Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

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

**Subject Code: 142302 Date: 20-06-2014**

**Subject Name: Plastic Industrial 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)** | Explain the purposes of hydraulic fluid and their quality requirements. | **07** |
| | **(b)** | Explain the classification of pressure control valves with their symbols. | **07** |
| **Q.2** | **(a)** | Explain different seal materials. | **07** |
| | **(b)** | Explain how the vane pumps work with neat sketch and write the advantages, limitations and applications. | **07** |
| | | **OR** | |
| | **(b)** | Explain the working principle and construction of external gear motor with the help of a neat sketch. | **07** |
| **Q.3** | **(a)** | Discuss the applications of hydraulic pumps and motors in injection moulding. | **07** |
| | **(b)** | Explain the classification of direction control valves with their symbols. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | What are the types of check valves? Explain in-line check valve with neat sketch. | **07** |
| | **(b)** | Explain the classification of flow control valves with their symbols. | **07** |
| **Q.4** | **(a)** | What is pressure intensifier? Mention its uses and explain the single stage pressure intensifier. | **07** |
| | **(b)** | Explain the construction and mechanism of electrohydraulic servo valve. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Why are accumulators used? Explain the types of accumulators with neat sketches. | **07** |
| | **(b)** | Explain the working principle of multistage compressor with neat sketch. | **07** |
| **Q.5** | **(a)** | What is FRL unit? Explain the functions of FRL units with neat sketches. | **07** |
| | **(b)** | Compare the hydraulic and pneumatic systems. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | How the mechanical type servo valve works? Explain with neat sketch. | **07** |
| | **(b)** | Draw and Explain Injection control circuit. | **07** |

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