

Roll No .....

**AU/CE/IP/IEM/PR/ME-405 (GS)**  
**B.E. IV Semester Examination, June 2020**  
**Grading System (GS)**  
**Fluid Mechanics**  
**Time : Three Hours**

**Maximum Marks : 70**

**Note:** i) Attempt any five questions out of eight.  
ii) All questions carry equal marks.

1. Define the following fluid properties :
  - i) Density
  - ii) Specific weight
2. Describe Buckingham's method to formulate a dimensionally homogeneous equation between the various physical quantities effecting a certain phenomenon.
3. What is Pitot Tube? How it is used.
4. How do you measure velocity of a fluid? Explain with a neat sketch.
5. Derive the Hagen Poiseuille formula.
6. Define and distinguish between:
  - i) Rotational and Irrotational flow
  - ii) Uniform and Non Uniform flow
7. What is displacement and momentum thickness?

OR

Define the source flow. Derive the equation of stream function. Also plot the stream lines.

8. Write short notes on any two :
  - a) Absolute and gauge pressure
  - b) Bernoulli's equation of motion
  - c) Dimensional homogeneity
  - d) Stoke's law for laminar flow

OR

- Write short notes on any two
- a) Stability of floating body
  - b) Stoke's law
  - c) Venturimeter
  - d) Flow net

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