ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE

B.E. / B.TECH. DEGREE EXAMINATIONS : NOV / DEC 2011

REGULATIONS : 2008

FIFTH SEMESTER

080120027 - HYDRAULIC AND PNEUMATIC SYSTEMS

(COMMON TO AUTOMOBILE / MECHANICAL ENGG.)

Time : 3 Hours   Max.Marks : 100

PART - A

ANSWER ALL QUESTIONS   **(10 x 2 = 20 Marks)**

1.   Define the term "Reynold's number".

2.   List few properties of a hydraulic fluid.

3.   What is the function of a hydraulic pump?

4.   Draw the characteristic curve for Pump.

5.   What is the function of an accumulator?

6.   Mention the function of solenoid valves.

7.   What do you mean by FRL unit?

8.   What does staging means?

9.   What is PLC?

10.   What is a servo system?

PART - B

(5 x 16 = 80 Marks)

ANSWER ALL QUESTIONS

11. (a) State Pascal's law, explain any application of Pascal's law with a sketch.

(OR)

11. (b) What are the basic components required for a hydraulic system? Also mention their functions.

12. (a) Classify the hydraulic actuators and explain any two types of special actuators.

(OR)

12. (b) With a neat sketch explain the "End cushion" provided in hydraulic cylinders.

13. (a) Describe the construction and operation of a solenoid operated 3/2-way directional control valve with example.

(OR)

13. (b) Draw the symbolic representation of the following: (1). Check valve (2). 3/2 valve (3). 4/3 valve (4). Pressure relief valve (5). Single acting cylinder (6). Double acting cylinder (7). Accumulator (8). Fixed displacement unidirectional pump.

14. (a) What are all the types of pneumatic cylinder? Draw symbol for any four of them.

(OR)

14. (b) Draw and Explain the hydraulic cylinder synchronizing circuit.

15. (a) With a block diagram, describe the operation of programmable logic controllers

(OR)

15. (b) Table the various faults, probable causes, and also the remedial actions for that (i) Pump (ii) Hydraulic motors (iii) Air cylinders (iv) FRL unit.

*****THE END*****