

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2017

Subject Code: 2171912

Date: 07/11/2017

Subject Name: Oil Hydraulics and Pneumatic(Department Elective - I)

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.

		MARKS
Q.1	(a) Draw the general layout of hydraulic system. Explain the function of each component.	03
	(b) Draw the symbols of pressure reducing valve & pressure relief valve used in hydraulic system.	04
	(c) Give the classification of Pumps. Sketch & Explain working of internal gear pump.	07
Q.2	(a) Distinguish between Hydraulic system & Pneumatic system.	03
	(b) Sketch & Explain the working of Ge- rotor pump.	04
	(c) Give ISO/ANSI symbol of following.	07
	1. Unidirectional fixed displacement hydraulic pump	
	2. Single acting cylinder with spring return	
	3. 4/3 DCV	
	4. FRL unit	
	5. Variable restriction flow control valve	
	6. Spring loaded accumulator	
	7. Air filter	

OR

	(c) Explain hydro dynamic Transmission & Hydro static Transmission.	07
Q.3	(a) Draw speed controlled actuator, Meter- out circuits for DAC for extension.	03
	(b) Draw general layout of pneumatic system & write function of each components.	04
	(c) What do you mean by pressure relief valve? sketch & explain with neat sketch the working of pilot operated pressure relief valve (Compound Relief valve)	07

OR

Q.3	(a) Sketch & explain shuttle valve construction & its working.	03
	(b) List the Power loss in flow control circuits & explain in detail.	04
	(c) Draw the hydraulic circuit for Drilling machine & explain its working.	07

- Q.4** (a) Explain 4/3 sliding spool direction control valve working. **03**
- (b) Write a note on thermocouple type temperature sensor **04**
- (c) Bleed off Circuits – sketch & explain its working. **07**

OR

- Q.4** (a) List the electric devices used in the control of fluid power system. **03**
- (b) What do you mean Automation? Give classification of Automation. **04**
- (c) Sketch & explain Pneumatic Circuit using Quick Exhaust valve. **07**
- Q.5** (a) What is an actuator? Give the classification of hydraulic actuators. **03**
- (b) Draw Pneumatic circuit for operating DAC by 4/3 DCV. **04**
- (c) Draw Symbol of filter & explain the working of by-pass type filter **07**

OR

- Q.5** (a) Draw Throttle-out circuits for extension stroke for pneumatic system. **03**
- (b) If diameter of piston is 60 mm, diameter of piston rod is 10 mm, & air pressure is 100 N/mm^2 , what will be the force in advance stroke & return stroke. **04**
- (c) Describe Working of sequence valve with neat sketch & draw its symbol **07**
