Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– IV • EXAMINATION – SUMMER 2015

Subject Code: 741101 **Date: 01/05/2015**

Subject Name: Hydraulic and Pneumatic Systems in Automotive Vehicles

Time: 2:30 pm to 5:00 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)**	Discuss the advantages of fluid power systems. State the hydraulic fluid functions.	**07**
	(b)	Compared three systems hydropneumatics, hydraulic and pneumatic in tabular form.	**07**
Q.2	**(a)**	Classify the hydrostatic pumps. Explain working of lobe pump with sketch.	**07**
	(b)	Function of hydraulic actuators with its types. Explain cylinder cushioning with sketch.	**07**
		OR	
	(b)	Discuss the special type cylinders used in hydraulic system with sketch.	**07**
Q.3	**(a)**	Enlist various types of hydraulic valves. Explain working of pressure reducing valve.	**07**
	(b)	Discuss the location of flow control valves in circuit.	**07**
		OR	
Q.3	**(a)**	Discuss the importance of seals and filters in hydraulic systems. Explain any one filter with sketch.	**07**
	(b)	Discuss the importance of accumulators in circuit. Classify accumulators and explain working of any one with sketch.	**07**
Q.4	**(a)**	Compared between proportional valves and servo valves. Explain working of proportional pressure relief valve.	**07**
	(b)	Importance of FRL in pneumatic system. Also discuss the selection criteria of FRL in system.	**07**
		OR	
Q.4	**(a)**	Draw and explain basic pneumatic system. Discuss role of mufflers with sketch.	**07**
	(b)	Discuss the PLC construction with its advantages.	**07**
Q.5	**(a)**	Discuss maintenance of pneumatic system. Explain tree-branching chart used for maintenance.	**07**
	(b)	Explain working and functions of fluid reservoir. List the empirical rules for sizing reservoirs.	**07**
		OR	
Q.5	**(a)**	Discuss the selection of hydraulic conduits. Explain pressure losses in system.	**07**
	(b)	Discuss the research and development in hydraulic and pneumatic system in today era. List out applications of fluid power.	**07**

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