Seat No.: _____ Enrollment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER VIII– • EXAMINATION – SUMMER-2015

Subject Code: 180204 **Date:05/05/2015**

Subject Name: Automotive Hydraulics and Pneumatics

Time:10.30AM-01.00PM **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)**	(i) Compare Hydraulic system with Mechanical system in context to a) Power to Weight Ratio b) Speed Control c) Overload Safe Protection (ii) Telescopic Cylinder is considered as suitable choice for Dump Truck. Justify the statement.	**07**
	(b)	Explain with neat sketch Regenerative Hydraulic Circuit.	**07**
Q.2	**(a)**	Give Hydraulic/Pneumatic symbols for Following. 1) Back Pressure Valve 2) Unloading Valve 3) Uni-Directional Motor 4) 4/3 Direction Control Valve-Closed Centre, Solenoid Operated 5) Shuttle Valve 6) Twin Pressure Valve 7) Hydrostatic Transmission	**07**
	(b)	Explain Properties of Hydraulic Oil in details.	**07**
		OR	
	(b)	Explain Pneumatic Suspension System of Modern Automobile with schematic diagram.	**07**
Q.3	**(a)**	With neat sketch explain the construction and operation of Pressure Relief Valve.	**07**
	(b)	Develop Hydraulic Circuit for Automatic Cylinder Reciprocating System.	**07**
		OR	
Q.3	**(a)**	Explain operation of Time Delay Valve with neat sketch.	**07**
	(b)	Develop Pneumatic Circuit to control Double Acting Pneumatic Cylinder with 5/2 DCV.	**07**
Q.4	**(a)**	Explain with neat sketch 2 Stage Pilot Operated Spool Servo valve.	**07**
	(b)	Explain Spool type 4/3 Direction Control Valve with neat sketch.	**07**
		OR	
Q.4	**(a)**	Write short note on Hydraulic Power Steering with line diagram.	**07**
	(b)	Explain FRL unit Used in Pneumatic System? State purpose and explain importance of the FRL unit.	**07**
Q.5	**(a)**	Describe with neat sketch Quick Exhaust Valve with application.	**07**
	(b)	Describe Pressure Compensated Flow Control Valve with diagram.	**07**
		OR	
Q.5	**(a)**	Explain following Logic Gates used in Pneumatic Circuit with proper application. 1) AND Gate 2) OR Gate 3) NOT gate	**07**
	(b)	List down common cause of Failure of Pneumatic System and Suggest remedy for the same.	**07**

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