



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

	InSem Examination-IWinter 2023		
	Exam Seat No.:		
	Academic Year:2023-2024	Semester:I	
	Name of Programme:B.Tech	Pattern:2023	
	Name of Course:Engineering Mechanics	Course Code:2300113A	
	Max. Marks:30	Duration:1 hr	

Instructions: Candidates should read carefully the instructions printed on the Question Paper

and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains four pages.
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome

Question No. 1 Attempt following Question

- a) Explain Law of Parallelogram (3) CO1

OR

- b) Explain the concept of free body diagram along with step by step procedure to draw free body diagram (3) CO1

- c) Determine the magnitude and direction of the resultant force for the given force system shown in fig. 1 (c) (6) CO2

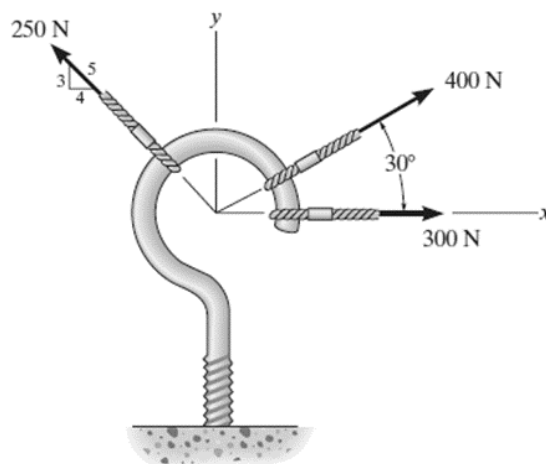
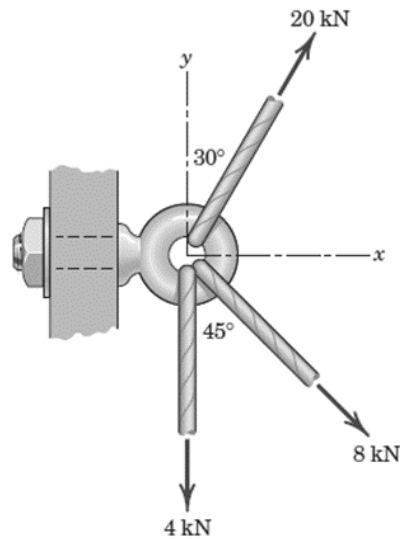


fig. 1 (c)

OR

d)

Determine the magnitude and direction of the resultant force for the given force system shown in fig. (d)

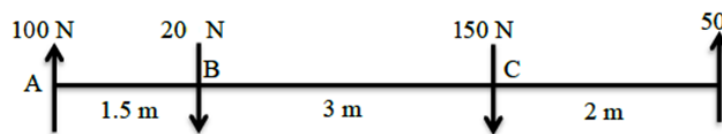


(6) CO2

fig. 1 (d)

e)

Determine the magnitude, direction and position of resultant from point A along line AD of given force system shown in Fig. 1 (e)



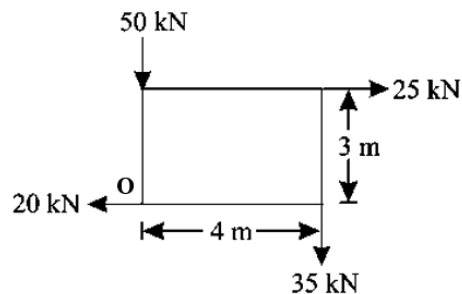
(6) CO2

Fig. 1 (e)

OR

f)

A system of forces are acting at the corners of a rectangular block as shown in Fig. 1 (f). Determine the magnitude direction and position of the resultant force with respect point O



(6) CO2

Fig. 1 (f)

Question No. 2 Attempt following Question

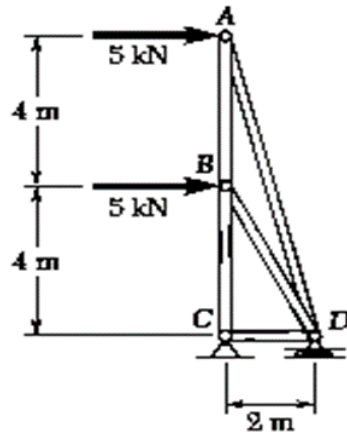
a) Enlist different types of loads with neat and suitable sketches

(3) CO3

OR

b)

Check the stability of the truss shown in fig 2 (b).

