

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. Sem – IV Examination May 2011****Subject code: 741101****Subject Name: Hydraulic & Pneumatic Systems in Automotive Vehicles****Date: 16/05/2011****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.**

- Q.1** (a) Discuss the general criteria to be considered for selection of hydraulic fluids. **07**
(b) Draw and explain in brief different elements of hydraulic system. **07**

- Q.2** (a) Explain difference between hydraulic and pneumatic system. **07**
(b) Classify hydraulic motors and explain with a neat sketch the working of vane motors. **07**

OR

- (b) Explain hydraulic cylinders and write the selection criteria for it. **07**

- Q.3** (a) State the role of a pump in a hydraulic system. Classify pumps and explain with a neat sketch the working of positive displacement pump. **07**
(b) Draw and describe in brief various elements of a pneumatic system. **07**

OR

- Q.3** (a) State various types of hydraulic valves. What is direction control valve? Why it is needed in a hydraulic system? **07**
(b) Explain in brief the hydraulic pipes. **07**

- Q.4** (a) Classify air compressors. What is its function in pneumatic system? Write selection criteria for air compressors in pneumatic systems. **07**
(b) Draw and explain centrifugal air compressor. **07**

OR

- Q.4** (a) Classify air motors. Explain with a neat sketch the working of reciprocating piston type air motor. **07**
(b) Explain with a neat sketch the working of servo valve. **07**

- Q.5** (a) Explain with a neat sketch the working of power steering. **07**
(b) Draw and describe the hydro mechanical servo system. **07**

OR

- Q.5** (a) Explain construction & working of pressure regulator in a pneumatic system. **07**
(b) Define and explain actuators with a neat sketch. **07**
