Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14ME2007** | **Duration :** | **3hrs** |
| **Sub. Name :** | **FLUID POWER CONTROL ENGINEERING** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Sketch the basic pneumatic system, name the components and discuss briefly their functions. | CO1 | 8 |
| b. | Draw the symbols and brief the working of the following:   1. Pneumatics: one way flow control valve, Time delay valve and Dual pressure valve. 2. Hydraulics: Pressure relief valve, Sequence valve, and unidirectional variable displacement pump. | CO2 | 12 |
| (OR) | | | | |
| 2. | a. | Describe the construction and working of the following positive displacement pump: Radial piston pump and Unbalanced Vane Pump. | CO3 | 14 |
| b. | Find the actual delivery of the gear pump with the following specifications: Outside diameter of the gear = 80 mm, Inside diameter of the gear = 60 mm, Gear width = 20 mm, Speed of the pump = 1600 rpm, Volumetric efficiency = 88%. | CO3 | 6 |
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| 3. | a. | Discuss in detail, the construction and working of mechanical hydraulic servo valve with neat diagram. | CO3 | 10 |
| b. | List the functions of intensifier in an hydraulic circuit and discuss with one application. | CO3 | 10 |
| (OR) | | | | |
| 4. |  | Name the different types of pressure accumulators and explain the working of any four accumulators with neat sketches. | CO3 | 20 |
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| 5. | a. | Discuss the constructional details of double acting cylinder with adjustable coushining. | CO3 | 10 |
| b | Describe the working of external gear type hydraulic motor with neat sketches. | CO3 | 10 |
| (OR) | | | | |
| 6. | a. | How solenoid will work, explain with neat diagram | CO2 | 10 |
| b. | With neat diagram. Explain the working principle of relay and its circuit. | CO2 | 10 |
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| 7. | a. | Design and develop a pneumatic circuit for the sequence of A+B+A-B- | CO4 | 12 |
| b. | Illuminate concisely the working of any two fluidic sensors with neat sketches. | CO3 | 8 |
| (OR) | | | | |
| 8. | a. | With a neat sketch, explain the hydraulic circuit for reciprocating motion of surface grinding machine. | CO4 | 12 |
| b. | Draw the pneumatic circuit for OR logic. | CO4 | 8 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Discuss the working of the following pneumatic circuits:  i. Meter-in ii. Meter-out and iii. Quick exhaustValve | CO4 | 12 |
| b. | Draw the hydraulic cylinder synchronizing circuit. | CO4 | 8 |