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Question Paper Code: 55P03

M.E. DEGREE EXAMINATION, NOV 2019

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) Explain the working principle of the swash plate piston pump with neat sketch. 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) Explain the working principle of sequence valve with its application. CO2- U (20)
Or
(b) Explain the working principle of unloading valve with its application. CO2- U (20)
3. (a) Sketch the circuit for a hydraulic press incorporating two-hand safety system and explain the same. CO3- U (20)
Or
(b) Describe the hydraulic circuit used to control the motion of a hydraulic surface grinding 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- U (20)

Or

(b) Explain the combinational circuit design with suitable example. CO4- U (20)

5. (a) Explain the maintenance and troubleshooting of pneumatic systems in detail. CO5- U (20)

Or

(b) Explain the microprocessor construction and programming with neat sketch. CO5- U (20)
