PRN:		Course Code:	AER4704B

Final Year **B. Tech** End Semester Examination Summer 2024

Wind tunnel Techniques

Day and Date: 29 MAY 2024, Wed Max Marks: **100**

Time : 10:30AM To 01.30PM Duration: **03** hrs

Instructions: All questions are compulsory.

		Marks	Bloom's Level	CO
Q.1	**Attempt the following**			
a)	Explain Buckingham π Theorem and discuss the procedure for solving problems.	08	1	1
b)	Explain Rayleigh and discuss the procedure for solving problems.	08	2	1
	OR			
b)	What are similarities and explain the type of similarities.	08	2	1
Q.2	**Attempt the following**			
a)	What are the components of Low-speed wind tunnel? Explain in detail with neat sketch.	08	2	1
b)	Explain the Layout and working of Blow-Down wind tunnel.	08	2	2
	OR			
b)	Explain the Layout and working of Induction type wind tunnel and write down the advantages and Disadvantages.	08	3	2
Q.3	**Attempt any two from the following**			
a)	Explain the working of Hypersonic wind tunnel and draw the layout of Hypersonic wind tunnel.	08	1	3
b)	Write in detail about Plasma arc Tunnel.	08	2	3
c)	Write in detail about the Hotshot Tunnel.	08	3	3
Q.4	**Attempt any two from the following**			
a)	What are wind tunnel Balances and write in detail about Wire balances.	08	1	3
b)	Write in detail about calibration of supersonic wind tunnel.	08	2	4
c)	Write a note on Strut type wind tunnel balances.	08	3	4

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Q.5	**Attempt any Two of the following**				
a)	What are the different Flow Visualization Techniques?	09	2	4
b)	Write in detail about Smoke tunnel visualization Technique. Also, with a neat sketch explaining the working of Kerosene Smoke generator.	09	2	4
c)	What are the different optical visualization techniques and Explain Schlieren System visualization Technique in detail?	09	2	5
Q.6	**Attempt any Two of the following**			
a)	Explain Hot wire Anemometry and write on the classification of Hot wire Anemometer.	09	3	5
b)	Explain Constant Temperature Anemometer in detail.	09	2	5
c)	Write notes on Practical configurations of unsteady pressure measurements systems.	09	3	5

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