INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)

B.Tech V Semester End Examinations (Regular), February – 2021
Regulation: IARE–R18
EXPERIMENTAL AERODYNAMICS

Time: 3 Hours   **(AE)**   **Max Marks: 70**

Answer any Four Questions from Part A
Answer any Five Questions from Part B

PART – A

1. Write a short note on an open circuit low speed wind tunnel with neat sketch.   **[5M]**

2. What is boundary layer correction in the test section design of wind tunnels?   **[5M]**

3. Explain six component balance with neat sketch?   **[5M]**

4. Describe in detail about the pressure probes for velocity measurement.   **[5M]**

5. Explain in detail Schlieren technique.   **[5M]**

6. Briefly explain the types of non-dimensionless number.   **[5M]**

7. Compare the difference between in draft and pressure driven wind tunnels.   **[5M]**

8. Write short note on 3-component strain gauge balance.   **[5M]**

PART – B

9. List the different types of supersonic wind tunnel.Explain about the losses in the wind tunnel circuit.   **[10M]**

10. What is the significance of similarity parameters? Explain any one parameter and its relation with experimentation.   **[10M]**

11. With neat sketch explain about the straight through mode hypersonic shock tunnel.   **[10M]**

12. Determine the equation for test section speed in low-speed wind tunnel and draw the corresponding curve.

                    [10M]

13. Describe the source of errorrs during ind tunnel testing.   **[10M]**

14. Explain about the basic layout of a yoke balance with sketch.   **[10M]**

15. Discuss the techniques used for turbulence measurements in a wind tunnel.   **[10M]**

16. Write short note on the measurement of temperature in a wind tunnel.   **[10M]**

17. What are the advantages of flow visualization methods? Explain the basic principle involved in the interferometer method of flow visualization?   **[10M]**

18. Discuss the smoke and tuft grid techniques used for flow visualization.   **[10M]**

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