2015

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(Revision 2015)

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE –APRIL 2018.

FLUID MECHANICS

(Maximum Marks : 100) Time : 3 Hrs

PART–A
(Maximum marks: 10) Marks

I. Answer all questions in one or two sentences. Each question carries 2 marks.

1. Define density.
2. Define static head.
3. Define form friction.
4. Define schedule number.
5. Mention the industrial applications of blower. (5X2=10)

PART - B
(Maximum Marks : 30)

II Answer any five of the following questions . Each question carries 6 marks.

1. Explain the energies of fluid in motion.
2. Explain equation of continuity of liquid flow.
3. Classify the flow measuring instruments.
4. Describe the working of rotameter.
5. Differentiate between pipes and tubes.
6. Explain the uses of elbow and reducer with neat sketch.
7. Explain the working of steam jet ejectors. [5x6 =30]

PART - C
(Maximum marks : 60)
(Answer one full question from each unit. Each full question carries 15 marks)

UNIT I

III (a) Find the kinematic viscosity of an oil having density 981 kg/m^3 . The shear stress at a point in oil is 0.2452 N/m^2 and the velocity gradient is 0.2m/sec. (7)

(b) Explain Newton's law of viscosity classification of fluids based on this law. (8)

OR

IV (a) Explain the determination of viscosity of oil using Redwood viscometer. (7)

(b) A fluid of density 0.9g/cm^3 and viscosity 0.1 poise in flowing through a pipe line of diameter 5 cm at the rate of 1 L/minute. Find whether the flow is viscous or turbulent. (8)

UNIT- II

V (a) Explain the advantages and disadvantages of venturimeter. [7]

(b) A venturimeter is installed in a pipeline for the measurement of flow rate of water. The pressure drop across the throat and upstream of meter is 10 cm of Hg. Calculate the volumetric flow rate of water in m^3/sec. Diameter of throat is 15 mm and diameter of pipe is 25mm and CV is 0.98. [8]

OR

VI (a) Differentiate between orifice meter and venturimeter. [7]

(b) Water is flowing at a rate of 500cm^3/sec through an orifice of 25mm diameter situated in 75mm diameter pipe. What will be the difference in level on a mercury manometer connected across the meter. Coefficient of meter is 0.65. [8]

UNIT- III

VII (a) Classify valves according to their functions. [7]

(b) Describe globe valve with neat sketch. [8]

OR

VIII (a) Describe working of ball valve with figure. [8]

(b) Explain flanged pipe fittings with figure. [7]

UNIT – IV

IX (a) Explain different types of reciprocating pump. [7]

(b) Explain Nash Hytor with a neat sketch. [8]

OR

X (a) Explain principle of operation of a plunger pump. [7]

(b) Explain the terms cavitation and priming in centrifugal pump. [8]

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