R09

Code No: C8002

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I SEMESTER EXAMINATIONS, APRIL/MAY-2012
APPLIED INDUSTRIAL HYDRAULICS
(MECHATRONICS)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks
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1. (a) Draw the block diagram depicting the operation of an industrial hydraulic system.
   (b) Draw the symbolic representation of any six hydraulic elements.

2. (a) Explain the difference between positive and non-positive displacement pumps.
   (b) Describe the working of a Gear pump used in hydraulic system.

3. (a) Describe the directly operated pressure control valve with a neat sketch.
   (b) Explain the various types of flow control valves in hydraulic system.

4. Draw a circuit diagram to control and operate hydraulic acting cylinder using 4/3 direction control valve (solenoid control using a PLC) and explain the principle of working of the components of the system.

5. (a) Describe piston motor used in hydraulic system.
   (b) Explain the effect of dirt and impurities in hydraulic fluid on the functioning of hydraulic components.

6. (a) Explain the servo control system used in hydraulic system.
   (b) Describe the various characteristics required for the hydraulic fluid.

7. Explain PD, PI and PID controls used in controlling the hydraulic systems.

8. Describe various precautionary measures to be taken in avoiding the breakdown of hydraulic systems.

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