

M.E. DEGREE EXAMINATIONS: NOV/DEC 2010

Third Semester

CAD/CAM

CCM553: Design of Hydraulics and Pneumatics System

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10 x 2 = 20 Marks)

1. What is a semi-rotary actuator? List few applications of semi-rotary actuators.
2. Define volumetric and mechanical efficiency of a pump.
3. What is the need for temperature compensation in flow control valve?
4. What is an intensifier and when it is used?
5. What is the purpose of regenerative circuit and how it is attained?
6. What is the difference between closed circuit and open circuit hydrostatic transmission?
7. How are the filters rated?
8. What are moving part logic elements?
9. Name the things that can cause a noisy pump.
10. What is a programming logic controller? What are its basic elements?

PART B (5 X 16 = 80 Marks)

11. a) (i) Explain the construction and working of an external gear pump. (8 Marks)
(ii) What is cylindrical cushioning? Explain with a diagram. (8 Marks)
(OR)
b) (i) Explain the construction and working of a radial piston pump. (8 Marks)
(ii) Explain with the diagram the working of a telescopic cylinder. (8 Marks)
12. a) Explain with the neat sketches counterbalance valve and counter balance circuit.
(OR)
b) With suitable sketches explain meter-in circuit and meter-out circuit.
13. a) With a neat sketch, explain the function of intensifier in hydraulic circuits. Make circuit showing an intensifier in a punching press application
(OR)
b) Draw a hydraulic circuit for a planer and vertical milling machine
14. a) Explain the working of a pneumatic speed control circuit and time delay circuit
(OR)
b) Briefly explain with the neat sketches the various types of air motors
15. a) Briefly explain requirements for installing various components of hydraulic system and its maintenance.
(OR)
b) Briefly explain the installation of various components of pneumatic system and its maintenance.
