

Roll No. *15023056* <sup>UITians</sup>

Total No. of Questions : 8]

[Total No. of Printed Pages : 3

**B.E. VIth Semester (CGPA)  
Examination, 2017**

**EF-336**

**CIVIL ENGG.  
(Fluid Mechanics-II)  
Paper : CE-601**

**Time : 3 Hours]**

**[Maximum Marks : 60**

**Note :-** Attempt any *five* questions. All questions carry equal marks. *S.P.*  $5 \times 12 = 60$

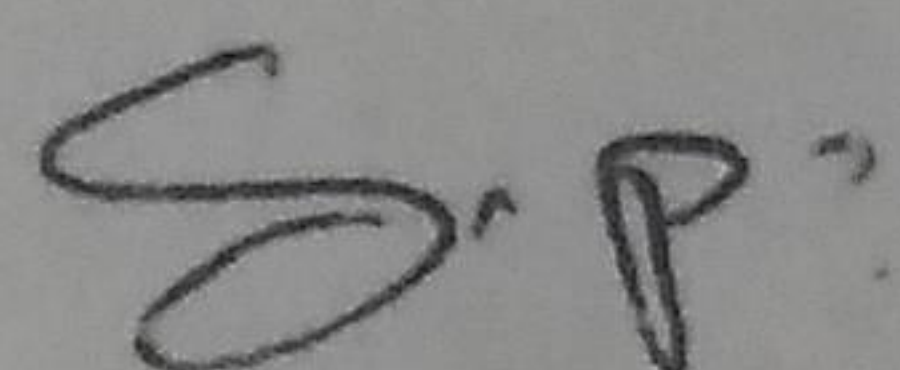
1. How would you distinguish between hydrodynamically smooth and rough boundaries ?
2. Find the head lost due to friction in a pipe of diameter 300 mm and length 50 m, through which water is flowing at a velocity of 3 m/s using (i) Darcy formula, (ii) Chezy's formula for which  $C = 60$ . Take  $\nu$  for water = 0.01 stoke.

**SS-336**

( 1 )

Turn Over

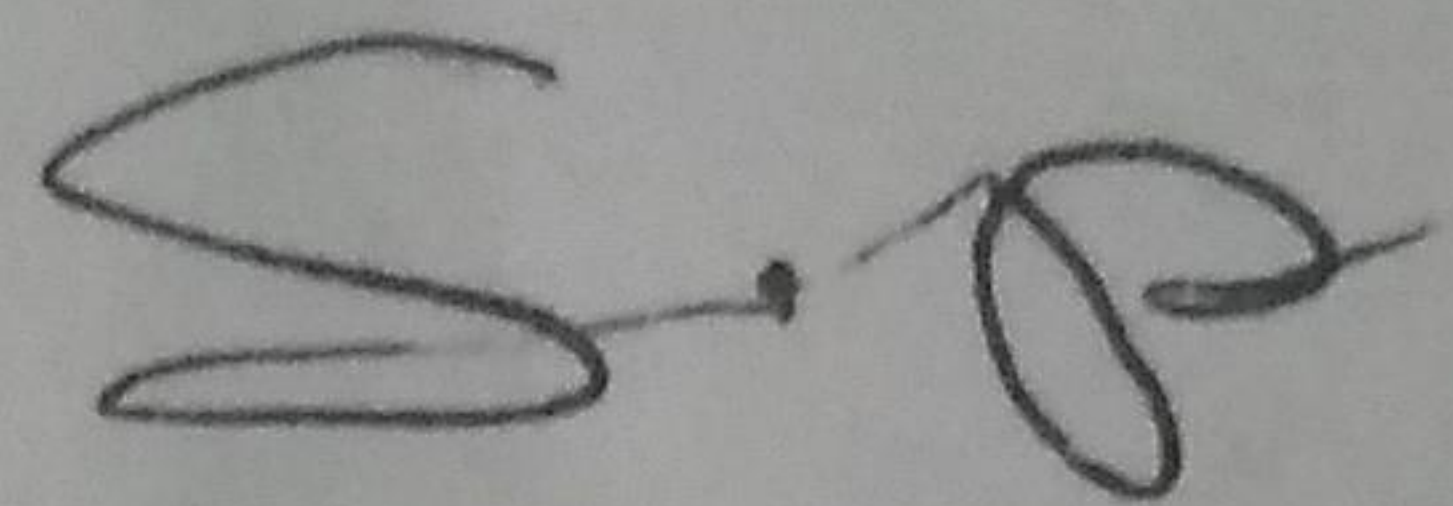


3. Explain the term hydraulic jump. Derive an expression for the depth of hydraulic jump in terms of the upstream Froude number.
4. Explain the terms :
- (i) Slope of the bed
  - (ii) Hydraulic mean depth
  - (iii) Air lift pump
  - (iv) Hydraulic torque controller 
5. What is Magnus effect ? Why is it known as Magnus effect ?
6. What do you mean by gross head, net head and efficiency of turbine ? Explain the different types of the efficiency of a turbine.
7. A centrifugal pump having outer diameter equal to two times the inner diameter and running at 1000 r. p. m. works against a total head of 40 m. The



velocity of flow through the impeller is constant and equal to 2.5 m/s. The vanes are set back at an angle of  $40^\circ$  at outlet. If the outer diameter of the impeller is 500 mm and width at outlet is 50 mm, determine :

- (i) Vane angle at inlet
- (ii) Work done by impeller on water per second,
- (iii) Manometric efficiency



8. What is a reciprocating pump ? Describe the principle and working of a reciprocating pump with a neat sketch.