Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. SEMESTER III–EXAMINATION – WINTER 2015

Subject code: 2730807 **Date: 04/12/2015**

Subject Name: OIL HYDRAULICS AND PNEUMATICS

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)**	Enlist the valves used for performing logical operations. Explain working of each of them with the help of neat sketches.	**07**
	(b)	Explain hydraulic lift with equivalent circuit.	**07**
Q.2	**(a)**	Explain PLC Controller with neat sketch.	**07**
	(b)	Explain difference between Hydraulics System and Pneumatics system and also explain main components of them.	**07**
		OR	
	(b)	State and explain the advantages and disadvantages of oil hydraulic power transmission.	**07**
Q.3	**(a)**	Explain sequence circuit with neat diagram.	**07**
	(b)	Draw the symbol FRL unit and explain its role in pneumatic system.	**07**
		OR	
Q.3	**(a)**	Explain Control system for thermal power plant with neat sketch.	**07**
	(b)	Explain difference between a simple solenoid valve and proportional valve and write short note on working of a proportional valve with the help of sketch.	**07**
Q.4	**(a)**	What are the functions of Hydraulic fluid? State various properties of Hydraulic fluid in detail.	**07**
	(b)	Draw the symbol of a hydraulic accumulator. List the different types of accumulator. Describe working of any one of them.	**07**
		OR	
Q.4	**(a)**	State functions of hydraulic motor with the help of suitable sketch, explain construction and operation of Gear motor, and difference between vane and gear motor.	**07**
	(b)	Why do you prefer the reciprocating pumps over rotary pumps? With the help of a neat sketch, explain the working principle of an Inline piston pump.	**07**
Q.5	**(a)**	Explain application of Flapper nozzle valve with the help of suitable neat sketch and describe working of the system.	**07**
	(b)	What is the purpose of a pressure relief valve? How does a pressure relief valve work? Explain with the help of a neat schematic diagram, the construction and working of the pressure relief valve.	**07**
		OR	
Q.5	**(a)**	What is servo motor system? State its one practical application. Explain function of its components and compare servo valve with direction control valve.	**07**
	(b)	How speed control is achieved in Pneumatic systems? Explain fixed flow and variable flow control valve.	**07**

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