SATHYABAMA UNIVERSITY
(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E – Aeronautical
Title of the paper: Industrial Aerodynamics
Semester: VII   Max.Marks: 80
Sub.Code: 526E08- AEE07   Time: 3 Hours
Date: 16-09-2009   Session: FN

PART - A   (10 X 2 = 20)
Answer ALL the Questions

1. What is meant by atmospheric boundary layer?

2. Define a terrain.

3. Define power co-efficient.

4. What is the difference between windmill and wind turbine?

5. Define drag co-efficient.

6. Define cut back angle.

7. Write any two problems of high rise buildings.

8. Define HVAC.

9. Define Reynolds number.

10. What is meant by horseshoe vortex?

PART – B   (5 x 12 = 60)
Answer All the Questions

11. Briefly explain the variation of wind due to terrain and effects on terrain due to wind movement.

(or)

12. How is the wind formed and discuss the types of winds?

13. Describe the principle by which the wind speed is converted into useful energy by a windmill. Derive the expression for total power (available power), maximum obtainable power density and total power obtained.

(or)

14. Discuss on the special features of Industrial Gas Turbines as compared to Aircraft Gas Turbines.

15. What are the forces acting on a moving car? Derive the expression for power required to move the car.

(or)

16. Discuss with a neat diagram the aerodynamics of hovercraft.

17. Discuss about the various design parameters that have to be considered for a tall building. Illustrate.

(or)

18. Discuss in detail building ventilations and Architectural Aerodynamics.

19. Define galloping and discuss various types of galloping.

(or)

20. What is a flume rise and discuss the different types of flume rise.