

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

B.Tech-IV Semester (CE)

COURSE CODE (CREDITS): 18B11CE415 (3)

MAX. MARKS: 25

COURSE NAME: Mechanics of Solids

COURSE INSTRUCTORS: Mr. Chandra Pal Gautam

MAX. TIME: 1 Hour 30 Minutes

Note: (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.1 Draw the shear force and bending moment diagram of the beam shown in fig.1. [CO – 2] (7)

Q.2. The horizontal rigid beam ABCD is supported by vertical bars BE and CF and loaded by force as shown in fig.2. Bars BE and CF are made of steel ($E = 200\text{GPa}$) and have cross section area $A_{BE} = 11000\text{mm}^2$, $A_{CF} = 9280\text{mm}^2$. Determine the displacement at A and D. [CO – 1] (7)

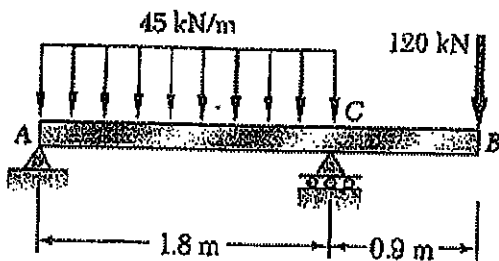


Fig.1.

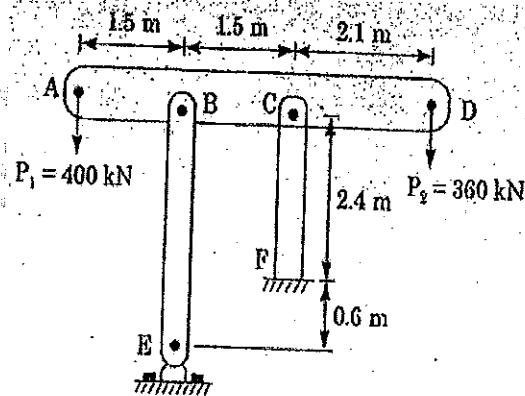


Fig.2.

Q.3. Draw the stress strain curve of mild steel and define different zone inside that with application. [CO – 1] (5)

Q.4. Given the same stress element (shown below), find the stress components when it is inclined at 30° clockwise. Draw the corresponding stress elements, and principle normal and shear stress. [CO – 3] (6)

