

Date: 22/09/2014

Test No: 1

Branch: All

Semester: 1

Subject: Engineering Mechanics

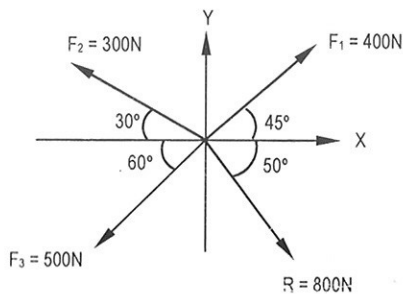
Marks: 20

Q. 1) Attempt any five (02 Marks each)

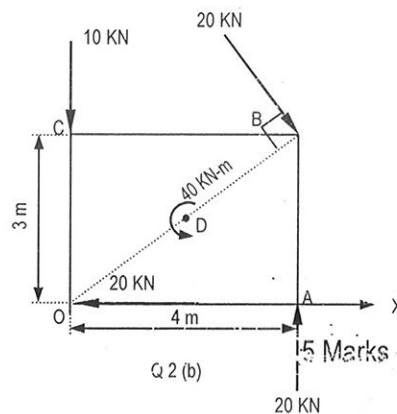
10 Marks

- a) Differentiate between Coplanar and Non-coplanar Force Systems
- b) State Varignon's Theorem of Moments
- c) Explain Lami's Theorem with the help of Diagram
- d) Explain the term Free Body Diagram
- e) Represent the support reactions for Fixed type of support
- f) What is the equilibrium and what are the conditions of equilibrium

Q. 2) a) Find force  $F_4$  so as to give the resultant of the system of concurrent forces as shown in figure. [ 5 Marks ]



Q. 2 (a)



Q 2 (b)

5 Marks

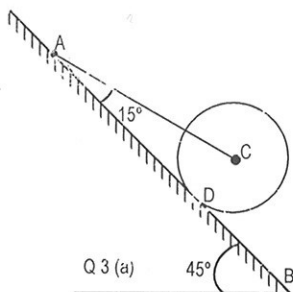
OR

b) Find the resultant of the force system acting on a body OACB as shown in figure. Also, find the point where the resultant will cut the X & Y axis. What is the distance of resultant from O? [ 5 Marks]

Q. 3) a) A roller of weight  $W = 1000$  N rests on a smooth inclined plane. It is kept from rolling down the plane by a string AC. Find the tension in the string and reaction at the point of contact D. [ 5 Marks]

OR

b) Find the reactions at the supports for the beam shown in figure. [ 5 Marks]



Q 3 (a)

