Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2024

Subject Code:2171912 Date:07-12-2024

Subject Name: Oil 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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Write application of Hydraulic system & Pneumatic system.	**03**
	(b)	Define function of Control Valve. List the different types of control valves Hydraulic system.	**04**
	(c)	Distinguish between Hydraulic system & Pneumatic system.	**07**
Q.2	**(a)**	Define following properties of hydraulic fluid (1) Bulk Modulus (2) Demulsibility (3) Flash Point	**03**
	(b)	Compare positive displacement pump and non-positive displacement pump	**04**
	(c)	Classify actuators. Explain construction and working of double acting linear actuator with neat sketch.	**07**
		OR	
	(c)	Give ISO/ANSI symbol of following (1) Pilot operated pressure relief valve (2) Flow control valve (3) Air filter (4) Single acting cylinder with spring return actuator (5) 4/3 directional control valve (6) 2/2 push button direction control valve (7) Spring loaded accumulator	**07**
Q.3	**(a)**	State different types of Accumulator. Explain one in detail.	**03**
	(b)	Draw the general layout of hydraulic system. Explain the function of each component.	**04**
	(c)	Give the classification of Pumps. Sketch & Explain working of Axial pump	**07**
		OR	
Q.3	**(a)**	Explain 'cushioning' of pneumatic cylinder	**03**
	(b)	Draw the general layout of Pneumatic system. Explain the function of each component.	**04**
	(c)	Draw the detailed symbol of FRL unit. Explain all component of the same in detail	**07**
Q.4	**(a)**	What are the advantages of pilot operated valve over simple valve?	**03**
	(b)	What do you mean Automation? Give classification of Automation	**04**
	(c)	What is an actuator? Draw hydraulic system operating double acting actuator with 3/2 DCV	**07**
		OR	
Q.4	**(a)**	What is the function of pressure Reducing Valve?	**03**
	(b)	Bleed off Circuits – sketch & explain its working.	**04**
	(c)	Draw and explain a hydraulic circuit for a punching operation using intensifier.	**07**
Q.5	**(a)**	Draw and explain logic OR valve for pneumatic system.	**03**
	(b)	Draw and explain speed-controlled actuator, Meter- out circuits.	**04**
	(c)	Explain One Industrial application of hydraulic circuit with neat sketch.	**07**
		OR	
Q.5	**(a)**	Draw a circuit for control of single acting spring return hydraulic cylinder.	**03**
	(b)	Draw Pneumatic circuit with 3/2 valve DCV & Single acting Cylinder and explain application of it.	**04**
	(c)	Sketch & explain Counter Balance valve construction & it's working.	**07**

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