

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – IV • EXAMINATION – WINTER 2012****Subject code: 142302****Date: 28/12/2012****Subject Name: Plastic Industrial Hydraulics and Pneumatics****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Fill in the blanks: **07**
1. _____ is the measure of the fluid's resistance to flow.
 2. The main function of the reservoir in a hydraulic system is _____.
 3. Hydraulic cylinders are _____ (Linear/Angular) actuators.
 4. Check valve is a _____ directional valve.
 5. Centrifugal pumps are _____ displacement pumps.
 6. In axial piston pumps, the piston reciprocates _____ to the axis of rotation of the cylinder block.
 7. Symbol for pneumatic Flow _____.
- (b)** State Pascal's law. What are the advantages & disadvantages of hydraulic systems? **07**
- Q.2 (a)** Classify Hydraulic Pumps and explain about Piston pumps. **07**
- (b)** Define: Displacement; Volumetric efficiency; Pump rating of Hydraulic pumps; Actuator; Intensifier. **07**
- OR**
- (b)** Discuss about L-shaped Reservoir. **07**
- Q.3 (a)** What are the three methods of applying flow control valves? Explain about any one. **07**
- (b)** Explain about Bypass type pressure compensated flow control. **07**
- OR**
- Q.3 (a)** What is a check valve? Discuss about different types of check valves. **07**
- (b)** Explain about pilot operated Relief valve. **07**
- Q.4 (a)** What is an Accumulator? Explain about different types of Accumulators. **07**
- (b)** Explain about Servo valves. **07**
- OR**
- Q.4 (a)** Explain the working of single stage reciprocating compressor. **07**
- Q.4 (b)** What is the working principle & applications of FRL unit? **07**
- Q.5 (a)** Draw the symbols for the following Hydraulic Elements: Reservoir; Pressure Relief Valve; Sequence valve; Pressure reducing valve; Check valve; Mechanically activated four way valve. **07**
- (b)** Discuss clamp close control circuit of Injection Moulding machine. **07**
- OR**
- Q.5 (a)** What are applications of Pneumatics in Plastic Processing Equipments? **07**
- (b)** What is Principle of Hydraulic Jack? Explain about gear pump. **07**
