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Question Paper Code: 55P03

M.E. DEGREE EXAMINATION, MAY 2018

Elective

CAD / CAM

15PCD503 - DESIGN OF HYDRAULIC AND PNEUMATIC SYSTEMS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) Briefly discuss the various factors to be considered in selection of pumps. CO1- U (20)

Or

- (b) Explain rotary actuator and analyze the torque capacity for the actuator containing single rotating vane. CO1- U (20)

2. (a) List out the various types of hydraulic cylinders and explain the construction, parts and working of the double acting cylinder with neat sketch. CO2- U (20)

Or

- (b) State the specification of D/C valve. What is 4/3 D/C valve. State the art of actuation in D/C valve. CO2- U (20)

3. (a) What are the various types of Accumulator Circuits are there and explain any two. CO3- U (20)

Or

- (b) Describe the hydraulic circuit used to control the motion of a hydraulic planning machine. CO3- U (20)

4. (a) Consider an automatic drilling machine with three cylinders. The complete cycle is as follows; Cylinder A extends to clamp the work piece, then cylinder B extends to drill the hole and then retracts. Cylinder A then retracts to unclamp the work piece. Design a control circuit applying step- counter method

CO4- App (20)

Or

- (b) Explain the combinational circuit design with suitable example.

CO4- U (20)

5. (a) Explain the microprocessor construction and programming with neat sketch.

CO5- U (20)

Or

- (b) Develop a circuit to control a double acting cylinder which uses a single solenoid valve and a single limit switch . Clearly sketch the pneumatic circuit and PLC ladder logic diagram and explain.

CO5- Ana (20)
