

ATTACH

SCHOOL OF MECHANICAL ENGINEERING
CONTINUOUS ASSESSMENT TEST – I - WINTER SEMESTER 2019-2020

Programme Name & Branch: B.Tech & Mechanical Engineering
 Course Name Code: MEE 1002

Course Name: Engineering Mechanics

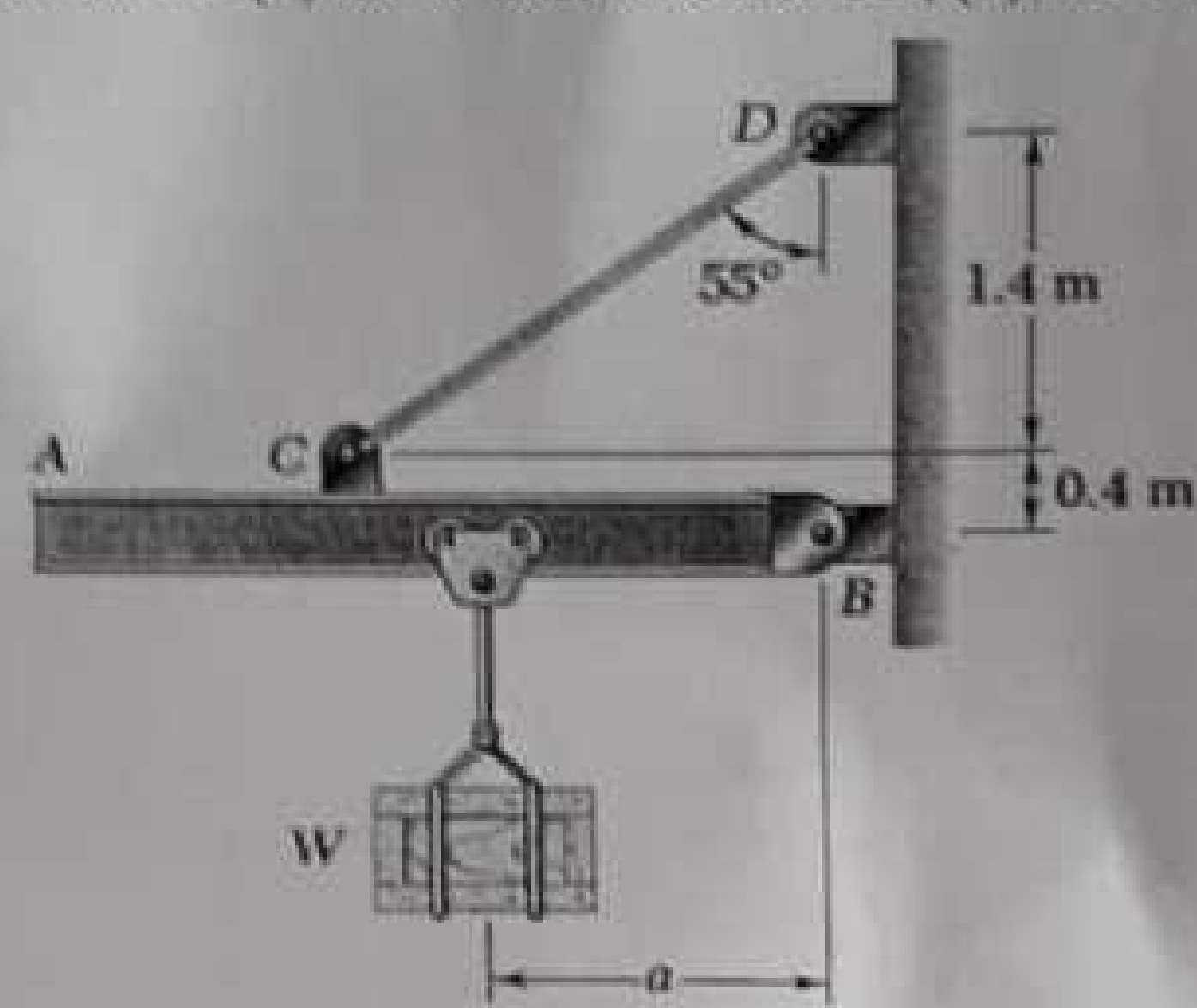
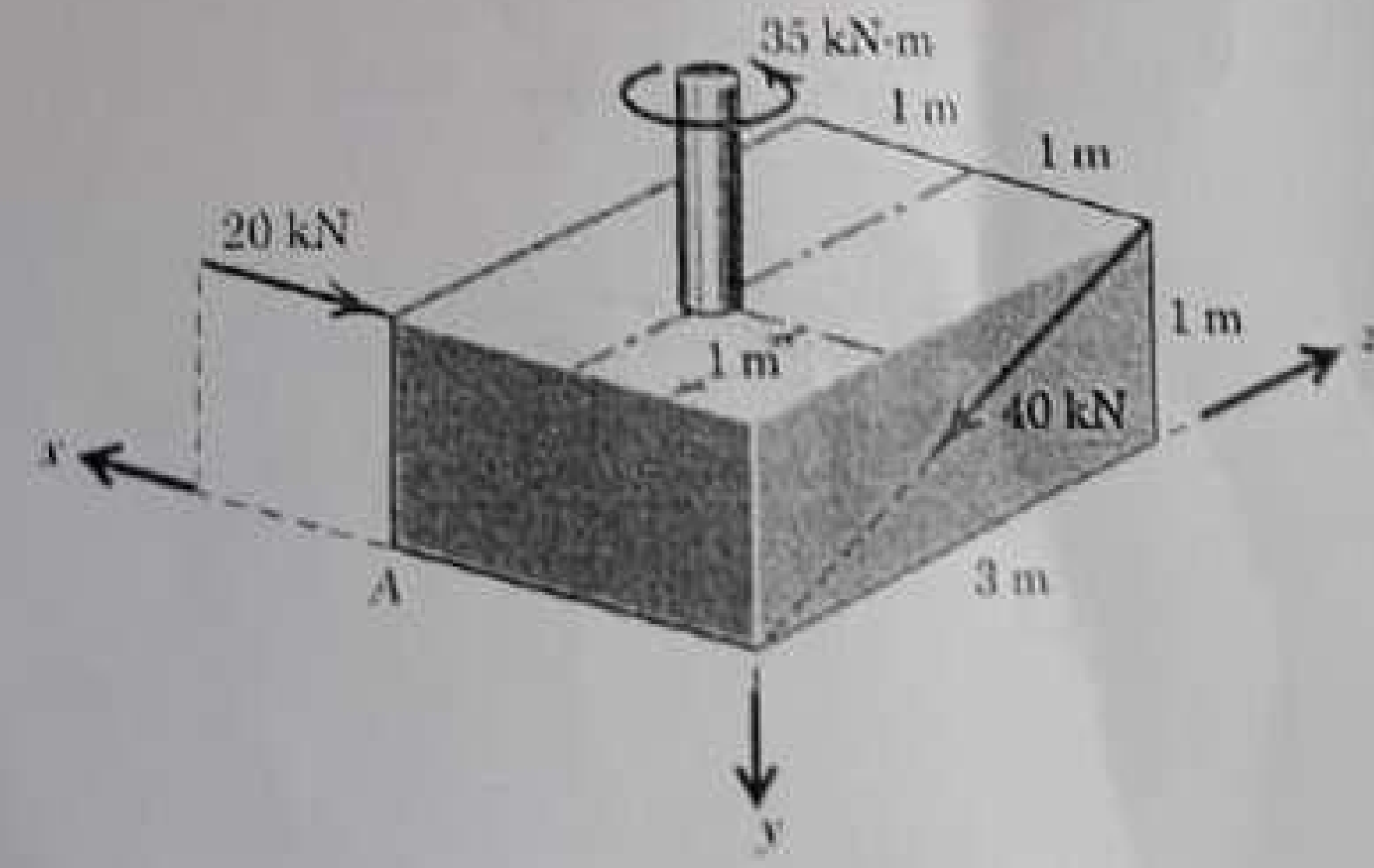
Faculty Name(s): Dr. M. Arivarasu, Dr. M. Rajesh, Dr. N. Senthilnathan, Dr. M. Sharan Chandra
 Dr. Sudhir Raj, Dr. K. Venkatesan, Dr. A. Vinoth Jebaraj

