Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–V • EXAMINATION – SUMMER • 2014**

**Subject Code: 153401 Date: 11-06-2014**

**Subject Name: Applied Hydraulics and Pneumatics**

**Time: 10.30 am - 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.**

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|---|---|---|---|
| **Q.1** | **(a)** | State the basic advantage and disadvantage of a hydraulic system? Differentiate between mass, weight and force. | **07** |
| | **(b)** | State and explain the various properties of hydraulic oil. What are selection criteria of oils for a given hydraulic system? | **07** |
| **Q.2** | **(a)** | What is Pump ripple? Explain construction and working of double acting cylinder with neat sketch. | **07** |
| | **(b)** | State the role of a pump in a hydraulic system. What is positive displacement pump? Why is it called 'Positive' displacement? | **07** |
| | | **OR** | |
| | **(b)** | Classify hydraulic motors. Explain construction and working of any one with neat sketch. | **07** |
| **Q.3** | **(a)** | State various types of hydraulic valves. What is a direction control valve? Why is it needed in a hydraulic system? | **07** |
| | **(b)** | What is meant by 4/2 DC valve? State the art of actuation of direction? Explain with example. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | What are the applications of Intensifier? Explain with any one intensifier circuit. | **07** |
| | **(b)** | What is bladder type accumulator? Explain with neat sketch. What precautions are generally taken when one uses a bladder type accumulator | **07** |
| **Q.4** | **(a)** | What are the properties of air is require in compressor? How the FRL unit works in pneumatic system. | **07** |
| | **(b)** | Explain quick exhaust valves in detail with sketch diagram. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | What is the function of Fluid power circuits? Design Pneumo hydraulic circuit with diagram. | **07** |
| | **(b)** | Explain Sequential circuit design for simple application in pneumatic systems. | **07** |
| **Q.5** | **(a)** | Explain electrohydraulic servo systems with neat sketch. | **07** |
| | **(b)** | What are the functions of proportional valve? Explain it with neat sketch. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | What are the fluidic devices? Explain with simple circuit application. | **07** |
| | **(b)** | State the various techniques used to inspect hydraulic oils. Write down the check list of fire resistant oils. | **07** |

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