Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– V EXAMINATION – SUMMER 2026

Subject Code:3151913 Date:21-05-2026

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Draw the symbol of (1) Bi-directional variable displacement pump (2) Pressure relief valve (3) 4/3 directional control valve.	**03**
	(b)	State the Pascal's law and explain Bramah's press principle.	**04**
	(c)	Compare: Hydraulic system with Pneumatic system.	**07**
Q.2	**(a)**	Write desirable properties of hydraulic oil.	**03**
	(b)	Why the Fluid Power System is called muscle of industry?	**04**
	(c)	What is purpose of filter in hydraulic system? Explain any two filter with purpose and location in hydraulic system.	**07**
		OR	
	(c)	Write short note on classification of hydraulic fluid and briefly explain fire resistance fluids.	**07**
Q.3	**(a)**	What is positive displacement pump? Write its advantages.	**03**
	(b)	Draw basic circuit for control of double acting cylinder.	**04**
	(c)	List different pressure control valves giving its application. Explain construction and working of any one in detail with the help of neat sketch.	**07**
		OR	
Q.3	**(a)**	Which are the sources of heat generation in hydraulic system?	**03**
	(b)	Classify DCV according to method of actuation.	**04**
	(c)	Classify the pumps used for the hydraulic system and explain external and internal gear pump with neat sketches.	**07**
Q.4	**(a)**	Describe the cushioning in brief	**03**
	(b)	Write a short note on the Twin pressure and Quick Exhaust valve.	**04**
	(c)	Cite the classification of check valves and explain the function of pilot-operated check valve, giving the necessary drawing.	**07**
		OR	
Q.4	**(a)**	Classify air compressors. Write a short note on selection criteria of compressor.	**03**
	(b)	Draw a circuit for operation of single acting pneumatic cylinder using push button operated 3/2 DC valve.	**04**
	(c)	Give difference between Meter-in and Meter-out circuit.	**07**
Q.5	**(a)**	Which are the different logics can be used in pneumatic circuit design?	**03**
	(b)	Which are the different control members in control chain?	**04**
	(c)	Develop and explain hydraulic sequential circuit to operate two double acting cylinders.	**07**
		OR	
Q.5	**(a)**	Describe advantages and disadvantages of automation in fluid power system	**03**
	(b)	Give classification of automation in industry. Discuss the role of automation in hydraulic and pneumatic industry	**04**
	(c)	Develop pneumatic circuit for OR logic.	**07**

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