PADRE CONCEIÇÃO COLLEGE OF ENGINEERING

Verna - Goa

First Year of Engineering

Roll No: 7 3

Internal Test – I

Semester: I (RC 19-20)
Course: FE 140 Basics of Mechanical Engineering
Course Instructor: Pushparaj Pingulkar

Date: 30/11/21
Time: 12:00 – 13:00
Max Marks: 25

Instructions: *Attempt all questions. Assume missing data, if any with proper justification.*

		Marks	CO	CL
Q1.	Determine the magnitude and direction of the resultant of the coplanar concurrent force system shown in Fig. Q1. Show the same on the *xy* plane.	[6]	FE 140.1	3

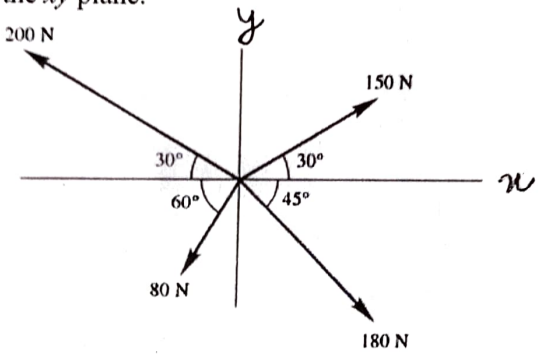

Fig. Q1.

Q2.	Two equal loads of 2500 N are supported by a flexible string *ABCD* at points *B* and *C* as shown in Fig. Q2. Find the tension in the portion *AB*, *BC* and *CD* of the string.	[6]	FE 140.1	3

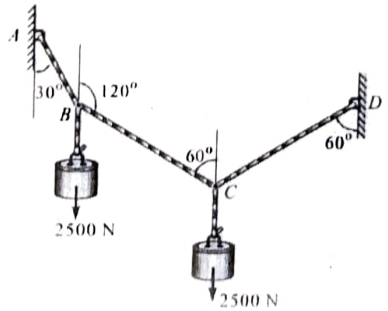

Fig. Q2

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Q3. A vertical pole is anchored in a cement foundation. Three wires are attached to the pole as shown in Fig. Q3. If the reaction at point A consists of the reactions as shown, find the tensions in the wires. **[6]** FE 140.1 3

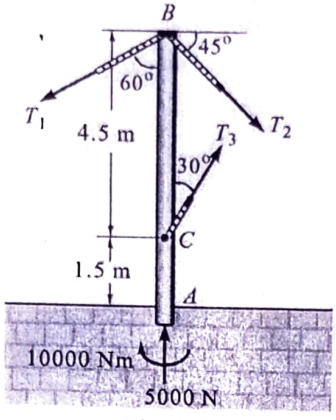

Fig. Q3

Q4. Determine the reactions at all the supports of the beam shown in Fig. Q4. **[7]** FE 140.1 3

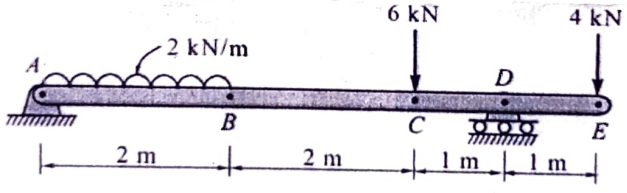

Fig. Q4

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