

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MAKEUP EXAMINATION- April 2018

B. Tech. - II Semester

COURSE CODE: 10B11CE211

MAX. MARKS: 25

COURSE NAME: ENGINEERING MECHANICS

COURSE CREDITS: 04

MAX. TIME: 1:30 Hrs

*Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume any missing data suitably.*

1. For a beam in simple bending prove that  $\frac{\sigma}{y} = \frac{M}{I} = \frac{E}{R}$ . [5] CO-3
2. An aluminum rod is rigidly attached between a steel rod and a bronze rod as shown in **Figure 1**. An axial load is applied at the positions indicated in the figure. Find the total axial deformation in the assembly. Assume the value of  $P = 50 \text{ kN}$ ;  $E_{\text{steel}} = 2 \times 10^5 \text{ N/mm}^2$ ;  $E_{\text{Aluminium}} = 7 \times 10^4 \text{ N/mm}^2$  and  $E_{\text{Bronze}} = 4 \times 10^4 \text{ N/mm}^2$ . [5] CO-3
3. Analyze the Truss as shown in **Figure 2** by method of joints. [10] CO-2
4. Define the terms shear force and bending moment. Also describe the FBD; SFD and BMD. [5] CO-1

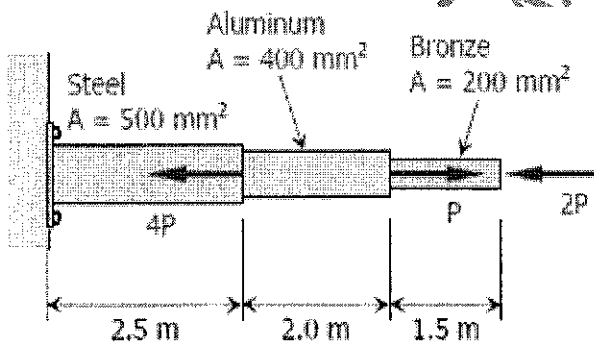


Figure 1

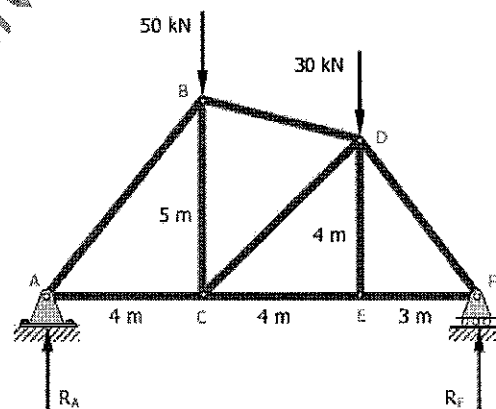


Figure 2