



B.E./B.Tech. DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2011

MANUFACTURING ENGINEERING BRANCH

V SEMESTER

**ME 9303 Hydraulics and Pneumatics**

(REGULATIONS 2008)

Time: Three Hours

Instructions: Answer all questions

Maximum Marks: 100

Part -A (10 X 2 = 20 Marks)

- 1 What are the types of fluids used in fluid power systems?
- 2 State the Pascal's Law.
- 3 How are the hydraulic pumps classified?
- 4 What is the application of an intensifier?
- 5 What is the purpose of a regenerative circuit?
- 6 What are the uses of accumulators used in hydraulic circuits?
- 7 What is the function of a lubricator?
- 8 What is a servo system?
- 9 What are the parameters to be considered in the initial stages of the design of a hydraulic system?
- 10 What are the technologies used in low cost automation?

Part -B (5 X 16 = 80 Marks)

- 11.a. What are the advantages of fluid power systems? List any six of them. (6)
  - 11.b. Draw the construction diagram of a gear pump and explain its working. (10)
  - 12.a.i How is cylinder cushioning provided? Explain its usage. (8)
  - 12.a.ii Discuss the construction and working of a hydraulic cylinder. (8)
- OR
- 12.b.i Discuss the construction and operation of a pressure control valve. (8)
  - 12.b.ii How are the pressure switches used in hydraulic systems? Discuss with a diagram. (8)
  - 13.a.i. What are the important considerations given while designing hydraulic circuits? (8)
  - 13.a.ii Draw and explain the working of a cylinder sequencing circuit. (8)
- OR
- 13.b.i Draw and explain the working of a fail safe hydraulic circuit. (8)
  - 13.b.ii What are the types of accumulators used in hydraulic circuits? (8)
  - 14.a.i What are the factors that make pneumatic systems advantageous in factories? (8)
  - 14.a.ii Discuss the construction and working of an air motor. (8)
- OR
- 14.b.i Compare any six points of air motor and electric motor. (8)
  - 14.b.ii Discuss the working principle of a 5/2 pilot operated direction control valve. (8)
  - 15.a.i Discuss the design of a hydraulic circuit employed in a punching press. (8)
  - 15.a.ii How is cascade method used in hydraulic circuits? Explain with an example. (8)

OR

- 15.b. Discuss the selection, fault finding and maintenance of hydraulic components with examples.