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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

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

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

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **Fluid Power Control / Fluid Power Control Engineering / Fluid Power Control Engineering** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **09ME225/12ME205/ME237** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | Draw the symbol for air servicing unit/ | (1) |
| 2. | What are the types of automation? | (1) |
| 3. | Draw the symbol for 4/3 DCV. | (1) |
| 4. | Give few examples of fluid power applications. | (1) |
| 5. | Name few compressors. | (1) |
| 6. | List various hydraulic circuits. | (1) |
| 7. | What is the symbol forpressure accumulator? | (1) |
| 8. | Label few fluidic logic devices. | (1) |
| 9. | What do you know about low cost automation? | (1) |
| 10. | List out some of pneumatic circuit applications. | (1) |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11 | Discuss the difference between the hydraulic pumps and hydraulic motors? | (3) |
| 12 | What are the central positions of 4/3 directional control valve? | (3) |
| 13 | How relay works, discuss with neat diagram. | (3) |
| 14 | Briefly discuss PLC I/O interfacing devices. | (3) |
| 15 | Draw the pneumatic circuit for clamping and stamping application. | (3) |

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| **PART C(5 X 15= 75 MARKS)** | | | | |
| 16. | a. | What do you mean y Industrial automation and discuss different types with their merits, demerits and applications. | | (10) |
| b. | Draw symbols for the following:   1. Pneumatics:Dual Pressure valve and Shuttle valve. 2. Hydraulic: Pressure Sequence valve, one way Flow control valve and Bi-directional fixed displacement pump | | (5) |
| (OR) | | | | |
| 17. | a. | Discuss various laws of pneumatics and hydraulics? | | (5) |
| b. | Explain the working of fluid reservoir with a neat diagram. | | (10) |
| 18. | a. | Discuss in detail the working of double acting cylinder, with a neat diagram. | | (10) |
| b. | Discuss various spool actuating methods of direction control valves. | | (5) |
| (OR) | | | | |
| 19. | a. | Explain briefly the working principle of spring loaded and dead weight pressure accumulators with neat diagram. | | (8) |
| b. | Illustrate the mechanical hydraulic servo valve. | | (7) |
| 20. | a. | | Draw the schematic diagram of piston pump and explain its working. | (9) |
| b. | | How gear pump works, explain with a neat diagram. | (6) |
| (OR) | | | | |
| 21. | a. | | Explain the construction and working of hydraulic positive and non-positive vane pumps with the neat sketches. | (15) |
| 22. | a. | | Explain the working of flapper nozzle and back pressure sensors with neat sketches | (10) |
| b. | | Draw any accumulator circuit. | (5) |
| (OR) | | | | |
| 23. | a. | | Explain in detail the architecture of PLC and I/O module with neat block diagram. | (10) |
| b. | | Draw the Ladder Logic diagram for basic logic gates | (5) |
| 24. | a. | | Discuss the quick return motion circuit for a shaping machine with a neat sketch. | (6) |
| b. | | Draw three types of speed control circuits for a double acting hydraulic cylinder | (9) |
| (OR) | | | | |
| 25. | a. | | What are the features of low cost automation? | (5) |
| b. | | Design a Fluidic box-sorting system circuit and explain the control of a conveyor that moves and fills container. | (10) |

ALL THE BEST