



ME 303 (AE 303)

III Semester Diploma (Mechanical/Automobile) Examination, February 2011
FLUID MECHANICS

Time : 3 Hours

Max. Marks : 75

Instructions : 1) Answer **all** questions in Part – A and **either** (a) or (b) of **each** question in Part – B.
2) **Each** question carries **1 (one)** mark in Part – A and **12 (twelve)** marks in Part – B.

PART – A

(15×1=15)

1. Define specific gravity of liquid.
2. Why a heavy liquid such as mercury is preferred as manometer liquid ?
3. Mention any two applications of Pascal's law.
4. What is meant by laminar flow ?
5. State the Bernoulli's theorem.
6. What is an orifice ?
7. What is meant by impact of jet ?
8. Why priming is important in centrifugal pumps ?
9. What is a draft tube ?
10. What is the function of lubricators in pneumatic system ?
11. State the use of shuttle valve in pneumatic circuit.
12. The filter element is made of _____ in the form of wire mesh.
13. How the hydraulic pumps are classified ?
14. In milling machine forward movement of the table takes _____ time.
15. Draw the symbol of check valve used in hydraulic system.

P.T.O.



PART – B

(5×12=60)

16. a) A gauge fitted to a gas cylinder, records a pressure of 19 kN/m^2 vacuum. Compute the corresponding absolute pressure in :
- a) kN/m^2 and
 - b) In 'm' of water. The local atmospheric pressure is 750 mm of mercury.

OR

- b) Explain simple U tube manometer with a neat sketch.
17. a) Explain the construction of Venturimeter with a neat sketch.

OR

- b) A pipe 300 m long has a slope of 1 in 100 tapers from 1.5 m diameter at the higher end and 0.625 m diameter at the lower end. The discharge of water through the pipe is 100 litres/s. If the pressure at the higher end is 110 kN/m^2 , find the pressure at the lower end neglecting friction.
18. a) A jet of water strikes a fixed plate with a velocity of 25 m/s. at an angle of 60° to the plate. The diameter of the jet is 40 mm. Find the force on the plate. Also determine the power of the jet.

OR

- b) Explain the construction and working of centrifugal pump with a neat sketch.
19. a) Briefly explain the working of check valve, shuttle valve and quick exhaust valve.

OR

- b) Explain the FRL unit with a neat sketch.
20. a) With a neat sketch explain the hydraulic circuit of shaping machine.

OR

- b) Write short notes on elements of hydraulic system and axial piston pump.
- _____