= 12 \times 10^{-6}$/°C)

Question 2: (10 marks)

A beam of length 10m is simply supported and carries two point loads of 10 KN and 20 KN each at a distance of 4m and 8m from left support respectively and also a uniformly distributed load 2 KN/m between the point loads. Draw loading, S.F and BM diagram for the beam.