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NMAM INSTITUTE OF TECHNOLOGY, NITTE

(An Autonomous Institution affiliated to VTU, Belagavi)

II Sem B.E. (Credit System) Mid Semester Examinations - I, February 2016

15CV103 – ELEMENTS OF CIVIL ENGINEERING AND ENGINEERING MECHANICS

Duration: 1 Hour

Max. Marks: 20

Note: Answer any One full question from each Unit.

Unit – I

		Marks	BT*
1. a)	Briefly explain the scope of following fields of Civil Engineering: (i) Transportation Engineering (ii)Geotechnical Engineering	04	L*2
b)	Four coplanar forces acting at a point are shown in the fig Q.No. 1(b). If the Resultant of the system is 500 N (as shown), determine the magnitude, direction and inclination of unknown force F with respect to X-axis.	06	L5

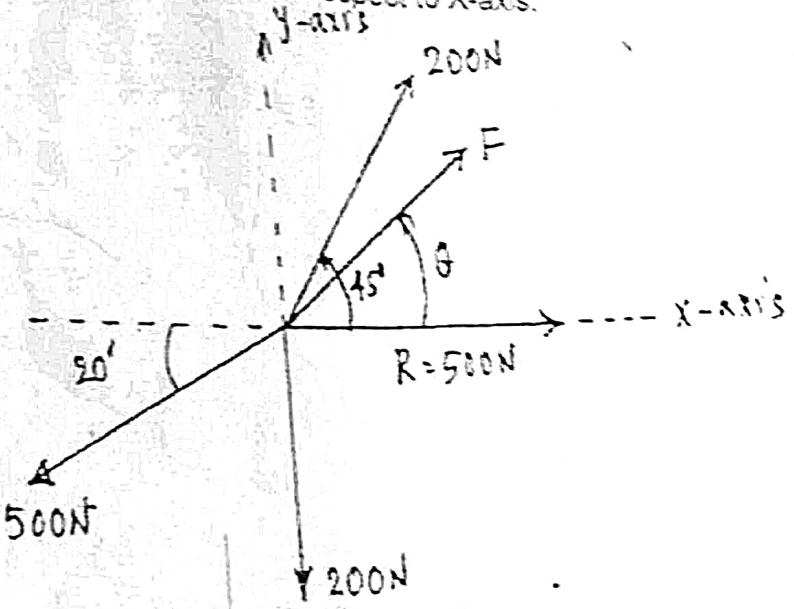


Fig Q.No. 1(b)

2. a)	State and explain principle of transmissibility of a force with a neat sketch.	04	L2
b)	Compute the resultant of the force system as shown in the fig Q.No. 2(b).	06	L4

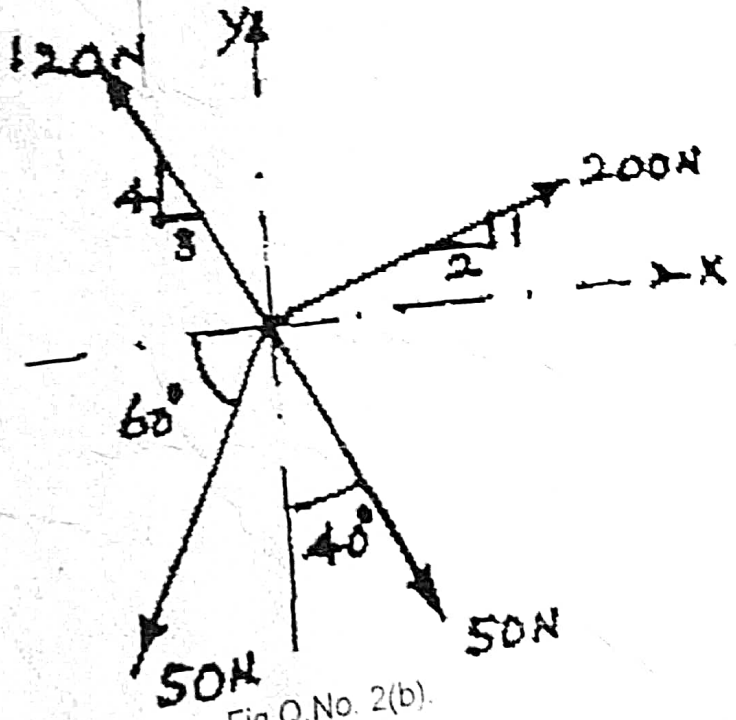


Fig Q.No. 2(b).

P.T.O.

