Total No. of Questions – [3] Total No. of Printed Pages:2

G.R. No.	

paper code: U239-113(T1)

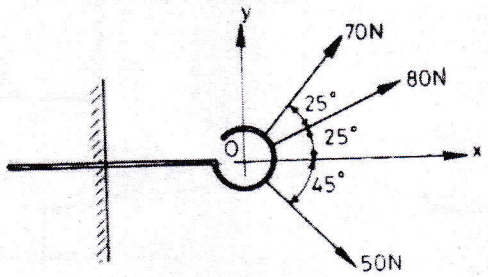
OCTOBER 2019 / INSEM (T1)
S. Y. B.TECH. (CIVIL ENGINEERING) (SEMESTER–III)
COURSE NAME: MECHANICS OF STRUCTURES - I
COURSE CODE: CVUA21183
(PATTERN 2018)

Time: [1 Hour] [Max. Marks: 20]

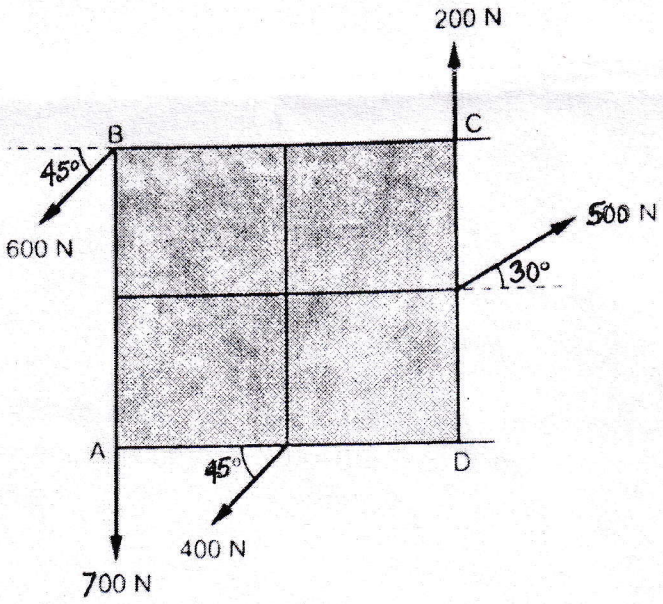
(*) Instructions to candidates:
1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of scientific calculator is allowed.
4) Assume suitable data where ever required.

Q 1) Attempt any **one**

a) Define 'Resultant' [8]
Determine the resultant of the three forces acting on a hook as shown in fig.



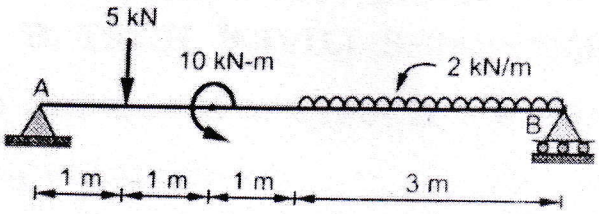
b) Find the resultant in magnitude and direction for the force system shown in fig. Each square has side 0.25m.Also determine the position of the resultant on the line AD. [8]



Q 2) Attempt any one

a) Explain any two types of supports with sketch.

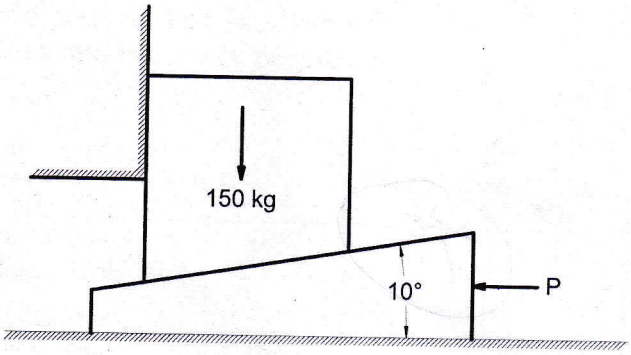
A beam is loaded as shown in fig. Find Calculate the reactions at support A and B [8]



b) Comment on, "Always coefficient of static friction is greater than coefficient of kinetic friction".

A block of mass 150 kg is to be raised by 10° wedge weighting 50 kg. Find horizontal force 'P' which will just start to move if coefficient of friction for all surfaces of contact is 0.3 for all contact surfaces [8]

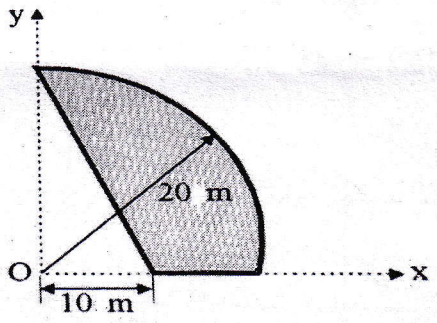
1.



Q 3) Attempt any **one**.

a) Locate 'Y' coordinate of the centroid of shaded area as shown in figure.

[4]



b) Find the centroidal moment of inertia(Ixx, Iyy) and radius of gyration (Kx, Ky) of a rectangular section of size 30X40mm (b X d).

[4]