

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

B.Tech-VI Semester (CE)

COURSE CODE (CREDITS): 18B1WCE631 (3)

MAX. MARKS: 25

COURSE NAME: Advanced Structural Analysis

COURSE INSTRUCTORS: Mr. Chandra Pal Gautam

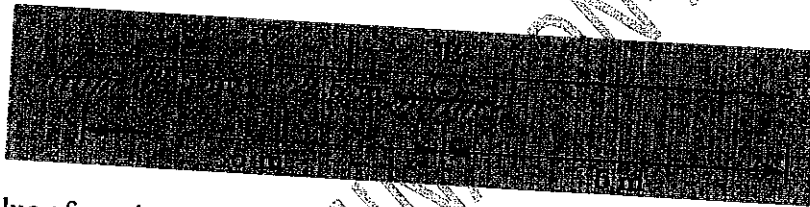
MAX. TIME: 1 Hour 30 Minutes

*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*

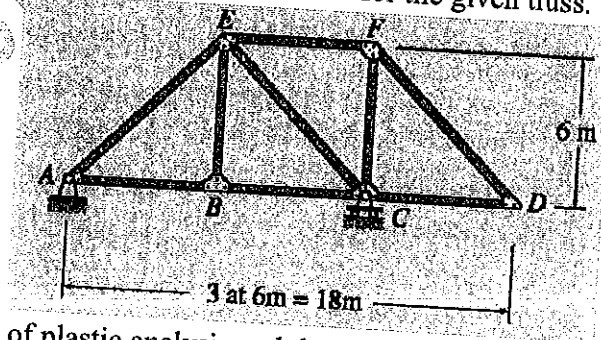
Q.1. Draw the influence line diagram of support reaction at A and B, shear force and bending moment at C by using Muller Breslau's Principle. [CO-1] (5)



Q.2. Find the value of maximum support reaction at A and B and shear force, bending moment at section C, due to following load condition on a simply supported beam of 10m length having section C at 4m –

- (a) A concentrated load of 150 kN moving from left to right.
- (b) A uniformly distributed load of 25kN having length 15m moving from left to right
- (c) A uniformly distributed load of 15kN having length 3m moving from left to right [CO-2] (9)

Q.3. Draw the ILD for the member AB, EB and EC for the given truss. [CO-2] (6)



Q.4. (a) Mention the use of plastic analysis and draw the plastic state of the material in the stress strain diagram.

- (b) Compare the section modulus and plastic section modulus in term of load carrying capacity.
- (c) Find plastic section modulus of a rectangular section.

[CO-2] (5)