CBCS SCHEME

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18AU56

Fifth Semester B.E. Degree Examination, June/July 2023
Hydraulics and Pneumatics

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. What are the factors to be considered for selecting a hydraulic pump? Explain in brief. **(06 Marks)**

b. With neat sketch, explain working of internal gear pump. **(06 Marks)**

c. Explain the construction and working of balanced vane pump. **(08 Marks)**

OR

2 a. Explain linear hydraulic actuators with sketch. **(06 Marks)**

b. With neat sketch, explain the working of axial piston motor. **(08 Marks)**

c. Explain with neat sketch, the operation of swash plate piston motor in the hydraulic system. **(06 Marks)**

Module-2

3 a. Classify hydraulic control valves. Explain with neat sketch, working of check valve and give its graphical representation. **(08 Marks)**

b. Explain with a neat sketch, construction and operation of simple pressure relief valve. **(06 Marks)**

c. Explain briefly with neat sketch working of pressure compensated flow control valve. **(06 Marks)**

OR

4 a. Sketch and explain the constructional features of reservoir system. **(10 Marks)**

b. With the help of suitable circuit, explain:
(i) Suction line filtering
(ii) Pressure line filtering **(10 Marks)**

Module-3

5 a. Explain with a neat circuit diagram the working of a regenerative circuit. **(08 Marks)**

b. Explain with a neat circuit working of sequencing circuit in a drilling machine. **(06 Marks)**

c. Explain spring loaded type accumulator used in hydraulic system. **(06 Marks)**

OR

6 a. Explain with suitable circuit, how automatic cylinder reciprocates with two sequence valves. **(08 Marks)**

b. Explain with hydraulic circuit, how speed control can be achieved in hydraulic motor. **(06 Marks)**

c. Classify the different accumulators used in hydraulic system. **(06 Marks)**

Module-4

7 a. Explain the characteristics of compressed air. **(06 Marks)**

b. Sketch and explain the working of rodless cylinder. **(08 Marks)**

c. Explain end position cushioning in pneumatic cylinder with diagram. **(06 Marks)**

OR

8 a. Explain supply air throttling and exhaust air throttling with neat circuit diagram. **(10 Marks)**
b. Explain the logic OR function with a suitable valve and the double acting cylinder. **(10 Marks)**

Module-5

9 a. Explain with a neat diagram coordinated sequence motion of two cylinders. **(10 Marks)**
b. Explain the motion control diagram for a two cylinder circuit. **(10 Marks)**

OR

10 a. Write short notes on:
(i) Relays used in electro-pneumatic control
(ii) Contactors used in electro-pneumatic control **(10 Marks)**
b. With the aid of circuit, explain how the sequencing of two pneumatic cylinders can be done by using solenoids, limit switches and valves. **(10 Marks)**

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