15CV103 Unit – II

3. a) Prove Varignon's Theorem. 02
   b) Explain Equivalent Force-Couple System with a neat sketch. 02
   c) Determine the tension in the cable AB and AC required to hold a 50Kg crate as shown in fig Q.No. 3(c). Take g=9.81 m/s^2

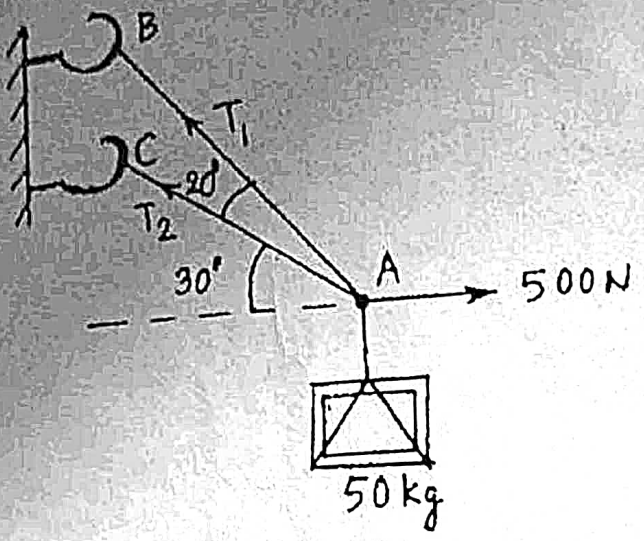
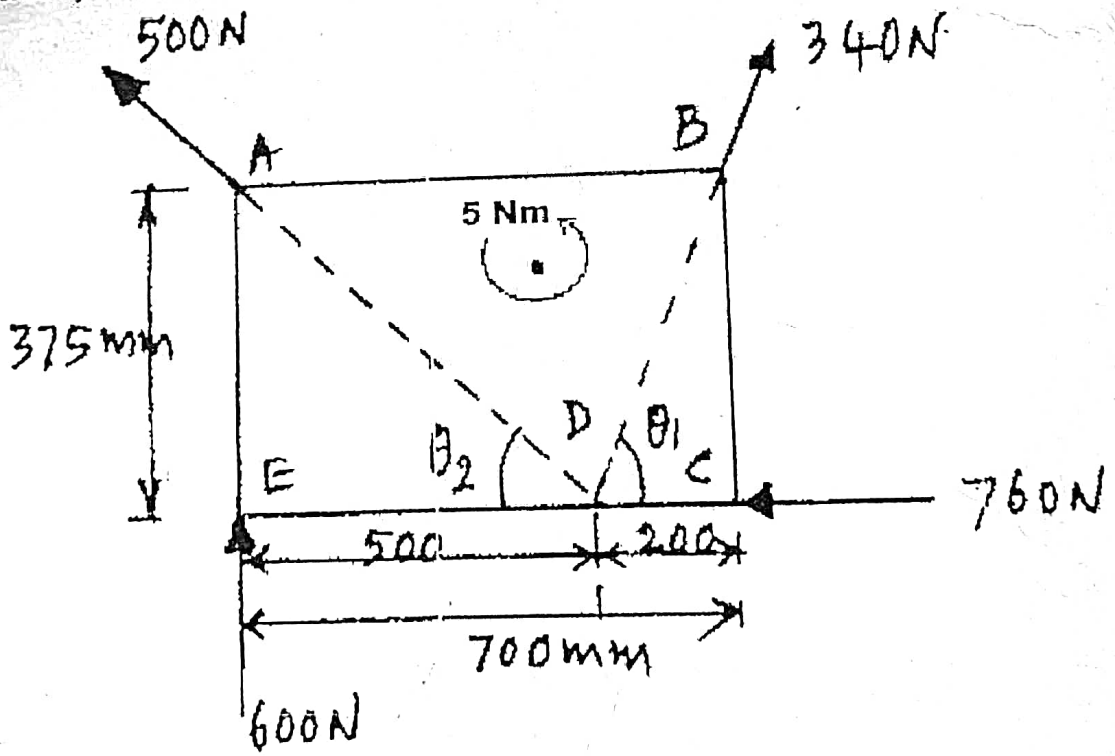


Fig Q.No. 3(c)

4. a) Define Equilibrant. List any three characteristics of a couple.
   b) Determine the magnitude direction and point of application of the resultant of the force system acting as shown in the fig Q.No.4(b). Indicate its position at point A.



BT* Bloom's Taxonomy, L* Level

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