

MEM33 - Fluid Mechanics x Fluid Power

224

REG. NO

OCTOBER 2021

Time: Three hours

Maximum Marks: 75

- Note:
1. Answer ALL the questions in PART-A (1 mark each)
 2. Answer any ONE question from each unit in PART-B (3 marks each)
 3. Answer any ONE question from each unit in PART-C (10 marks each)
 4. The question paper contains TWO Pages

PART-A (1x10=10)

1. Define specific gravity.
2. What is the use of hydraulic press?
3. State Pascal's law.
4. Draw the ISO symbol of 5/3 DCV.
5. Where is a reciprocating pump suitable?
6. Differentiate plunger and piston pumps.
7. What is an F - R - L Unit?
8. Draw the ISO symbol of 4/3 DCV used in a pneumatic circuits.
9. Name of the basic components required in pneumatic system.
10. List few machines using hydraulic intensifier.

PART-B (3x5=15)

UNIT-I

11. Define the terms : a) Viscosity (b) Cohesion (c) Adhesion
12. Differentiate gauge, vacuum and atmospheric pressures.

UNIT-II

13. Define hydraulic gradient line and total energy line.
14. Mention any three minor losses that occur in flow through pipe.

UNIT-III

15. Mention the main components of reciprocating pump.
16. List the main parts of jet pump.

UNIT-IV

17. Explain the function of quick exhaust valve.
18. State any three applications of hydraulic system.

UNIT-V

19. State any three advantages of hydraulic system.
20. What are the objectives of adding additives to pneumatic?

UNIT-I

21. Explain the hydraulic press with a neat sketch.
22. Explain Bourdon's tube pressure gauge with a neat sketch.

UNIT-II

23. The difference of heads between the two ends of a pipe 400m long and 480 mm. diameter is 1.5m. Taking Darcy's Constant as 0.04 and neglecting minor losses, find the discharge through the pipe.
24. Derive the Darcy's formula for loss of head due to friction.

UNIT-III

25. Explain with a neat sketch the working principle of double acting pump.
26. Describe the working of a jet pump with neat sketch

UNIT-IV

27. What are the various elements of a pneumatic system?
28. Draw and explain the circuit diagram for the operation of double acting cylinder with metering-in-control.

UNIT-V

29. Explain the working of a spring loaded accumulator with a neat sketch.
30. Draw the hydraulic circuit diagram with ISO symbols for the table movement of a surface grinding machine.
