R09

Code No: D0401, D5201

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH II - SEMESTER EXAMINATIONS, APRIL/MAY 2012
DESIGN OF HYDRAULICS AND PNEUMATICS SYSTEMS
(COMMON TO CAD/CAM, DESIGN FOR MANUFACTURING)

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

Answer any five questions
All questions carry equal marks
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1.a) What are the broad tasks of hydraulic oil in the machines and explain various properties to be considered in the selection of oil?
b) What are the various pumps used in hydraulic system and explain about the construction and working of Gear pump?

2.a) Sketch and explain the construction and working of Relief value and mention its characteristics.
b) What are the various values used in hydraulic system and explain the working of direction control value and its need?

3.a) What is pressure compensated flow control value? How does pressure compensation takes place?
b) Differentiate between linear and rotary actuators used in hydraulic system and mention various materials used for pistons.

4.a) Sketch and explain the construction and working of axial piston motor.
b) What is the function of accumulator in hydraulic system and how does it differ from a reservoir?

5.a) Describe relative advantages and applications of leather, metal, rubber and PTFE as seal material.
b) Differentiate between functional diagram and hydraulic circuit diagram. What are their advantages in trouble-shooting?

6.a) What are the various motors used in pneumatic circuits and explain its advantages over electric motors?
b) Sketch Hydraulic Servo System used on copying lathe and explain its advantages.

7.a) How the maintenance schedule is prepared so that there will not be any failures of the hydraulic system?
b) What are the possible causes and remedies of pump delivery and pump oil overheated?

8. Answer the following:
a) Maintenance of pumps
b) Microprocessors
c) Sequencing circuits.

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