NMAM INSTITUTE OF TECHNOLOGY, NITTE

Off-Campus Centre of Nitte (Deemed to be University)

I Sem B.Tech. (CBCS) Mid Semester Examinations - II, November 2022

CV1001-1 – ELEMENTS OF CIVIL ENGINEERING

Duration: 1 Hour

Max. Marks: 20

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

			Marks	BT*	CO*	PO*
		Unit – I				
1.	a)	Explain any four types of beams with neat sketches.	04	L*2	3	1
	b)	Determine the support reactions of loaded beam shown in Fig.1 (b).	06	L3	3	1,2

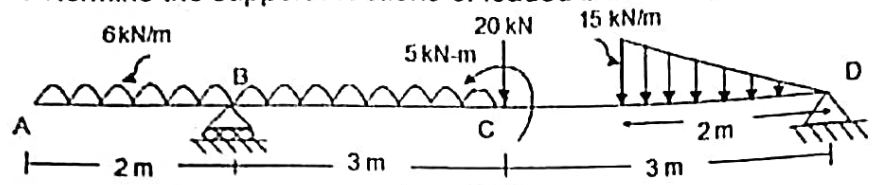

Fig. 1 (b)

2.	a)	Distinguish uniformly distributed load and uniformly varying load.	04	L2	3	1
	b)	Determine the resultant reaction at the supports of loaded beam shown in Fig.2 (b).	06	L3	3	1,2

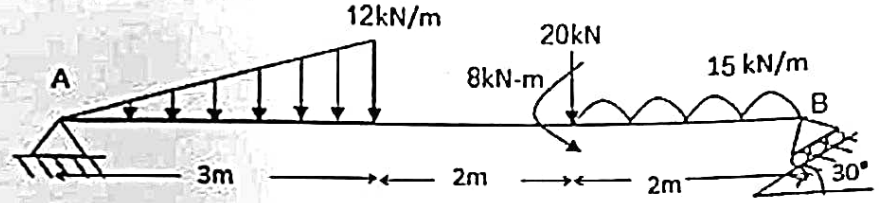

Fig. 2 (b)

		Unit – II				
3.	a)	Define i) limiting friction ii) coefficient of friction and ii) angle of repose.	03	L1	4	1
	b)	Find the least value of P required to cause the system of blocks shown in Fig.3 (b) to have impending motion to the left. The coefficient of friction under each block is 0.25.	07	3	4	1,2

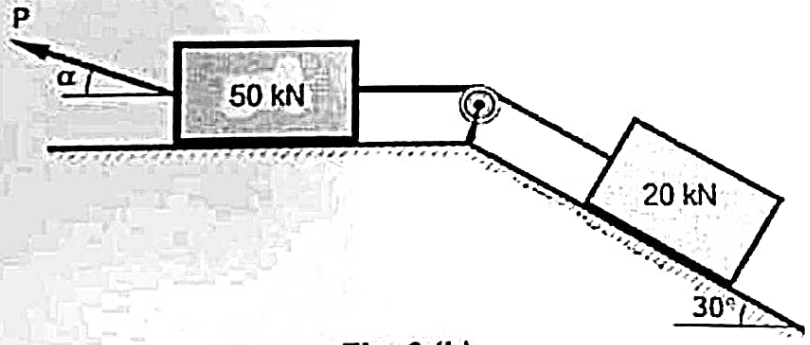

Fig. 3 (b)

4.	a)	State any four Coulomb's laws of friction.	04	L2	4	1
	b)	Determine the force P required to cause motion of block to impend as shown in Fig.4 (b). Take Wa= 250 N, Wb =500 N and μ = 0.25 (between blocks) and μ = 0.3 (between block and plane)	06	L3	4	1,2

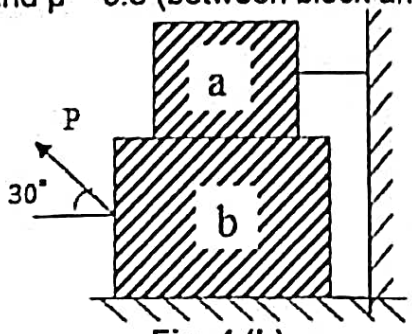

Fig. 4 (b)

BT* Bloom's Taxonomy, L* Level; CO* Course Outcome; PO* Program Outcome

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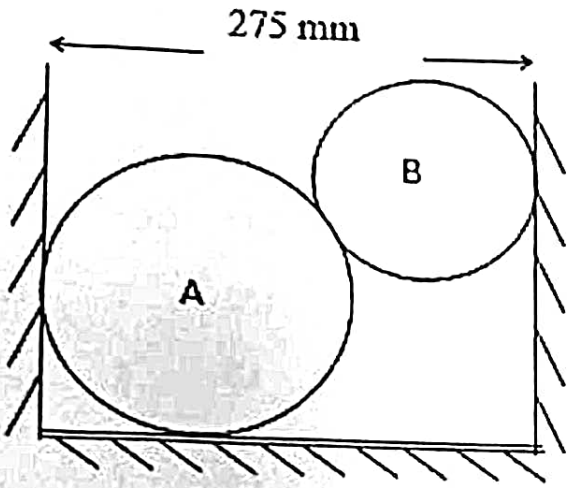

Fig. 3 (b)

