Enrollment No._____

NAVRACHANA UNIVERSITY
a UGC recognized University

School: School of Engineering and Technology
Program: BTech Civil
Year: 2nd **Semester:** 4th
Examination: End Semester Examination
Examination year: May – 2023

Course Code: CE 224 **Course Name:** Theory of Structures- I
Date: 19/05/2023
Time: 10:00 am to 12:00 pm

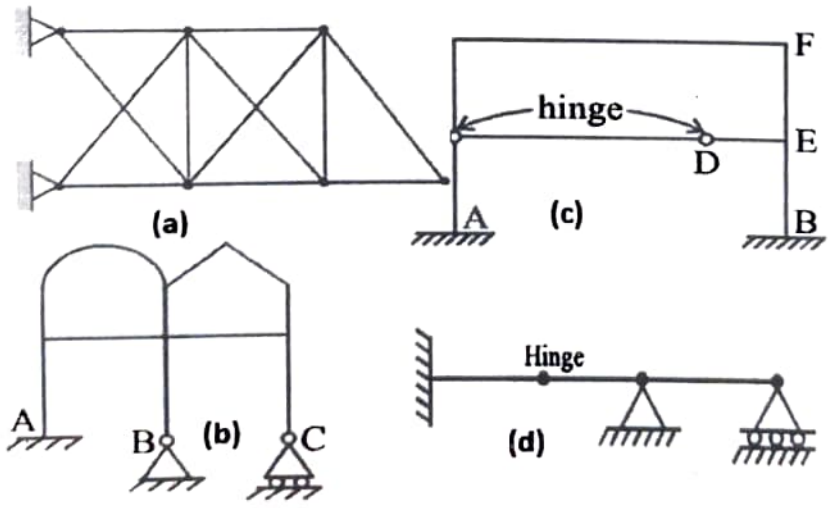
Total Marks: 40
Total Pages: 02

Instructions:
Write each answer on a new page
Use of calculator is permitted
Make suitable assumptions wherever necessary

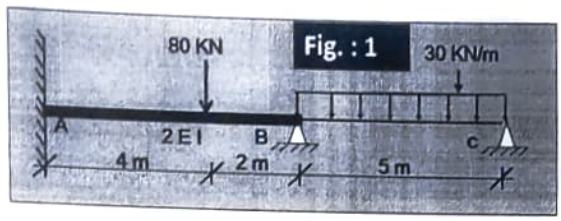
Q. No.	Details	Marks	COs*	BTL#
Q.1	Attempt the following **(Any 2)**	**14**		
1)	Find the slope and deflection at the free end B of a cantilever beam 2 m span, carrying udl of 10kN/m over entire length and a point load of 5kN at free end by Macaulay's method. Take I= 2 x 10^8 mm^4, E= 2 x 10^5 N/mm^2		**CO1**	**BT4**
2)	A simply supported beam of 3m span carries point load of 100 kN at center. For the beam, I = 16 x 10^8 mm^4 and E = 2.1 x 10^5 N/mm^2, calculate the deflection under loads and slope at support using Moment area method.		**CO2**	**BT2**
3)	Specify the reaction, bending moment for standard Simply supported beams. Also draw and specify the reactions developed for fixed beam for various load cases.		**CO3**	**BT1**
Q.2	In a tabular format, state equations for finding SI and KI for various types of structures.	**8**	**CO1**	**BT4**

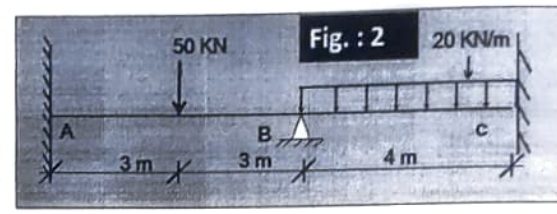
OR

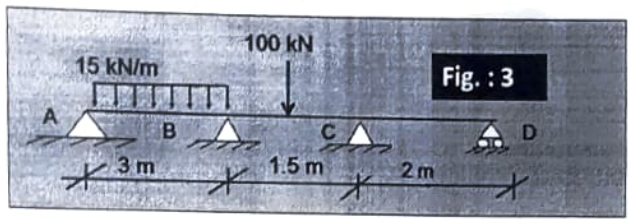
Find the Static and kinetic indeterminacy for the following figures shown in Fig.



Q.3 Analyze the beam by slope deflection method and draw Bending moment & Shear force diagrams. Consider EI value constant. **(Any 2)** **18** **CO4** **BT5**







**********End of Question Paper**********