2042

B. E. 3rd Sem. (Civil Engg.)
Examination – December, 2013

FLUID MECH – 1

'E' Scheme

Paper : CE-205-E

Time : Three hours]   *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complain in this regard, will be entertained after examination.

Note :   Attempt any *five* questions from 8 questions.

1. (a) A sudden enlargement of a water from 240 mm to 480 mm diameter, the hydraulic gradient rises by 10 mm. Estimate the rate of flow. ?   **10**

   (b) Calculate the unknown velocity component for the following continuity equation   **10**

   $$U = 2x^2 + 2xy, \ w = z^3 - 4xz - 2yz$$

2. What is meant by stability of a floating bodies and Submmerged bodies, Explain the stability of floating body with reference to its metacentric height with neat sketch?   **20**

3. (a) Explain different types of flow? 10

(b) Define doublet and explain the strength of doublet? 10

4. (a) Explain types of losses in a pipe line. Drive the relation for measuring one type of losse? 10

(b) What are the limitations of Bernoulli's equation? 10

5. (a) What is meant by boundary layer and why does it increase with distance from the up steam edge? 10

(b) Explain the Buckingham theorem? 10

6. Explain the following? 20

(i) STEAM LINE,

(ii) PATH LINE,

(iii) STREAK LINE

7. (a) Drive 2-D differential equation of steam line. 10

(b) Differentiate between Simple & Differential Manometer? 10

8. Write short notes on :

(a) Euler's Euation of motion

(b) Mouth piece

(c) Stability of Immersed bodies

(d) Steam Functions