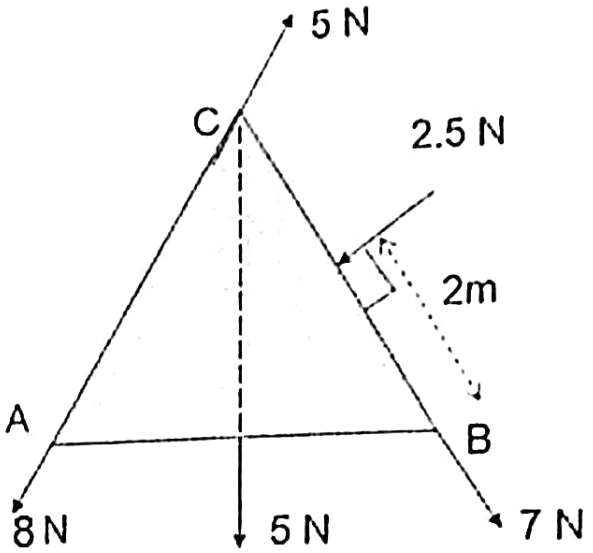

Fig. 4 (b)

BT* Bloom's Taxonomy, L* Level; CO* Course Outcome; PO* Program Outcome

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I Sem B.Tech. (CBCS) Mid Semester Examinations - I, September 2022

Duration: 1 Hour | **CV1001-1 – ELEMENTS OF CIVIL ENGINEERING** | Max. Marks: 20

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

			Marks	BT*	CO*	PO*
		Unit – I				
1.	a)	Explain the following scopes of Civil Engineering, i) Environmental Engineering ii) Transportation Engineering	04	L*2	1	1
	b)	Determine the magnitude and direction of the resultant for the force system as shown in **Fig.1 (b).**	06	L3	1	1,2
2.	a)	Distinguish coplanar and non-coplanar force system with examples.	04	L2	1	1
	b)	Determine the magnitude of unknown force and resultant force in a system of force as shown in **Fig.2(b)** whose resultant is a horizontal force.	06	L3	1	1,2
		Unit – II				
3.	a)	Explain free body diagram with an example.	04	L2	2	1
	b)	Determine the reactions at contact points of two smooth spheres A and B resting in a rectangular trench as shown in **Fig.3 (b)** having radius 100 mm and 50 mm respectively and weighs 300 N and 150 N respectively.	06	3	2	1,2
4.	a)	State and prove Varignon's theorem.	04	L3	2	1,2
	b)	Sketch the resultant of force system acting on the equilateral triangular plate element of side 4m with respect to point B as shown in **Fig. 4 (b).**	06	L3	2	1,2

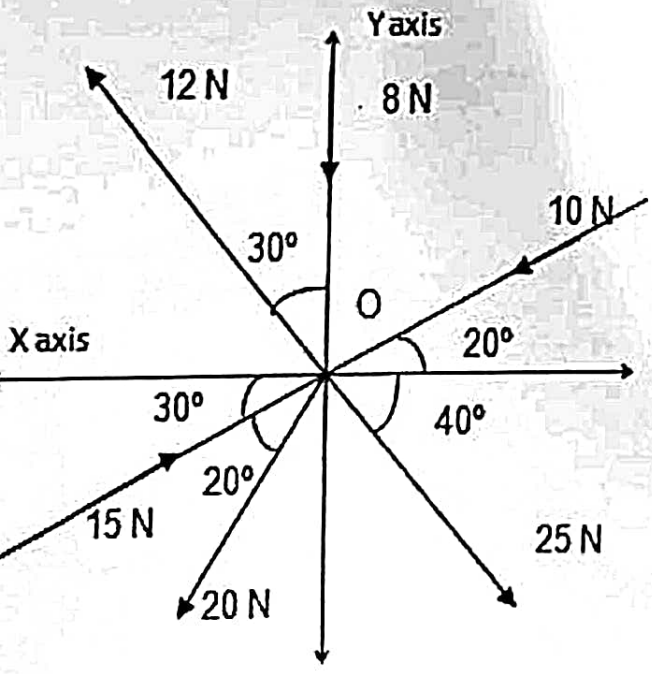

Fig. 1 (b)

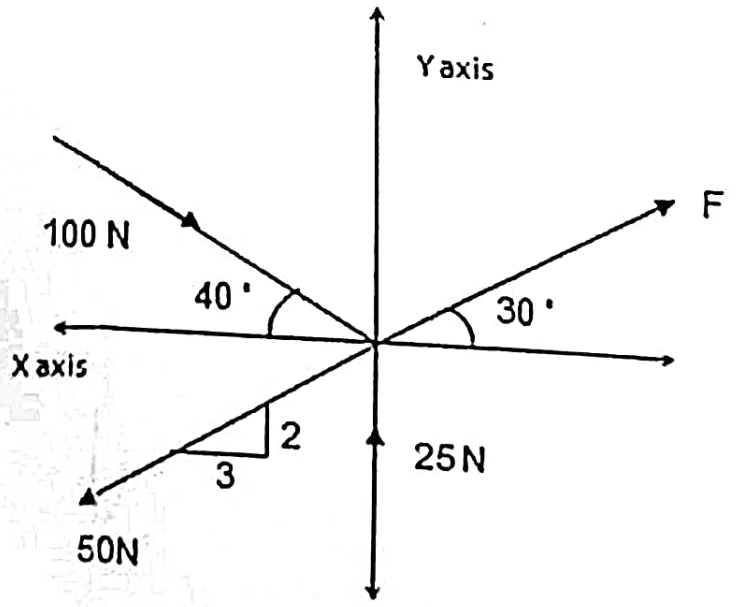

Fig. 2 (b)