Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII EXAMINATION – WINTER 2015

Subject Code: 180204 **Date: 12/12/2015**

Subject Name: Automotive Hydraulics & Pneumatics

Time: 2:30pm to 5:00pm **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)**	State the basic advantages of hydraulic system over pneumatic system.	**07**
	(b)	Draw symbols for following hydraulic elements. a) Pressure relief valves b) 5/2 Diretional control valve c) Sequence valve d) Double acting cylinder e) Throllte valve f) quick exhaust valve g) shut off valve	**07**
Q.2	**(a)**	Draw and explain constructional features of a 5/3-direction control valve of linear type along with its graphical symbol.	**07**
	(b)	Explain with a neat sketch the working of gear pump and its applications.	**07**
		OR	
	(b)	Explain typical hydraulic circuit with neat sketch.	**07**
Q.3	**(a)**	Draw meter in and meter out circuit with symbols.	**07**
	(b)	Draw a signal inversion circuit.	**07**
		OR	
Q.3	**(a)**	Write short note on Hydraulic power steering with neat sketch.	**07**
	(b)	What are the requirements of Pressure control valve? Explain Pressure reducing valve with neat sketch.	**07**
Q.4	**(a)**	How can you classify the pneumatic actuators? How do hydraulic actuators differ from pneumatic actuators?	**07**
	(b)	Describe hydro-pneumatic air suspension with neat diagram.	**07**
		OR	
Q.4	**(a)**	List pneumatic sensors and logic gates and explain it.	**07**
	(b)	List common causes of pneumatic system breakdown and suggest remedies.	**07**
Q.5	**(a)**	Write short note on air motor.	**07**
	(b)	Enlist the various faults, probable causes and also their remedial action for the following pneumatic system components 1. Compressor 2. Air cylinder 3. FRL unit 4. Pipe line	**07**
		OR	
Q.5	**(a)**	Why pneumatic system selected for factory automation? Explain in brief elements of pneumatic system.	**07**
	(b)	Explain typical mechanism of pneumatic system with its elements.	**07**

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