Reg.No. _____

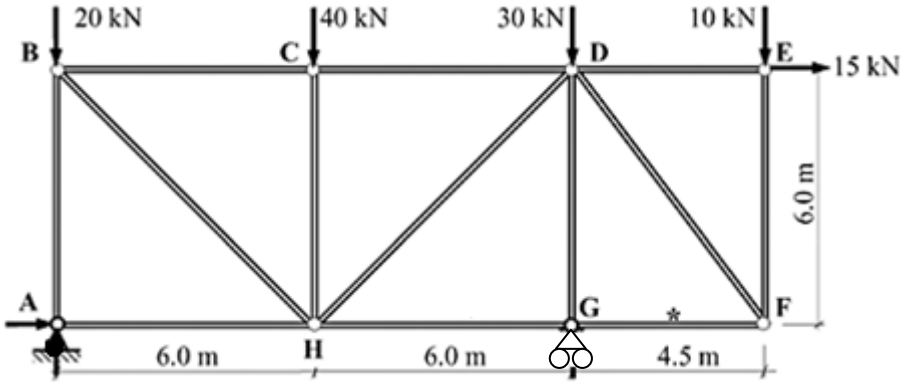
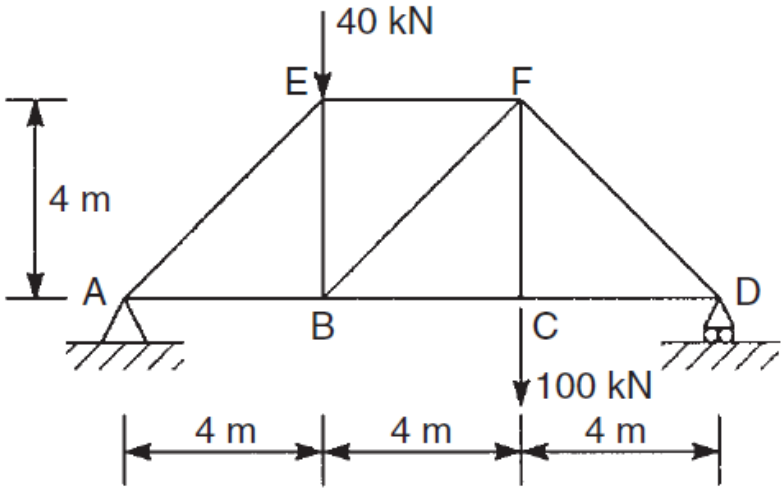
Karunya UNIVERSITY

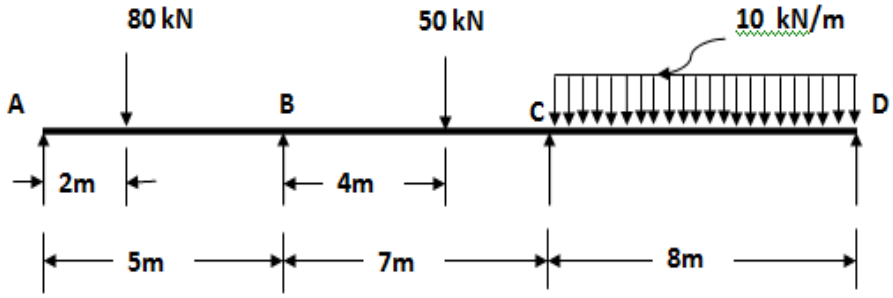
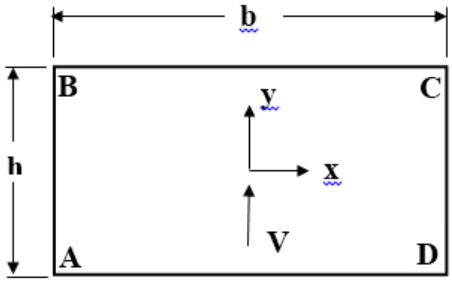
(Karunya Institute of Technology & Sciences)
(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – Nov/Dec – 2016

Code : 14AE2012 **Semester : 2016-17 ODD**
Sub. Name : Aircraft Structures **Duration : 3hrs**
Max. marks : 100

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Questions	Course Outcome	Marks
1.	Using the Method of joints, Determine the member forces of the plane pin-jointed truss of fig.1.  Fig.1	CO1	**20**
	(OR)		
2.	Calculate the vertical deflection of the Joint B and The horizontal movement of the support D in the truss shown in Fig. 2. The cross-sectional area of each member is 1800mm^2 and Young's modulus, E, for materials of the members is 200 000 N/mm^2 .  Fig.2	CO1	**20**
3.	A continuous beam, 12m long supported over spans AB=BC=CD=4m, Carries a uniformly distributed load of 3 kN/m run over span AB, a concentrated load of 4	CO1	**20**

	kN at a distance of 1 m from point B on support BC and a load of 3kN at the centre of span CD, Draw the B.M. and S.F. Diagram for the continuous beam.		
	(OR)		
4.	A continuous beam ABCD , 20m long is loaded as shown in fig. 3. If the support B sinks by 10mm below A & C. Evaluate the bending moment and shear force diagram.  Fig.3	CO1	**20**
5.	Derive and obtain an expression for the bending stress in an unsymmetrical section subjected to bending, using the generalized 'k' method .	CO1	20
	(OR)		
6.	A Z- section with 12 cm x 3 cm flanges and 20 cm x 3 cm web is subjected to Mx=10 kN-m and My=10 kN-m . Determine the maximum bending stress.	CO1	**20**
7.	A C-section subjected to shear loads is 100N on shear center. The C-section dimensions are: Flanges- 25 cm x 3 cm , web 30cm x 3cm. Draw the shear flow diagram and determine distance between shear center and center of the web.	CO2	**20**
	(OR)		
8.	Find the shear flow for the closed section shown in fig.4. Subjected to a vertical force V passing through the shear center. Thickness **t** for the entire wall.  Fig.4	CO2	**20**
Compulsory:			
9.	Derive the governing equation of thin plate subject to the compressive laod.	CO2	**20**

ALL THE BEST