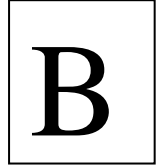


Reg.No:

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



SNS College of Technology, Coimbatore-35.
(Autonomous)
B.E/B.Tech- Internal Assessment -III
Academic Year 2023-2024 (Even Semester)
Fourth Semester
Aerospace Engineering
19AST203– Aircraft Structural Mechanics



Time: 1^{1/2} Hours

Maximum Marks: 50

Answer All Questions

PART - A (5x 2 = 10 Marks)

		CO	Blooms
1	What is the significance of distinguishing between walls effective and ineffective in bending in thin-walled beams?	CO4	Rem
2	How is the shear center of closed sections determined?	CO4	App
3	Discuss the effects of thermal stresses, impact loading, fatigue, creep, and	CO5	Rem
4	What is meant by the effective width in structural analysis?	CO5	App
5	How are shear force and bending moment distributed over an aircraft wing and fuselage?	CO5	App

PART – B (13+13+14=40 Marks)

			CO	Blooms	
6	(a)	<p>Find the shear flow distribution and locate the shear center location for the section shown in figure. For a vertical shear load of $S_y = 50\text{kN}$ acting through shear center. Area of all stringers is same which is equal to 2cm^2</p>	13	CO4	App
		(or)			
	(b)	Find the shear flow distribution and angle per twist in given fig.	13	CO4	App

7.	(a)	What categories of weights does an airplane have to be classified for and what does this mean? Draw an illustration of these loads acting on an aircraft.	13	CO5	Eva
		(or)			
	(b)	Enumerate the various structural components found in an airplane semi-monologue wing. What roles do they play? Carefully sketch the wing diagram.	13	CO5	App
8.	(a)	Explain in detail about shear flow in open and closed sections	14	CO4	Cre
		(or)			
	(b)	Describe the differences between the pure tension field and semi-tension field beam analyses.	14	CO5	Cre

Abbreviations

Rem- Remember

App-Apply

Ana-Analyze

Eva-Evaluate

Cre-Create