USN

NMAM INSTITUTE OF TECHNOLOGY, NITTE

(An Autonomous Institution affiliated to VTU, Belgaum)

II Sem B.E. (Credit System) Mid Semester Examinations – I, January 2015

14CV103 – ELEMENTS OF CIVIL ENGINEERIG AND ENGINEEING MECHANICS

Duration: 1 Hour

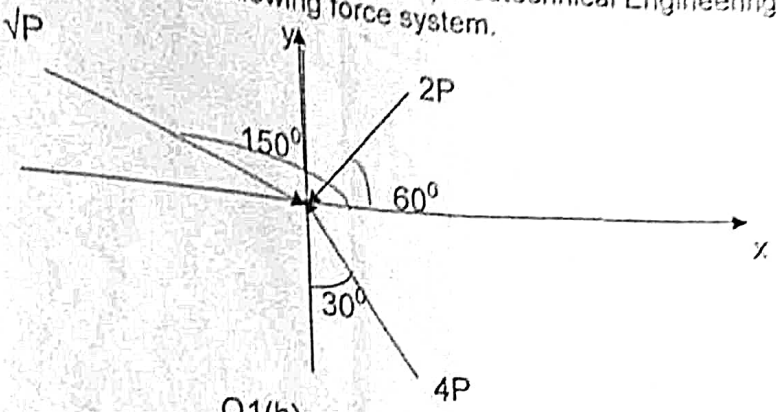
Max. Marks: 20

*Note: Answer any **One** full question from **each Unit.***

Unit – I

a) Explain the scope of i) Structural Engineering ii) Geotechnical Engineering 04

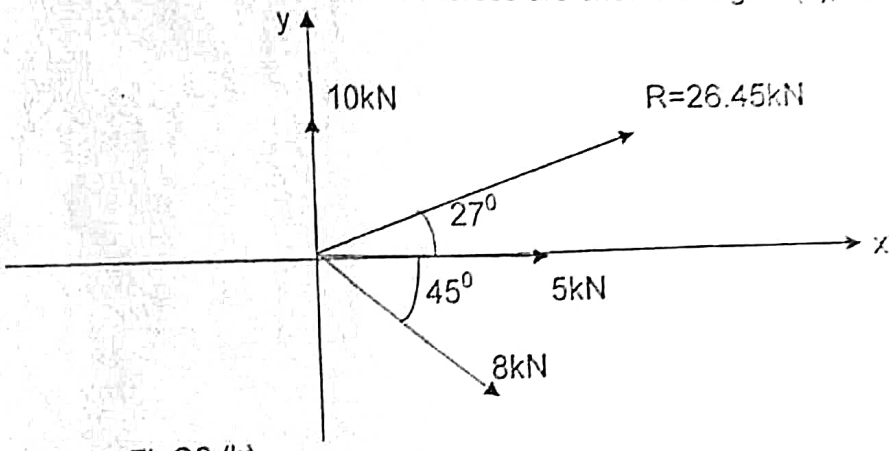
b) Determine the resultant of the following force system.



Q1(b) 06

a) Define i) Resultant and ii) Equilibriant with sketches 04

b) The resultant of four forces and three of the four forces are shown in FigQ2 (b), Find the fourth force.



FigQ2 (b) 06

Unit – II

Mention any three characteristics of a Couple. 03

Determine resultant of the force system acting on an equilateral triangular lamina of 2m sides as shown in Fig Q3(b). Locate the resultant w.r.t "A"

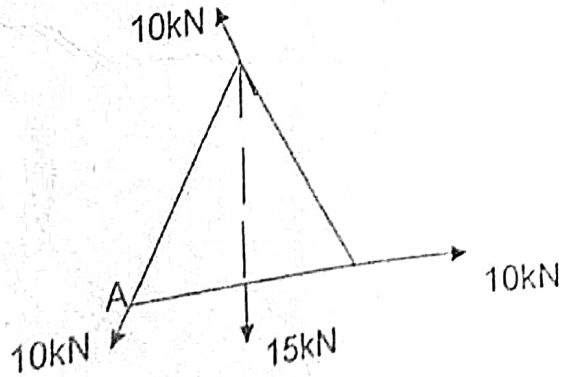


Fig Q3(b 07

P.T.O.

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4 a) State and prove Varignon's theorem

b) Determine the moment of 10 N about A as shown in Fig Q4(b)

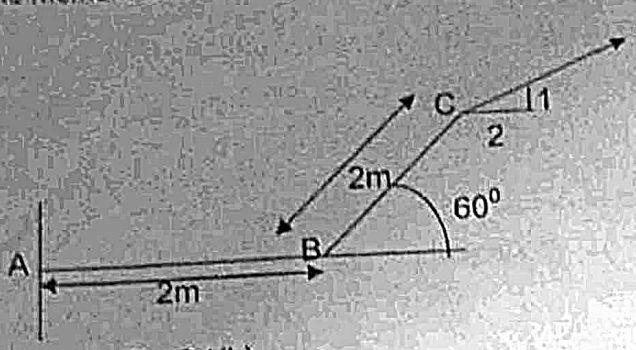

Fig Q4(b)

c) Two cables are connected at A and B as shown in Fig Q4(c). Determine the forces in CA and CB.

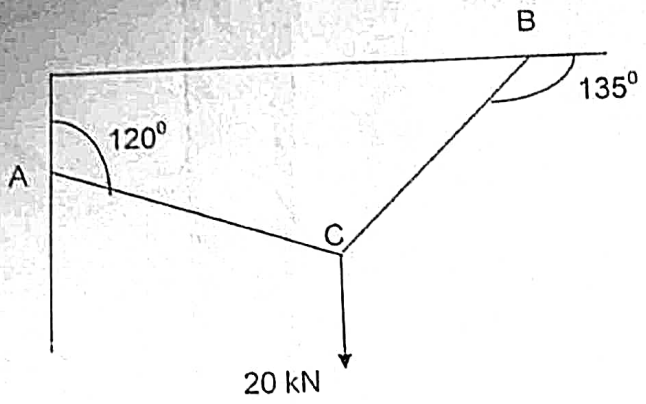

Fig Q4(c)

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