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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. 5×12=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 ν for water = 0.01 stoke.

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°C 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.