Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (New) EXAMINATION – WINTER 2015

Subject Code:2142302 **Date:30/12/2015**

Subject Name: INDUSTRIAL HYDRAULICS AND 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)**	(1) The total force exerted on a unit area is called _____ (2) Work is done when object is moved against _____ (3) Which are the three forms of energy that found in oil hydraulic system? (4) _____ seal is used to prevent the leakage of liquids and gases between parts that are not moving. (5) What is the function of Pilot operated check valve? (6) Define: cracking pressure (7) Define : Proportional Valves	**07**
	(b)	Define Pascal's law in detail with application of it in the field of Plastics processing.	**07**
Q.2	**(a)**	Explain in brief about Filters, Strainer and reservoir.	**07**
	(b)	What is a positive displacement pump? Explain about working of external gear pump with help of sketch.	**07**
		OR	
	(b)	Explain basic properties of required for Hydraulic oil used in Injection Molding.	**07**
Q.3	**(a)**	List the different types of directional control valves used in Injection molding machine. Explain about Two way valve in detail.	**07**
	(b)	Explain working of Pilot operated check valve with neat sketch.	**07**
		OR	
Q.3	**(a)**	Describe the operation of compound pressure relief valve.	**07**
	(b)	Explain pressure compensated flow control valve in detail with application.	**07**
Q.4	**(a)**	Define Accumulator. List the types of accumulator. Explain about weight loaded accumulator in detail.	**07**
	(b)	What is Pressure Intensifiers? Explain single stage pressure intensifiers.	**07**
		OR	
Q.4	**(a)**	What is servo valve? List types of servo valve and explain any one in detail.	**07**
	(b)	Explain principal and working of single stage air compressor with neat sketch.	**07**
Q.5	**(a)**	What is the working principle of FRL unit? What are the application of FRL units?	**07**
	(b)	Draw the symbol of following: (1) Cylinder, single acting (2) Check valve (3) Two way valve (4) Accumulator, Gas charged (5) Filter (6) Temperature gauge (7) Electric motor	**07**
		OR	
Q.5	**(a)**	Draw and explain deceleration circuit.	**07**
	(b)	Compare: Hydraulic with Pneumatics.	**07**