

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - VII EXAMINATION - WINTER 2025

Subject Code: 2171912

Date: 26-11-2025

Subject Name: Oil Hydraulics and Pneumatics

Time: 10:30 AM TO 01:00 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) Mention the major area of application of hydraulic system.	03
(b) Differentiate between a seat type and spool type DC valve. Which of these two types of valves are widely used? Why?	04
(c) A double acting hydraulic cylinder is to be operated from two different sources A and B such that its forward motion can be actuated from either of the two locations. Draw and explain a circuit diagram.	07
Q.2 (a) What is a check valve? Show various uses of a check valve in the hydraulic circuit.	03
(b) Write a note on Biodegradable hydraulic fluids.	04
(c) What is FRL unit? Explain any one component of FRL unit with schematic diagram	07
OR	
(c) Sketch the typical fluid reservoir and name the parts, giving their function	07
Q.3 (a) Draw the general layout of hydraulic system. Explain the function of each component.	03
(b) With neat sketch explain construction and working of push button operated spring return 3/2 DCV.	04
(c) Distinguish between Hydraulic system & Pneumatic system.	07
OR	
(a) Classify and explain hydraulic cylinders according to construction.	03
(b) Define Control Valve. List the different types of control valves.	04
(c) Explain One Industrial application of hydraulic circuit with neat sketch.	07
Q.4 (a) List out various accessories of reservoirs.	03
(b) Write Short notes on: 1. Ram type actuators 2. Telescopic type actuators	04
(c) Sketch & explain Counter Balance valve construction & it's working.	07
OR	
(a) Give difference between throttle valve and flow control valve.	03

- (b) What are the causes and effects of heat generation in hydraulic system? 04
- (c) Classify the pumps used for the hydraulic system and explain external and internal gear pump with neat sketches. 07
- Q.5** (a) Explain different types of fire resistance hydraulic fluid. 03
- (b) With neat sketch explain working and construction of balanced vane pump. 04
- (c) Draw and explain Meter-in, Meter out and By-pass speed control circuits. Also differentiate among them. 07

OR

- (a) What is meant by positive displacement pump? Classify the same. 03
- (b) What do you mean Automation? Give classification of Automation 04
- (c) What is the purpose of filter in hydraulic system? Where it is located in hydraulic circuit? What is the significance of location of filter? 07
