CBCS SCHEME

USN | | | | | | | | | | |

15AE752

Seventh Semester B.E. Degree Examination, June/July 2019
Wind Tunnel Techniques

Time: 3 hrs. Max. Marks: 80

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Outline the Buckingham's theorem application. **(08 Marks)**

b. Identify the importance of the dimensionless number in solving Industrial Aerodynamic problems. **(08 Marks)**

OR

2 Describe Model laws , Similarity laws and Obtain expressions for the following :
a. Reynold's model law.
b. Froude model law.
c. Euler model law.
d. Weber model law. **(16 Marks)**

Module-2

3 Show the calculation of percentage energy loss in the various parts of low speed wind tunnels. **(16 Marks)**

OR

4 With a neat sketch, explain the advantages and disadvantages for Blow down – type wind tunnel and Induction type wind tunnel. **(16 Marks)**

Module-3

5 Describe the various methods to calibrate the low speed subsonic wind tunnel. **(16 Marks)**

OR

6 Describe the various methods to calibrate the supersonic wind tunnels. **(16 Marks)**

Module-4

7 With a neat sketch, explain the following :
a. Wire – type balance.
b. Shrut – type balance.
c. Plat form – type balance.
d. Yoke – type balance. **(16 Marks)**

OR

8 With a neat sketch, explain Wood Smoke generator and Kerosene smoke generator. **(16 Marks)**

Module-5

9 a. Describe the guidelines for wind tunnel experiments using flow chart. **(08 Marks)**

b. Explain the General considerations for wind tunnel model design and construction. **(08 Marks)**

OR

10 Derive Correction coefficient for dynamic pressure in compressible flow. **(16 Marks)**

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