

**GUJARAT TECHNOLOGICAL UNIVERSITY****ME – SEMESTER –II-(New)-EXAMINATION – SUMMER-2019****Subject Code: 3720823****Date: 30/05/2019****Subject Name: Oil Hydraulics and Pneumatics****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

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

- Q.1** (a) Name and explain the properties of hydraulic oil used in a hydraulic system. **07**  
(b) Explain the difference between Hydraulics System and Pneumatics system. State basic components of it. **07**
- Q.2** (a) Classify the types of hydraulic cylinders. Describe the working of a double acting tandem cylinder and gear motor. **07**  
(b) Explain the working of “Pilot operated, 4 x 3 DCV with the neat sketch. **07**
- OR**
- (b) How speed control is achieved in Pneumatic systems? Explain fixed flow and variable flow control valve. **07**
- Q.3** (a) Explain PLC Controller with neat sketch. **07**  
(b) With the help of neat sketch, explain the principle and working of Shuttle valve (OR gate) and Twin Pressure valve (AND gate). **07**
- OR**
- Q.3** (a) Draw and explain the working of ‘Regenerative circuit’ for achieving the same speed of double acting cylinder in both strokes. **07**  
(b) Give ISO/ANSI symbol of following. **07**
1. Hydraulic motor
  2. Single acting cylinder with spring return actuator
  3. 3/2 DCV
  4. Pressure Relief Valve
  5. Variable flow control valve
  6. Spring-loaded accumulator
  7. Air filter
- Q.4** (a) Explain and draw Pneumatic circuit using Quick Exhaust valve. **07**  
(b) Explain the working of axial in-line swash plate pump with neat sketch. **07**
- OR**
- Q.4** (a) Explain Cascading method for sequencing. **07**  
(b) Discuss the significance of the FRL unit and draw its symbol. **07**
- Q.5** (a) Explain hydraulic lift with its equivalent circuit used. **07**  
(b) List the different types of the accumulator and draw the symbol of a hydraulic accumulator. Describe the working of any one of them. **07**
- OR**
- Q.5** (a) Explain with neat sketch working of Ram type actuators and Telescopic type actuators. **07**  
(b) Describe working of the Flapper nozzle valve. Explain the application of it with the help of a suitable neat sketch. **07**

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