CBCS SCHEME

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15MT53

Fifth Semester B.E. Degree Examination, July/August 2021
Hydraulics and Pneumatics

Time: 3 hrs. Max. Marks: 80

Note: ***Answer any FIVE full questions.***

1 a. State Pascal Law. Explain any one of its application with neat sketch. **(08 Marks)**
b. Explain the structures of hydraulic power system with neat sketch. **(08 Marks)**

2 a. Explain the construction and working of vane pump with neat sketch. **(08 Marks)**
b. Explain the construction and working of axial piston pump with neat sketch. **(08 Marks)**

3 a. Write any 8 symbolic representations of hydraulic actuators. **(08 Marks)**
b. A hydraulic motor has a displacement of $125cm^3$ operating at a pressure of 100 bars and speed of 1800rpm. If the actual flow rate of the motor is $0.004m^3/s$ and actual torque delivered by the motor is 250N-m. Find the
i) Three efficiencies of the motor
ii) Theoretical power delivered by the motor. **(08 Marks)**

4 a. Explain the construction and working of pilot operated pressure relief valve. **(08 Marks)**
b. What is flow control valve, explain any two flow control valves with neat sketch. **(08 Marks)**

5 a. Explain with a neat circuit diagram the working of a meter out circuit for controlling the speed of a cylinder. What are the advantages and disadvantages of meter-out circuit? **(08 Marks)**
b. Explain with a neat circuit diagram sequencing of two double acting cylinders using a sequencing valve. **(08 Marks)**

6 a. What is meant trouble shooting and list about the common types of problems associated with hydraulic systems. **(08 Marks)**
b. Explain the working of pressure switches with a neat sketch. **(08 Marks)**

7 a. Explain the structures of pneumatic system with block diagram. **(08 Marks)**
b. What is a Rodless cylinder? Explain types of Rodless cylinders and what are its advantages. **(08 Marks)**

8 a. Explain the working of
i) Shuttle valve
ii) Quick exhaust valve. **(08 Marks)**
b. Explain the construction and working of poppet valves. **(08 Marks)**

9 a. State uses of logic gates in Pneumatic application. **(08 Marks)**
b. What is the function of a time delay valve? Explain its constructional features. **(08 Marks)**

10 a. Explain with a neat circuit diagram of signal elimination by reversing valve. **(08 Marks)**
b. Explain the working of solenoid actuated directional control valve with neat sketch. **(08 Marks)**

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