GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Engineering

B.TECH Mechanical Engineering
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem III - G3UB301T - Applied Engineering Mechanics

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

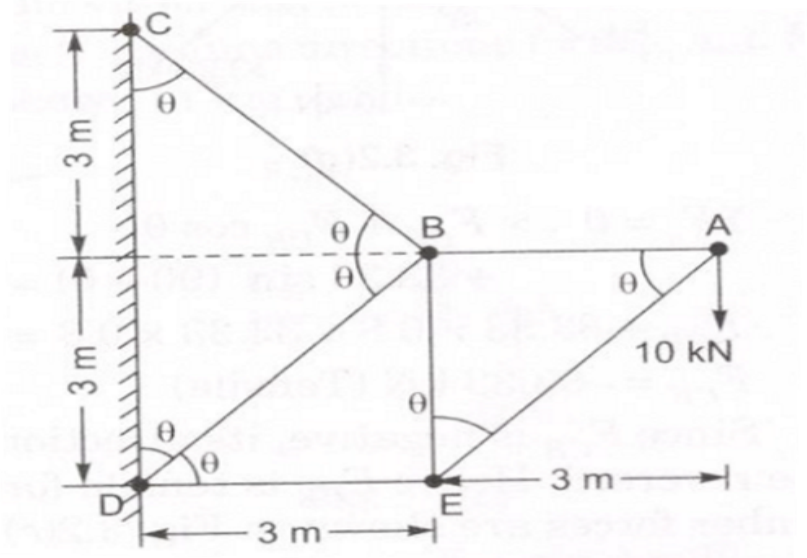
1) Derive the expression for efficiency of a machine in terms of mechanical advantage and velocity ratio. K2 (2)

2) In truss analysis, the weight of a truss member is assumed to be _____ and stress induced on application of force in truss members is _____. K1 (3)

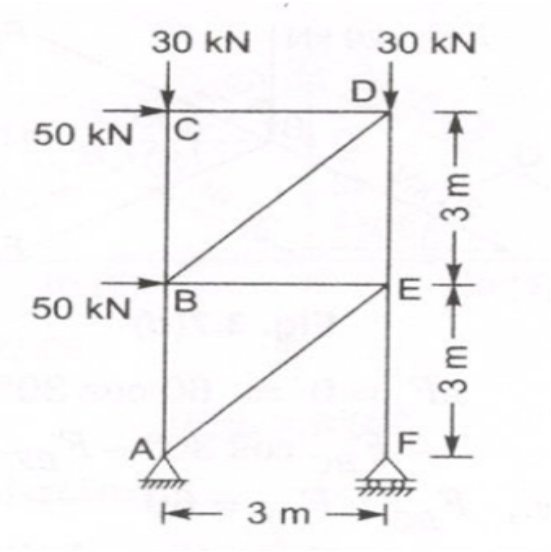
3) Explain the difference between ideal machine and actual machine. K2 (4)

4) Summarize the condition for the reversibility and self-locking of a machine. K2 (6)

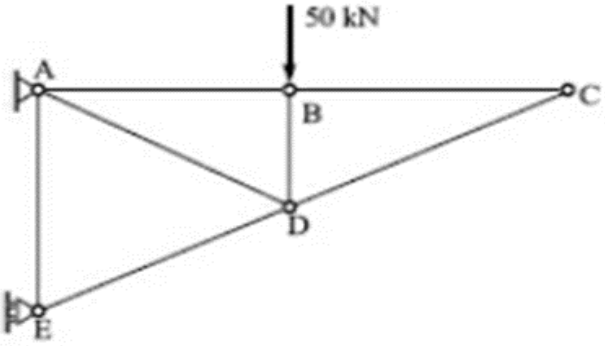
5) For the cantilever truss shown in the figure compute the forces in the member AB. Compute the reaction at the supports also. K3 (6)



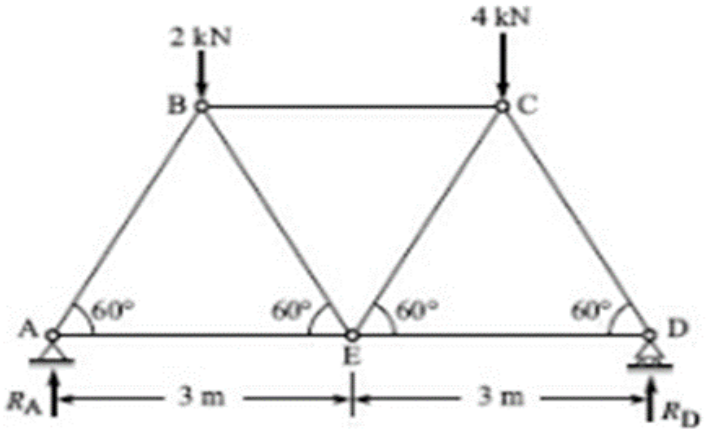
6) For the cantilever truss shown in the figure compute the forces in all the members. K3 (9)



7) For the truss given in figure, analyze the forces in members BC, CD and BD. K4 (8)



8) Analyze the nature and magnitude of the axial forces in all members of the truss shown in figure. K4 (12)



OR

In a lifting machine in which velocity ratio is 30, a load of 5000 N is lifted with an effort of 360N. Analyze whether it is self-locking or reversible machine. How much is that fictional resistance? K4 (12)