

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III(NEW) EXAMINATION – SUMMER 2023****Subject Code:3132305****Date:01-08-2023****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) Define (1) Hydraulics (2) Pressure (3) Work	03
	(b) Define: (1) Power (2) Heat Energy (3) Pneumatics (4) Pilot operated check valve	04
	(c) Explain Pascal's Law in details with its application in Hydraulic Industry.	07
Q.2	(a) List advantages of Hydraulics	03
	(b) List disadvantages of Hydraulics	04
	(c) Explain in detail about ideal characteristic require for Hydraulic oil.	07
	OR	
	(c) Explain in detail about Maintenance of Hydraulic oil.	07
Q.3	(a) Compare: Filter and Strainer	03
	(b) Explain about Connectors used in Hydraulic System.	04
	(c) Give detail classification of Valve. Also list the most common methods of activating valves.	07
	OR	
Q.3	(a) Draw the symbol of the following: (1) Line, passing (2) Motor, Rotary variable Displacement (3) Four way valve	03
	(b) Explain Two way valve in detail	04
	(c) Explain Deceleration circuit in detail with neat line diagram.	07
Q.4	(a) Draw pressure compensated flow control valve.	03
	(b) List the basic components of Pneumatic system.	04
	(c) Explain principle, construction and working of single stage air compressor with neat sketch.	07
	OR	
Q.4	(a) Solve: In a hydraulic jack work done by pump side piston is 100kg.cm.The volume of oil displacement by the 100 kg force applied on pump side is 10cm ³ . Calculate the force developed on the jack side and also calculate the movement of jack side piston.Area of jack side piston is 50cm ² .	03
	(b) Define Accumulators. List the types of Accumulators.	04
	(c) Explain Balanced Piston-Type pressure relief Valve.	07

- Q.5 (a)** What is Pump? Give the classification of Pump. **03**
- (b)** Draw symbol: (1) Filter or Strainer (2) check valve **04**
(3) Cylinder, Double acting (4) Reservoir, Vented
- (c)** Explain Vane pump in detail with neat sketch. **07**
- OR**
- Q.5 (a)** What is the purpose of Pressure intensifier? List the types of it. **03**
- (b)** Explain Bernoulli's principle in brief. **04**
- (c)** Draw and Explain Clamp control hydraulic circuit. **07**