Class Number(s): VL2019205000859, 1769, 1826, 1839, 1855, 1888, 1911

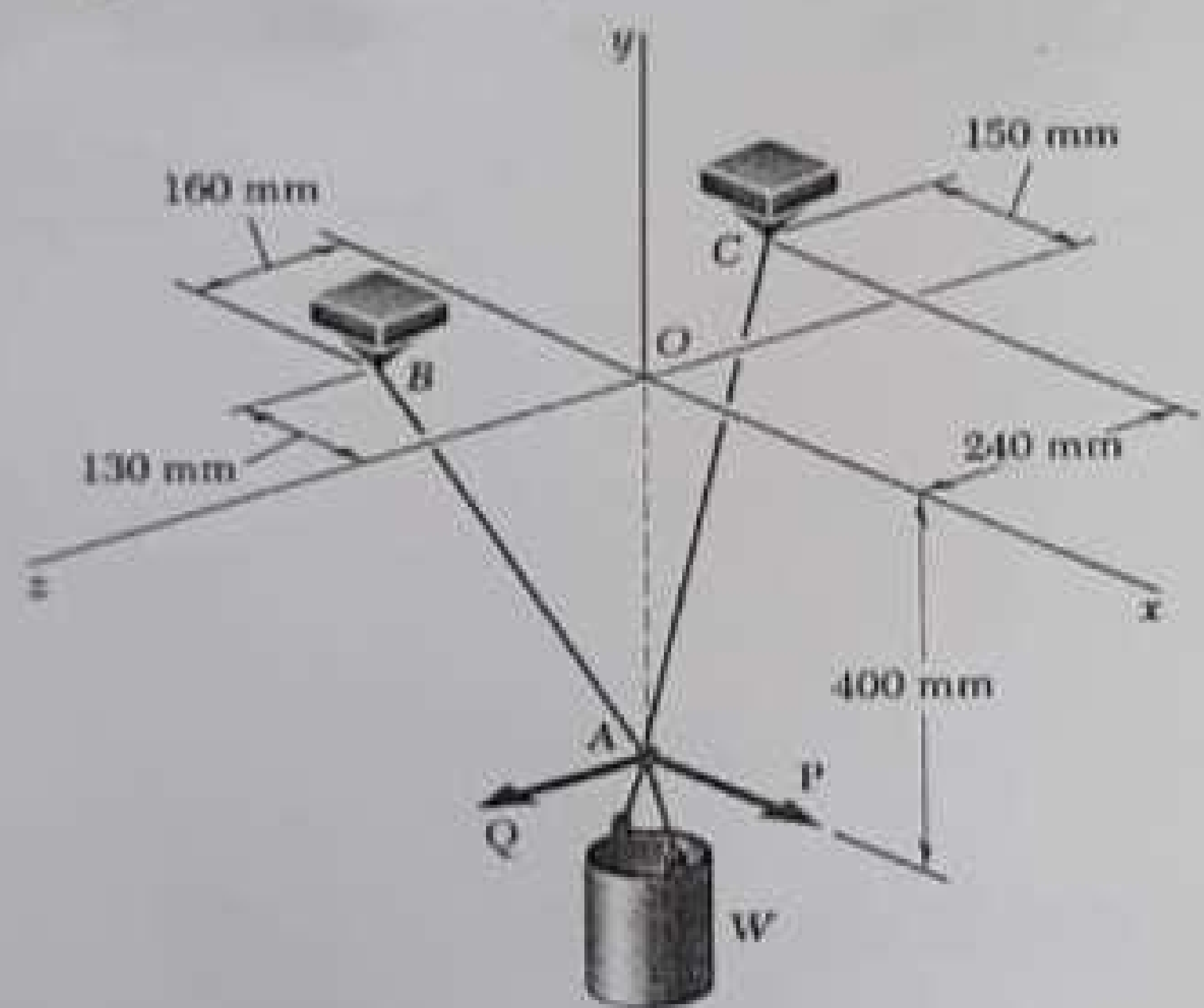
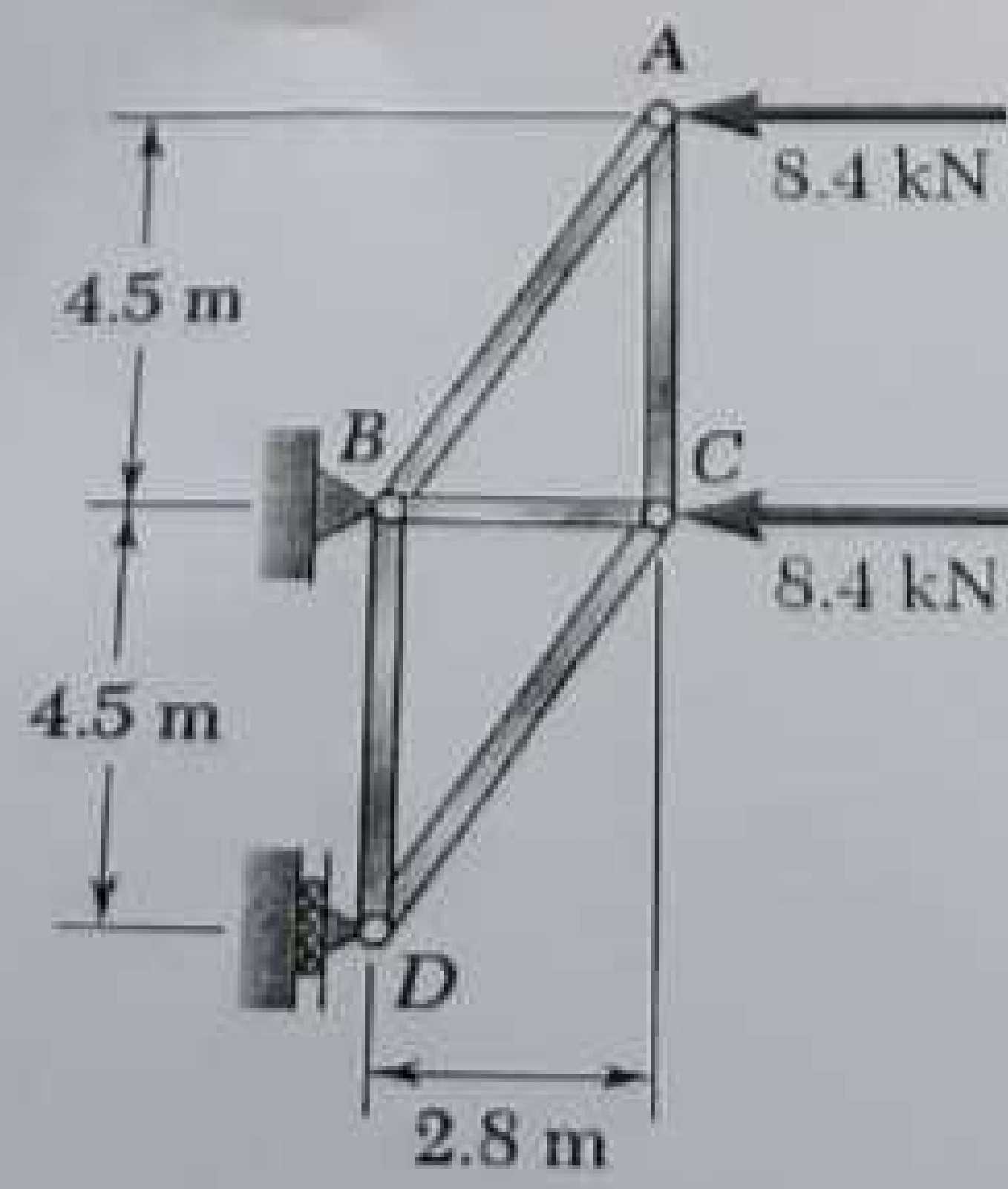
Exam Duration: 90 minutes

Maximum Marks: 50

Section – A (2 x 10 = 20 Marks)

S. No.	Question
1	<p>A 50-kg crate is attached to the trolley-beam system shown in Fig.1. Knowing that $a = 1.5$ m, determine (a) the tension in cable CD, (b) the reaction at B.</p>  <p style="text-align: center;">Fig.1</p>
2	<p>Replace the two forces and single couple by an equivalent force-couple system at point 'A' shown in Fig.2.</p>  <p style="text-align: center;">Fig.2</p>

Section - B (2 x 15 = 30 Marks)

Sl. No.	Question	CO
3	<p>A container of weight W is suspended from ring A. Cable BAC passes through the ring and is attached to fixed supports at B and C. Two forces $\mathbf{P} = P\mathbf{i}$ and $\mathbf{Q} = Q\mathbf{k}$ are applied to the ring to maintain the container in the position shown in Fig.3. Knowing that $W = 376 \text{ N}$, determine P and Q. (Hint: The tension is the same in both portions of cable BAC.)</p>  <p>Fig.3.</p>	CO1
4	<p>Using the method of joints, determine the force in each member of the truss shown in Fig.4. State whether each member is in tension or compression.</p>  <p>Fig.4.</p>	CO2