SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2016

(2013 SCHEME)

13.707.3 EXPERIMENTAL METHODS (S)

Time: 3 Hours   Max.Marks:100

N.B: Answer all questions from PART- A and any one question from each module in PART-B.

PART – A

1.   Name the errors caused during measurement

2.   What is the significance of calibration?

3.   Mention the basic requirements of measurement.

4.   What is meant by measurement?

5.   What is meant by subsonic and transonic speed regime?

6.   Explain the term dynamic similarity.

7.   Give any two smoke production methods.

8.   Name the technique used to visualize flow with 40 to 150m/s. Give its application.

9.   Give any 4 advantages of LDV.

10. List out any 4 uses of uncertainty analysis.   **(10*2=20)**

PART – B

MODULE 01

1.   (a) State and explain any 8 performance terms associated with measurement systems.

(12)

      (b) Explain the components of a measuring system?   **(8)**

(Or)

2.   (a) Explain in detail the properties of fluid.   **(14)**

      (b) Explain the importance of model studies.   **(6)**

MODULE 02

3.   Explain six component wind tunnel balances with neat sketch and mention the features

      and characteristics of wind tunnel balances.   **(20)**

(Or)

4. Explain the following

      i)   Losses in wind tunnel convergent cone.

      ii)   Losses in wind tunnel cylindrical section.

      iii)   Turbulence sphere

      iv)   Yaw sphere   **(20)**

MODULE 03

5. With neat diagram, explain the working principle of Hele-Shaw apparatus and Interferometer. **(20)**

(Or)

6. Explain the working of electrolytic tank with neat sketches. **(12)**

   (b) Explain hydraulic jumps and its types. **(8)**

MODULE 04

7. Explain the principle and operation of Hot-wire anemometry with neat diagram. **(20)**

(Or)

8. (a) Explain the various steps involved in uncertainty calculation. **(12)**

   (b) Explain internal estimation of error. **(8)**