

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-IV (OLD) - EXAMINATION – SUMMER 2017**

**Subject Code: 142302****Date: 06/06/2017****Subject Name: Plastic Industrial Hydraulics and Pneumatics****Time: 10:30 AM to 01:00 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) What is a positive displacement pump? Explain about working of an external gear pump with the help of a sketch. **07**
- (b) State Pascal's Law. In the hydraulic jack, a force of 1KN is exerted on the small piston. The area of small piston is 100cm<sup>2</sup>, and the area of large piston is 1000cm<sup>2</sup>. Determine the upward force on the large piston. **07**
- Q.2** (a) Explain different seal materials. **07**
- (b) Explain the classification of pressure control valves with their symbols. **07**
- OR**
- (b) What is the purpose of Heat Exchanger? What is the difference between Static & dynamic seal? Why are backup rings used with O-rings? **07**
- Q.3** (a) What is the function of Unloading valve? Explain about working of unloading valve. **07**
- (b) What is an accumulator? Explain about working of Spring loaded accumulator. **07**
- OR**
- Q.3** (a) What are the types of check valves? Explain in-line check valve with neat sketch. **07**
- (b) What is the purpose of sealing devices? What are the common types of seals? Explain the function of each type. **07**
- Q.4** (a) Differentiate: Filter and Strainer. Explain about maintenance of Hydraulic oil. **07**
- (b) Draw the symbols for the following hydraulic elements: **07**
- i) Variable displacement pump, ii) Cylinder double acting, iii) Check valve, iv) Filter, v) Intensifier, vi) Electrical Motor, vii) Pressure reducing valve.
- OR**
- Q.4** (a) Explain about the working of one-way direction control valve. **07**
- (b) Explain about working Principle & construction of FRL Unit. **07**
- Q.5** (a) Define compressor. What are the different types of compressor? Explain about any one. **07**
- (b) What is the purpose of pressure intensifier? What are the applications of pressure intensifier in Hydraulic systems? **07**
- OR**
- Q.5** (a) Define i) Displacement of a pump, ii) Rating of a Pump, iii) volumetric efficiency of a pump. **07**
- (b) Explain the classification of flow control valves with their symbols. **07**

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