COURSE CODE (CREDITS): 18B11CE315 (3)   MAX. MARKS: 15

COURSE NAME: ENGINEERING MECHANICS

COURSE INSTRUCTORS: DR. SAURAV   MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. Find the magnitude and nature of forces in the member EF, DF and DG of the loaded truss as shown in the Fig 1 below.   [CO2, 5]
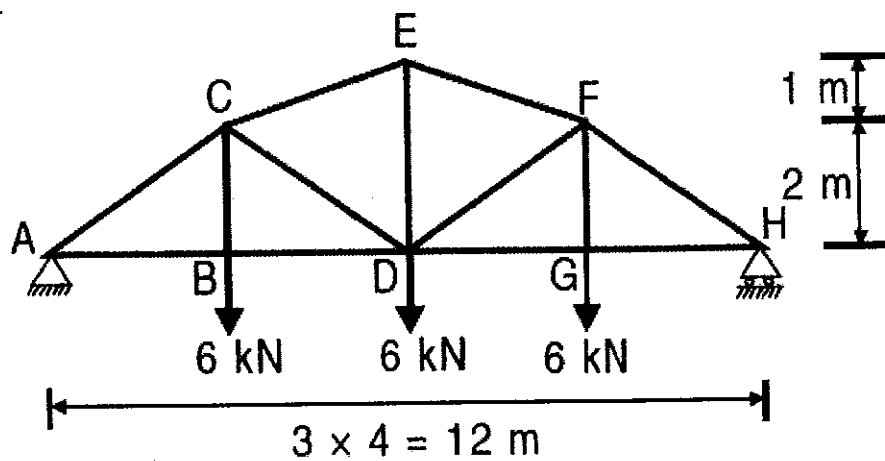

Fig. 1

Q2. Determine the support reactions developed in the beam with given loading conditions as shown in Fig. 2   [CO1, 4]
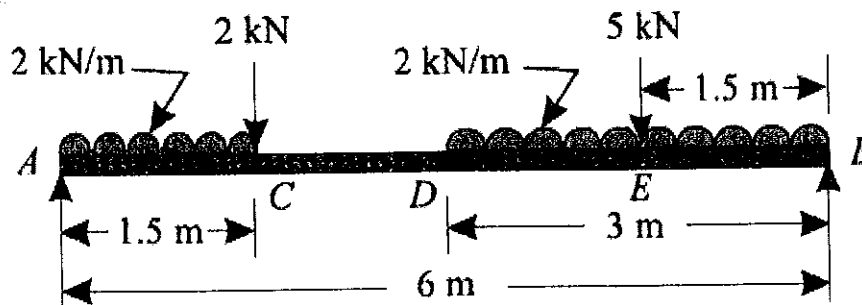

Fig. 2

Q3. A beam 3 m long weighing 400 N is suspended in a horizontal position **(Fig. 3)** by two vertical strings, each of which can withstand a maximum tension of 350 N only. How far a body of 200 N weight be placed on the beam, so that one of the strings may just break. **[CO1, 3]**
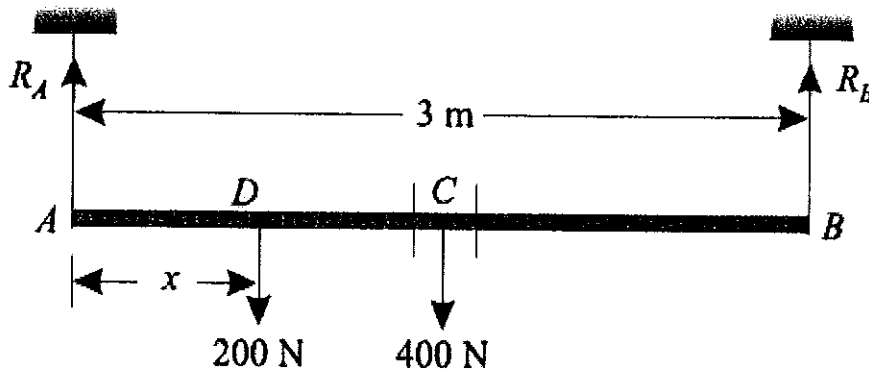

Fig. 3

Q4. Three forces, acting on a rigid body, are represented in magnitude, direction and line of action by the three sides of a triangle taken in order. Prove that the forces are equivalent to a couple whose moment is equal to twice the area of the triangle. **[CO1, 3]**