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**PRESIDENCY UNIVERSITY
BENGALURU**

SET B

**SCHOOL OF ENGINEERING
MID TERM EXAMINATION - DEC 2023**

Semester : Semester I - 2023

Course Code : CIV1003

Course Name : Sem I - CIV1003 - Elements of Engineering Mechanics

Program : B. TECH

Date : 11-DEC-2023

Time : 2:30 PM - 4:00 PM

Max Marks : 50

Weightage : 25%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

PART A

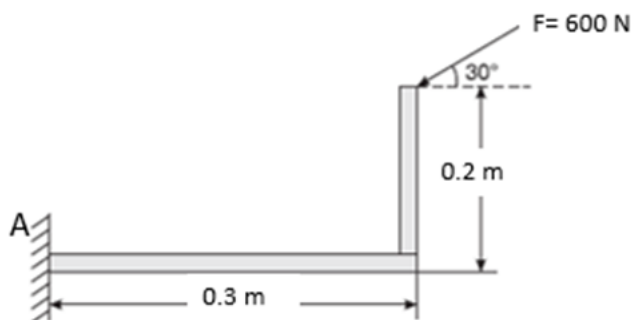
ANSWER ALL THE QUESTIONS

(2 X 5 = 10M)

1. Two forces of 100N and 150N are acting simultaneously at a point. If the angle between the forces is 45° , calculate the resultant force both in magnitude and direction.

(CO1) [Knowledge]

2. Find the moment for a given force $F = 600$ N about A.



(CO1) [Knowledge]

PART B

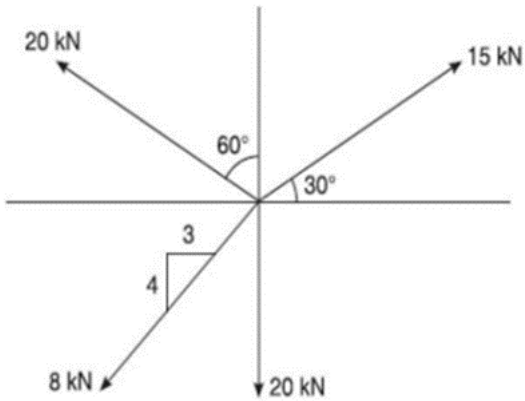
ANSWER ALL THE QUESTIONS

(2 X 10 = 20M)

3. Two concurrent forces P and Q has their sum as 500 N ,while their resultant is 400N. Determine P, Q and the angle between P and Q, if the resultant is perpendicular to the force "P".

(CO1) [Comprehension]

4. For the given concurrent force system, determine the resultant of the forces as shown in figure below:



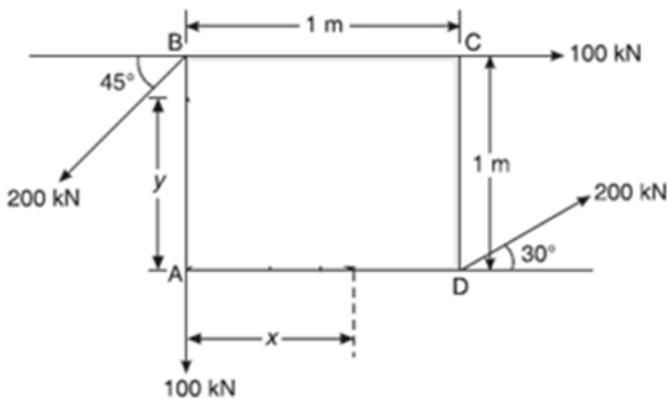
(CO1) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

(1 X 20 = 20M)

5. If two or more forces are acting on a body or a particle, then it is said to be a force system. In this context,
- Explain Concurrent and non-Concurrent force systems with neat sketches.
 - A rigid plate ABCD is subjected to forces as shown in Figure below. Compute the magnitude, direction and line of action of the resultant of the system with reference to the point A.



(CO1) [Application]