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**Question Paper Code: 52912**

M.E. DEGREE EXAMINATION, NOV 2016

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 rotary actuator and analyze the torque capacity for the actuator containing single rotating vane. (20)

Or

- (b) Explain the working principle of bend axis piston pump with neat sketch. (20)

2. (a) Explain the counter balance valve with one of its application in detail. (20)

Or

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

3. (a) Describe the hydraulic circuit used to control the motion of a hydraulic vertical milling machine. (20)

Or

- (b) Describe the hydraulic circuit for fail-safe control circuit using emergency cut-off valve and explain it in detail. (20)

4. (a) Explain the combinational circuit design with suitable example. (20)

Or

(b) (i) What the different types of pneumatic position sensors. Explain it with neat sketch. (10)

(ii) Explain the steps involved in the step counter method. (10)

5. (a) 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. (20)

Or

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

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