

Chandralal

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- Feb-2020

B.Tech. IVth Semester

COURSE CODE: 18B11CE415

MAX. MARKS: 15

COURSE NAME: Mechanics of Solids

COURSE CREDITS: 03

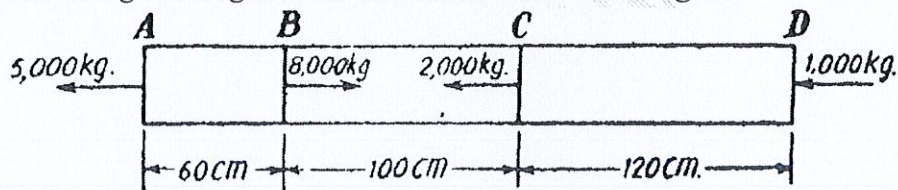
MAX. TIME: 1Hour

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

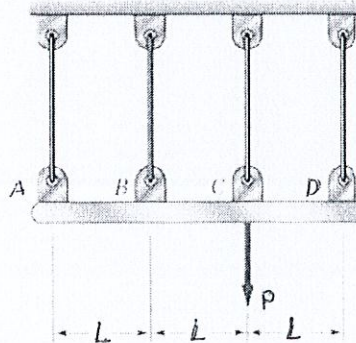
Q.1 (i) Draw stress strain diagram of mild steel and mention different zones in diagram.

(ii) Define resilience and creep of a material and mention their uses. (1+2 = 3)

Q.2. A brass bar having cross section area of 10 cm^2 is subjected to axial load as shown in figure below. Find total change in length of the bar. $E_{\text{Brass}} = 1.05 \times 10^6 \text{ kg/cm}^2$ (3)



Q.3. The rigid bar ABCD shown in figure below is suspended by 4 identical wires. Determine the tension in each wire caused by Load P. (4)



Q.4. The steel rod ABC is attached to a rigid support and is unstressed at a temperature of 25°C . Temperature of both the portion is increased to 150°C . Knowing $\alpha = 11.7 \times 10^{-6}/^\circ\text{C}$, $E = 200\text{GPa}$. Find stress in both the portion of rod and deflection of point C. (5)

