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 – April/May – 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 | List the advantages of fluid power. | CO1 | 4 |
| b | Identify the essential components of pneumatic system with a neat diagram. | CO1 | 12 |
| c | Summerise the advantages of pneumatic power systems and hydraulic systems. | CO1 | 4 |
| (OR) | | | | |
| 2. | a. | Sketch and discuss the working principle for the following hydraulic pumps: (i) External gear pump (ii) Vane pump. | CO2 | 14 |
|  | b. | A pump has a displacment of 81.9cm3. The pump delivers 75.8x10-3 m3/min. at 1000 rpm at 67 bar. If the prime mover input torque is 100 Nm, determine overall, volumetric and mechanical efficiencies. | CO2 | 6 |
| 3. | a. | Draw various directional control valve spool switching mechanisms. | CO3 | 4 |
| b. | For a second class lever given in figure bleow, determine the hydraulic cylinder force required to overcome the load.  C:\Users\BABU RAO\Documents\My Scans\121212.jpg | CO3 | 6 |
| c. | Apprise the function of intensifier and discuss with a hydraulic circuit. | CO3 | 10 |
| (OR) | | | | |
| 4. |  | Describe the following hydraulic circuits:  a. Meter-out.  b. Bleed-off.  c. Regenerative Circuit.  d. One pressure accumulator circuit. | CO3 | 20 |
| 5. |  | Build the Synchronizing hydraulic circuits with  a. Series Piping  b. Tie rod cyclinders.  c. Matching Pumps.  d. Flow Control Valves  e. Flow dividing Motors. | CO4 | 20 |
| (OR) | | | | |
| 6. | a. | Explain the working of solenoid with neat diagram. | CO2 | 10 |
|  | b. | Analysethe working of relay with a practical example. | CO2 | 10 |
| 7. | a. | Design and develop a pneumatic circuit for the sequence of A+B+A-B- | CO4 | 12 |
|  | b. | Design and develop a electro pneumatic circuit using relays for double acting cylinder. | CO3 | 8 |
| (OR) | | | | |
| 8. | a. | With a neat sketch, explain the hydraulic circuit for quick return motion of table of surface grinding machine. | CO4 | 10 |
|  | b. | Draw the pneumatic circuit for the use of time delay. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. |  | Summarise the working of the following fluidic sensors with neat sketches.  a.Coanda Effect.  b.OR/NOR and AND/NAND monostable devices.  c.Cone-Jet Sensor.  d.Interruptible Jet Sensor.  e.Reflex Proximity Switch. | CO4 | 20 |

ALL THE BEST