

- Q.30 Explain both friction loss from sudden enlargement and contraction with diagram.
 - Q.31 Describe the construction and working principle of a inclined-tube manometer.
 - Q.32 Differentiate between laminar and turbulent flow with diagram ?
 - Q.33 Describe the working principle of a reciprocating pump , Include an explanation of the suction and discharge strokes, the role of valves, and how pressure is generated in reciprocating pump.
 - Q.34 Describe about the Rotatameter.
 - Q.35 Explain anyone type valve with diagram.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain the operating principle of an orifice meter in fluid flow measurement. Discuss the equations and coefficients involved in calculating flow rate using an orifice plate.

Q.37 Derive the Hagen poiseulli's equation .

Q.38 Write short note on any of three :-

 1. Properties of fluid
 2. Rayleigh's method
 3. Effect of roughness in pipes
 4. NPSH
 5. Colour coding of industrial piping

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3rd Sem / Chem, P&P, Chem Engg. (Spl. Paint Tech.), Chem Engg. (Spl. Polymer Engg.)

Time : 3 Hrs. Subject:- Fluid Flow M.M : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 The Reynolds number is used to determine:

 - Flow rate in a pipe
 - Fluid density
 - Whether flow is laminar or turbulent
 - Pressure drop in a pipeline

Q.2 When the velocity of a fluid increases, what happens to its kinetic energy, according to Bernoulli's principle?

 - It decreases
 - It remains constant
 - It increases
 - It becomes zero

Q.3 What type of valve is characterized by a circular disk that rotates to control the flow of fluid?

 - Globe valve
 - Gate valve
 - Butterfly valve
 - Ball valve

Q.4 Which factor plays a significant role in determining the frictional losses in a pipe system?

 - Pipe length
 - Pipe diameter
 - Pipe material
 - Pipe colour

- Q.5** In a venturi tube, as the cross-sectional area decreases, what happens to the fluid velocity and pressure, according to bernoulli's principle?
- Velocity increases, Pressure decreases
 - Velocity decreases , Pressure increases
 - Velocity and Pressure remain constant
 - Velocity and Pressure become zero
- Q.6** Which type of fluid machinery is primarily designed to increase the pressure of a fluid ?
- Turbine
 - Pump
 - Compressor
 - Heat exchanger
- Q.7** What is the primary parameter used to characterize laminar flow in a pipe ?
- Reynolds number
 - Mach number
 - Froude number
 - Weber number
- Q.8** What is the typical unit of measurement for flow rate in the international system of units (SI) ?
- Cubic feet per second (cfs)
 - Gallons per minute (gpm)
 - Cubic meters per hour (m^3/h)
 - Liters per second (L/s)
- Q.9** The parts of the venturi meters are
- Convergent section
 - Divergent section
 - Throat
 - All of above
- Q.10** Which type of flow is characterized by a constant fluid density but varying velocity and pressure with time and position ?
- Incompressible flow
 - Steady flow
 - Compressible flow
 - Viscous flow

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SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Define the terms "Viscosity"
- Write formula of continuity equation?
- What distinguish a Newtonian fluid?
- Define pump head .
- What's the opposite of laminar flow?
- Name any one pump used in industry .
- What is the purpose of a check valve ?
- What is hydrostatic law
- Write one application of blower ?
- Write one use of fluid.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Write down about pascal law
- Explain bernoulli's theorem with assumptions
- Write a note on flow nozzle and pitot tube .
- Draw and explain friction factor chart.
- What is meant by compressible flow , and when does it become significant ?
- Derive the equation for fanning friction fraction equation ?
- Explain a comprehensive overview of centrifugal pumps, including its working principle .
- Difference between schedule number , ID and OD of pipe .
- Explain the working principles of U-tube and inclined -tube manometers with their applications.

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