

Paper Id: 100326

Roll No:

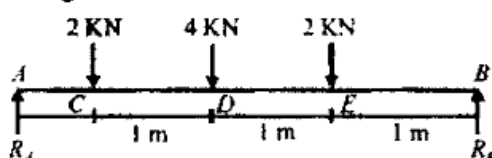
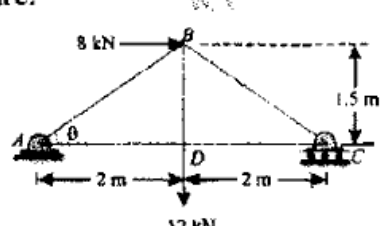
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

SECTION C

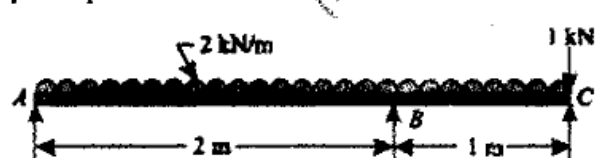
3. Attempt any one part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	Explain how a wedge is used for raising heavy loads. Also mention the principle. A body resting on a rough horizontal plane required a pull of 24N inclined at 30° to the plane just to move it. It was also found that a push of 30N at 30° to the plane was just enough to cause motion to impend. Make calculations for the weight of body and the coefficient of friction.	10	1
b.	A ladder 5m long rests on a horizontal ground and leans against a smooth vertical wall at an angle 70° with the horizontal. The weight of the ladder is 900N and acts at its middle. The ladder is at the point of sliding, when a man weighing 750N stands 1.5m from the bottom of the ladder. Calculate coefficient of friction between the ladder and the floor.	10	2

4. Attempt any one part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	Draw the SF and BM diagram for the simply supported beam loaded as shown in fig. 	10	3
b.	Define and explain the term imperfect truss Figure shows a framed of 4 m span and 1.5 m height subjected to two point loads at B and D. Find the forces in all the members of the structure. 	10	4

5. Attempt any one part of the following: 10x1=10

Qno.	Question	Marks	CO
a.	Explain the principle of virtual work An overhanging beam ABC of span 3 m is loaded as shown in Fig. Using the principle of virtual work, find the reactions at A and B. 	10	5

Paper Id: 100326

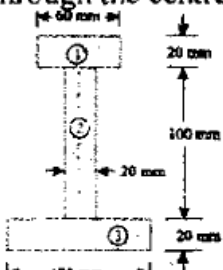
Roll No:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

b.	In a reciprocating pump, the lengths of connecting rod and crank is 1125 mm and 250 mm respectively. The crank is rotating at 420 r.p.m. Find the velocity with which the piston will move, when the crank has turned through an angle of 40° from the inner dead centre	10	1
----	---	----	---

6. Attempt any one part of the following:

10x1=10

Qno.	Question	Marks	CO
a.	Derive an equation for moment of inertia of triangle centroidal axis and about its base	10	2
b.	An I-section is made up of three rectangles as shown in Fig. Find the moment of inertia of the section about the horizontal axis passing through the centre of gravity of the section. 	10	3

7. Attempt any one part of the following:

10x1=10

Qno.	Question	Marks	CO
a.	A body of mass 20kg moving towards with a velocity of 16m/s strikes with another body of 40 kg mass moving towards left with 50m/s. Determine (i) Final velocity of the two bodies (ii) Loss in kinetic energy due to impact (iii) Impulse acting on either body during impact Take coefficient of restitution as 0.65	10	4
b.	A particle starts with velocity u and the acceleration-velocity relationship is prescribed as $a = -kv$ where k is a constant. Set up an expression that prescribes the displacement time relation for the particle	10	5

<https://www.aktuonline.com>

Whatsapp @ 9300930012

Send your old paper & get 10/-

अपने पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से

<https://www.aktuonline.com>