

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III EXAMINATION – SUMMER 2025

Subject Code:3132305

Date:06-06-2025

Subject Name: Hydraulics & Pneumatics in Plastic Industry

Time: 02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Compare: Hydraulic with Pneumatic	03
	(b) Define Pascal's Law.	04
	Solve: In a Hydraulic Jack system Pumping Piston diameter is 50mm and force applied is 50 kg. Find out the force transmitted by Jack if Jack piston diameter is 200mm.	
	(c) List advantages and disadvantages of Hydraulic System.	07
Q.2	(a) List the ideal characteristic required for Hydraulic oil used in the Injection molding machine.	03
	(b) Define: (i) Pressure (ii) work (iii) Power (iv) Kinetic Energy.	04
	(c) Draw and explain Filtration circuit.	07
	Compare: Filter and strainer.	
	or	
	(c) Explain Gear Pump with neat sketch.	07
Q.3	(a) Draw symbol of the following: (i) Methods of operation, solenoid (ii) Maximum Pressure Relief Valve (iii) Pressure Gauge	03
	(b) Draw symbol of the following: (i) Check Valve (ii) Two way Valve (iii) Line, joining (iv) Line to Reservoir, above fluid line	04
	(c) Explain Principle, working and application of Bernoulli's theorem.	07
	or	
Q.3	(a) Draw the line diagram of Ball type inline check-valve.	03
	(b) Explain construction and working of Two-way valve with neat sketch.	04
	(c) Explain ideal characteristic of Hydraulic oil.	07
Q.4	(a) List the basic components of Pneumatic system.	03
	(b) Draw any Pneumatic circuit. Also describe function of various components.	04
	(c) Explain construction and working of Vane Pump with neat sketch.	07
	or	
Q.4	(a) Draw sectional elevation of Flow control valve.	03
	(b) Explain working of single acting Air compressor with neat sketch.	04

	(c) Explain Deceleration circuit in detail.	07
Q.5	(a) Give classification of valves with sub classification.	03
	(b) Explain application of four way valve with suitable example.	04
	(c) Explain Pilot operated check valve with neat sketch.	07
	or	
Q.5	(a) Explain in brief Reservoir used in Injection Molding Machine.	03
	(b) List the types of connectors used in the Hydraulic system. Explain in detail about Steel Pipes.	04
	(c) List and Explain about Accumulators used in Hydraulic.	07
