

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MTECH
BRANCH: SER(AERODYNAMICS)

SEMESTER : II
SESSION : SP/2023

SUBJECT: SR579 EXPERIMENTAL AERODYNAMICS

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Describe about the different components of a subsonic wind tunnel	[5] 1	2
Q.1(b)	Illustrate the different types of supersonic wind tunnels in practice worldwide	[5] 1	3
Q.2(a)	Distinguish the pathline, streamline and streakline patterns of a flow visualization.	[5] 2	4
Q.2(b)	Recommend the shadowgraph, schlieren and interferometry methods to typical application problems with proper justifications.	[5] 2	5
Q.3(a)	Summarize the advantages of a laser doppler velocimetry to standard practice and technique of flow and pressure measurements	[5] 3	5
Q.3(b)	Predict the factors limiting the accuracy of a measurement from a manometer.	[5] 3	5
Q.4(a)	Describe the hot wire anemometry method and further discuss on the assumption being made before performing the hot wire tests.	[5] 4	3
Q.4(b)	Suggest different methods to perform experiments and acquire turbulence parameters from the flow.	[5] 4	4
Q.5(a)	Differentiate between resolution and sampling.	[5] 5	4
Q.5(b)	Describe the Nyquist sampling theorem and comment on the aliasing of a signal.	[5] 5	3

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