Roll No. ....

24066

B. Tech. 3rd Semester (Civil)
Examination – December, 2018

FLUID MECHANICS - I

Paper : CE-205-F

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 complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in total. Question No 1 is *compulsory*. Attempt *one* question from each Section. All questions carry equal marks.

1. Explain :   20

    (a) Various properties of fluid

    (b) Pressure-Density-height relationship

    (c) laminar boundary layer, and turbulent boundary layer

    (d) kinematic and dynamic similarity

SECTION – A

2. State and explain Newton's law of viscosity. Also explain surface tension and capillarity. 20

3. (a) Classify the different type of fluid flow. 10

(b) Explain graphical and experimental methods of drawing flow nets. 10

SECTION – B

4. Derive the relation of discharge through inclined venturimeter. 20

5. A large iceberg floating in sea water is of cubical shape and its specific gravity is 0.9if 20 cm proportion of the iceberg is above the sea surface, determine the volume of the iceberg if specific gravity of sea water is 1.025. 20

SECTION – C

6. Derive the Euler's equation of motion of an ideal fluid. 20

7. Derive relation for energy and momentum thickness for boundary layer. 20

SECTION – D

8. Explain the various important dimensionless numbers and their significance. Also write the kinematic and dynamic similarity. 20

9. Explain Rayleigh's method and Buckingham theorem method for dimensional analysis. 20