Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2171912 **Date: 19/11/2018**

Subject Name: Oil Hydraulics & 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.**

			MARKS
Q.1	**(a)**	Draw the general layout of hydraulic system. Explain the function of each component.	**03**
	(b)	Define Control Valve. List the different types of control valves.	**04**
	(c)	Give the classification of Pumps. Sketch & Explain working of Rotary Vane type of pump.	**07**
Q.2	**(a)**	Write application of Hydraulic system & Pneumatic system.	**03**
	(b)	Sketch & Explain the working of Ge- rotor pump with neat sketch.	**04**
	(c)	Give ISO/ANSI symbol of following. 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	**07**
		OR	
	(c)	Explain working of axial in line swash plate pump with neat sketch.	**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 is the function of pressure Reducing Valve? sketch & explain with neat sketch the working of pressure reducing valve	**07**
		OR	
Q.3	**(a)**	Sketch & explain Counter Balance valve construction & its working.	**03**
	(b)	List the Power loss in flow control circuits & explain in detail.	**04**
	(c)	Explain One Industrial application of hydraulic circuit with neat sketch.	**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? Draw hydraulic system operating double acting actuator with 3/2 DCV	**03**

	(b)	Describe Working of twin pressure valve with neat sketch & draw its symbol	**04**
	(c)	Draw Symbol of filter & explain the working of by-pass type filter	**07**

OR

Q.5	**(a)**	Explain Cascading Method for sequencing.	**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)	Draw Pneumatic circuit for operating DAC by 4/3 DCV.	**07**

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