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10AE767

**Seventh Semester B.E. Degree Examination, Dec.2016/Jan.2017**  
**Industrial & Experimental Aerodynamics**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting  
atleast TWO questions from each part.**

**PART – A**

- 1 a. What are wind turbines? With neat sketch list various types of vertical axis wind turbine. (10 Marks)  
b. State the advantages and disadvantages of horizontal axis wind turbine. (06 Marks)  
c. Give an expression for power coefficient of a wind turbine. (04 Marks)
- 2 a. What are the salient features of a high speed car? (08 Marks)  
b. With neat sketch explain the working principle of hovercraft. (12 Marks)
- 3 a. State the problems of tall buildings. (04 Marks)  
b. With neat sketch show the pressure distribution on low rise buildings. (06 Marks)  
c. What are building codes? Explain in detail on National building codes? (10 Marks)
- 4 a. What are vortex induced vibrations? (04 Marks)  
b. Define Reynolds number and explain its effect on wake formation of bluff shapes. (08 Marks)  
c. State the effects of galloping and stall flutter. (08 Marks)

**PART – B**

- 5 a. Explain about Internal balances. (08 Marks)  
b. How lift and drag are measured in wind tunnel? (04 Marks)  
c. Write a short note on Jettison test. (08 Marks)
- 6 a. What are the effects of lateral boundaries? (08 Marks)  
b. Write in detail about the corrections for reflection plane models. (08 Marks)  
c. Define solid blocking and wake blocking in wind tunnel boundary corrections. (04 Marks)
- 7 a. With the help of a diagram, explain the working of a transonic wind tunnel. (10 Marks)  
b. Write a short note on tare and interference evaluation in transonic tunnel testing. (10 Marks)
- 8 a. Explain blow down intermittent type supersonic tunnel with the aid of diagram. (10 Marks)  
b. What are optical methods of visualization? (04 Marks)  
c. Draw the Schlieren set up and explain its working. (06 Marks)

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