Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**ME - SEMESTER–IV • EXAMINATION – SUMMER 2013**

**Subject Code: 741101** **Date: 14-05-2013**

**Subject Name: Hydraulic and Pneumatic Systems in Automotive Vehicle**

**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)** | What are the main components of hydraulic system? Explain in detail. | **07** |
| | **(b)** | Give the detail description of the different properties of hydraulic fluid. | **07** |
| **Q.2** | **(a)** | Classify the pneumatic cylinders and briefly explain according to construction. | **07** |
| | **(b)** | Enlist various types of hydraulic valves. How the direction control valve works? Explain its need in system? | **07** |
| | **(b)** | Differentiate air motor and electric motor in detail. | **07** |
| **Q.3** | **(a)** | What is maintenance of hydraulic system? Explain the significant points which required for maintenance. | **07** |
| | **(b)** | What is FRL unit ? Why it is required in pneumatic system? Explain | **07** |
| **Q.3** | **(a)** | What is anti lock braking system(ABS) in vehicle? How the pneumatic and hydraulic system works in this system? | **07** |
| | **(b)** | Explain the current developments in Hydraulic and pneumatic system. | **07** |
| **Q.4** | **(a)** | Draw and describe in brief various elements of Electro pneumatic system. | **07** |
| | **(b)** | Explain selection criteria for motors. | **07** |
| **Q.4** | **(a)** | Briefly explain the hydro-pneumatic suspension system | **07** |
| **Q.4** | **(b)** | Write selection criteria for air compressor in pneumatic system | **07** |
| **Q.5** | **(a)** | Short note on Hydraulic tipping mechanism. | **07** |
| | **(b)** | Explain PLC Construction | **07** |
| **Q.5** | **(a)** | Explain the function and working of hydraulic pipes in detail. | **07** |
| | **(b)** | Describe the maintenance and trouble shooting of pneumatic system. | **07** |

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