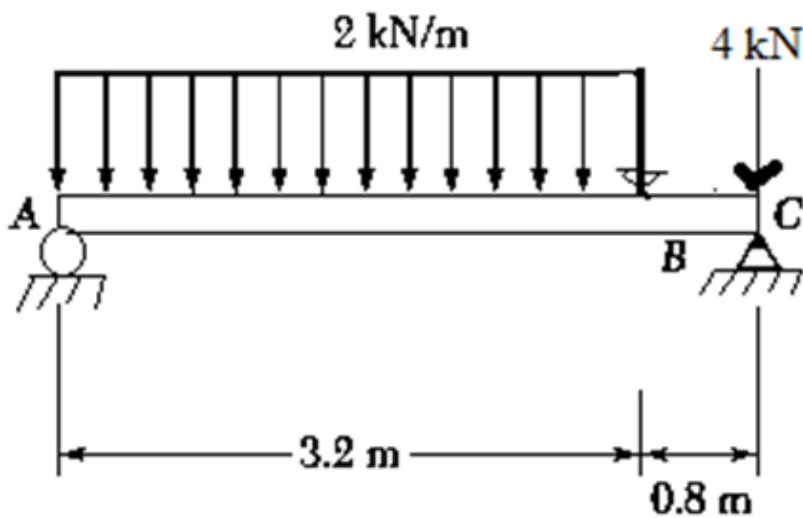


(3) CO3

fig. 2 (b)

c)

A beam AC of 4 m span is loaded as shown in fig 2 (c). Determine the reactions at support A and C.



(6) CO3

fig 2 (c)

OR

d)

A cantilever beam loaded and supported as shown in fig 2(d) , calculate the reactions at fixed support B

(6) CO3

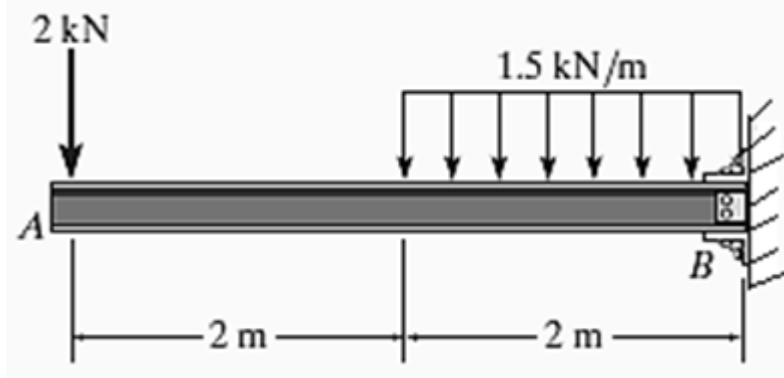


fig. 2 (d)

e)

Using the method of joints, determine the force in each member of the truss shown in fig.2 (e)

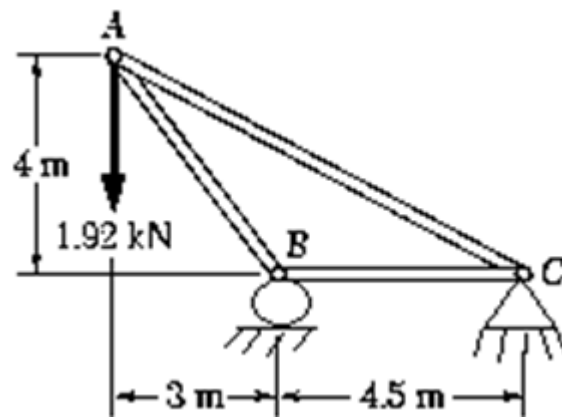


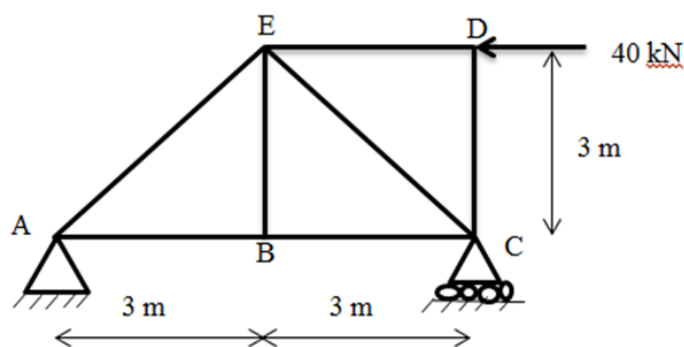
Fig. 2 (e)

(6) CO3

OR

f)

Determine the forces in members BC, CE and ED of the truss loaded and supported as shown in fig 2 (f) .



(6) CO3

fig. 2 (f)