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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **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. | Draw a basic hydraulic system, name the components and discuss briefly their functions. | CO1 | 8 |
| b. | Draw the symbols and brief the working of the following:   1. Pneumatics: Resistive valve, Pressure regulator valve and Shuttle valve. 2. Hydraulic: Sequence valve, Pressure reducing valve and Bi-directional fixed displacement pump. | CO2 | 12 |
| (OR) | | | | |
| 2. | a. | Differentiate between the fixed and variable displacement pumps. | CO2 | 14 |
|  | b. | Find the actual delivery of the gear pump with the following specifications: Outside diameter of the gear = 90 mm, Inside diameter of the gear = 70 mm, Gear width = 20 mm, Speed of the pump = 1800 rpm, Volumetric efficiency = 85%. | CO2 | 6 |
| 3. | a. | Write in detail the construction and working of mechanical hydraulic servo systems. | CO3 | 10 |
|  | b. | What is the function of intensifier and discuss with a hydraulic circuit. | CO3 | 10 |
| (OR) | | | | |
| 4. | a. | Explain the various types of pressure accumulators with neat sketches. | CO3 | 20 |
| 5. | a. | Draw the following hydraulic circuits and explain their working: (a) Synchronizing circuits (b) Counterbalance valve circuits | CO4 | 10+10 |
| (OR) | | | | |
| 6. | a. | How solenoid will work, explain with neat diagram? | CO2 | 10 |
|  | b. | What is the working principle of relay?Explain with neat diagram. | CO2 | 10 |
| 7. | a. | Design and develop a pneumatic circuit for the sequence of A+B+A-B- | CO4 | 12 |
|  | b. | Explain briefly the working of any two fluidic sensors with neat sketches. | CO3 | 8 |
| (OR) | | | | |
| 8. | a. | With a neat sketch, explain the hydraulic circuit for quick return motion of shaping machine | CO4 | 12 |
|  | b. | Draw the pneumatic circuit for AND logic. | CO3 | 8 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Explain the working of the following hydraulic circuits.  (a) Meter-in (b) Meter-out and (c) Bleed-off | CO4 | 12 |
|  | b. | Explain briefly the cylinder mounting configurations with neat diagrams | CO3 | 8 |

ALL THE BEST