Code No: RR412205 **Set No. 1**

IV B.Tech I Semester Regular Examinations, November 2005
HYDRAULIC AND PNEUMATIC CONTROL SYSTEMS
(Instrumentation & Control Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. What are the components of fluid power systems? Explain the same with a line sketch and function of each component. [16]
2. Draw single acting and double acting control system circuits with ANSI symbols and explain the same. [16]
3. (a) Write about role of in inertia loading in hydraulic systems. [6]
   (b) Write short note on: [2x5]
      i. Component effectiveness
      ii. Breakage
4. State the merits and demerits of various valve elements in a valve control system. [16]
5. Draw a Hydro-copying circuit and discuss various applications of the same in pneumatic systems. [16]
6. Explain where designers very often use accumulators. [16]
7. Explain the following.
   (a) Speed determination of hydraulic actuator. [8]
   (b) Cushion is actuator. [8]
8. What are common problems in pneumatic systems? Discuss briefly. [16]

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Code No: RR412205 **Set No. 2**

IV B.Tech I Semester Regular Examinations, November 2005
HYDRAULIC AND PNEUMATIC CONTROL SYSTEMS
(Instrumentation & Control Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Why is a pressure relief valve used in Hydraulic system? State basic types with reference to P-Q (pressure and discharge). [16]
2. Discuss the properties of Hydraulic fluids. [16]
3. Write a short note on:
   (a) Compressibility of liquid & air [6]
   (b) Component effectiveness [5]
   (c) Brakeage. [6]
4. State the merits and demerits of various valve elements in a valve control system. [16]
5. Describe directional control valves in sequencing circuits with respect to pneumatic Systems. [16]
6. Describe the role of intensifier in a hydraulic system and enlist various applications. [16]
7. Explain the following.
   (a) Pressure control [8]
   (b) Position Control [8]
8. What are pressure test points? Explain how they can be used in Hydraulic system fault finding. [16]

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Code No: RR412205 **Set No. 3**

IV B.Tech I Semester Regular Examinations, November 2005
HYDRAULIC AND PNEUMATIC CONTROL SYSTEMS
(Instrumentation & Control Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. What is an actuator? Discuss liner and rotary actuators clearly with all required neat sketches. [16]
2. Draw single acting and double acting control system circuits with ANSI symbols and explain the same. [16]
3. Write a short note on:
   (a) Compressibility of liquid & air [6]
   (b) Component effectiveness [5]
   (c) Brakeage. [6]
4. What is speed control? Explain flow through a single speed control valve with neat sketch. [16]
5. (a) Discuss the scope of electro pneumatic in modern industries. [8]
   (b) Discuss the construction of electromagnet. [8]
6. Explain where designers very often use accumulators. [16]
7. Explain the following.
   (a) Variable pump and variable motor [8]
   (b) Adjustable pump and fixed displacement motor. [8]
8. Discuss the reasons for failure of Hydraulic and pneumatic systems. [16]

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Code No: RR412205 **Set No. 4**

IV B.Tech I Semester Regular Examinations, November 2005
HYDRAULIC AND PNEUMATIC CONTROL SYSTEMS
(Instrumentation & Control Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain Rotary actuators in Hydraulic system.
   (b) Distinguish Torque -speed characteristics of hydraulic and pneumatic actuators. [8+8]
2. What are the causes of piping failures? Also give suitable remedy. [16]
3. (a) Define the following:
      i. Compressibility [2]
      ii. Inertia loading [2]
      iii. Brakeage [2]
      iv. Viscous damping. [2]
   (b) Explain the following with an example?
      i. Stiffness of Hydraulic system [4]
      ii. Stiffness of pneumatic system. [4]
4. State the merits and demerits of various valve elements in a valve control system. [16]
5. Describe directional control valves in sequencing circuits with respect to pneumatic Systems. [16]
6. What is heat flow in a hydraulic system? And state the factors, which influence the heat flow in a hydro system. [16]
7. What is meant by feedback? State and explain the methods of feed back in hydraulic systems. [16]
8. What are pressure test points? Explain how they can be used in Hydraulic system fault finding. [16]

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