

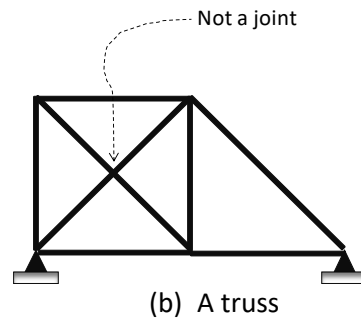
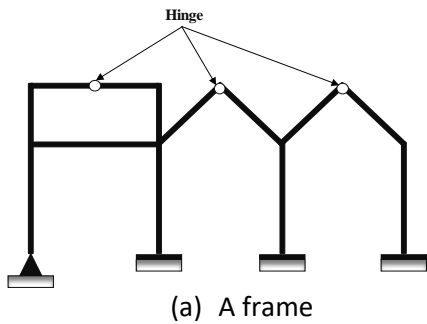
BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
 Second Semester (2021-2022), Mid-Semester Test
 Course: Analysis of Structures (CE F241)

Date: 15th March 2022

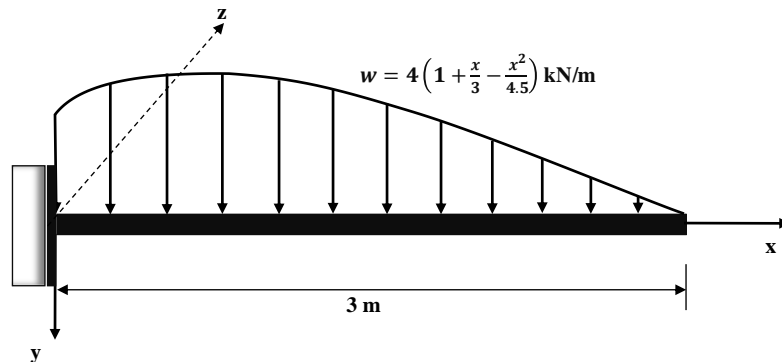
Max. Marks: 70

Duration: 9:00 AM-10:30 AM

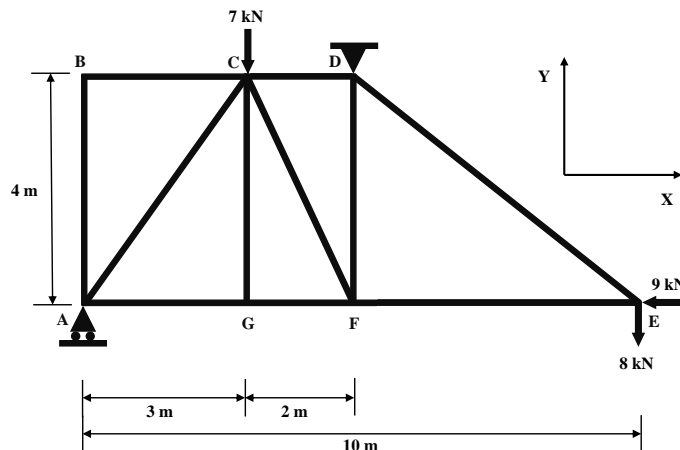
Q.1. Determine the degree of static indeterminacy of the following structures. Mention the number of external and number of internal indeterminacies. [2.5+2.5]



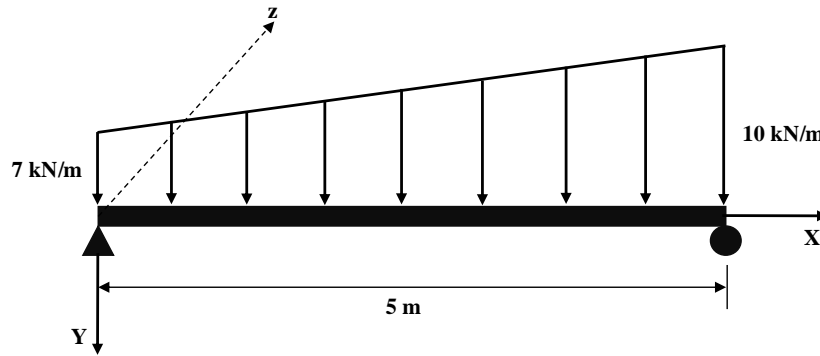
Q.2. A cantilever is subjected to a parabolic loading as shown in the figure. Find the reactions. [5]



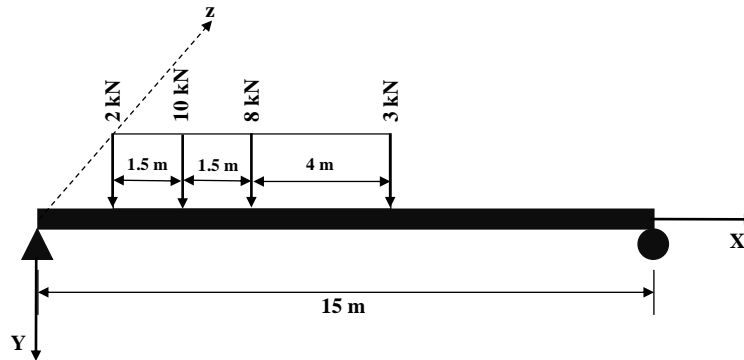
Q.3. Determine the forces developed in the members due to the applied loads in the following truss. [15]



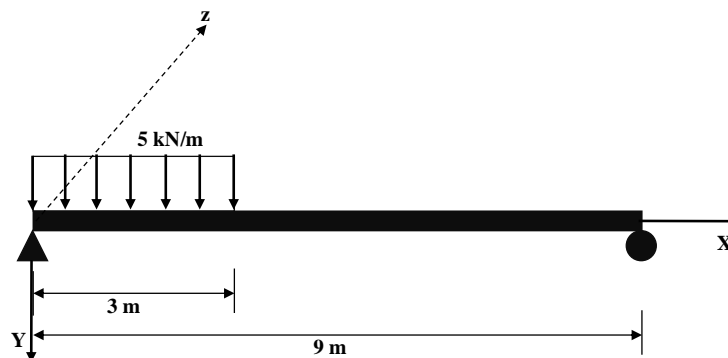
Q.4. A simply supported beam is subjected to a varying load as shown in the figure. Find the support reactions. Find the S.F. and B.M. equations. Draw the S.F.D. and B.M.D. mentioning the magnitudes. Find the maximum bending moment developed in the beam and its position. [15]



Q.5. In the determination of the absolute maximum bending moment in the beam for the system of moving loads as shown in the figure, let's assume that the absolute maximum bending moment will occur under the 10kN load for a particular position of the loading system. Find that position of the loading system. Draw the ILD for BM of the beam at the position of 10kN load. Using this ILD find the BM under the 10kN load for the entire loading system. [10]



Q.6. Find the equation of the deflected shape of the beam. Determine the maximum deflection and its location. Find the maximum slope. Use double integration method. Take, the flexural rigidity (EI) as 105 kNm^2 . [20]



***** All the Best *****