

B.Tech. SEM -VII Mechanical 2014 Course (CBCS) : SUMMER - 2019
SUBJECT- INDUSTRIAL FLUID POWER

Day: Tuesday
Date: 14/05/2019

S-2019-2837

Time: 02.30 PM TO 05.30 PM
Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat diagram **WHEREVER** necessary.
- 4) Use of non- programmable calculator is **ALLOWED**.
- 5) Assume suitable data, if necessary.

Q.1 State Pascal's law. Explain different properties of fluid. What is the effect of temperature and pressure on hydraulic fluid? (10)

OR

Differentiate between electrical, pneumatic and fluid power system and list out different applications of hydraulic systems. (10)

Q.2 A pump has a displacement volume of 98.4 cm^3 . It delivers $0.00152 \text{ m}^3/\text{s}$ at 1000 rpm and 70 bars. If the prime mover input torque is 124.3 N-m, find (10)

- i) Overall efficiency of the pump.
- ii) Theoretical torque required to operate the pump.

OR

Give classification of pumps. Draw and explain pressure compensated unbalance variable displacement vane pump. (10)

Q.3 State difference between pressure control, direction control and flow control valves and explain working of sequence valve with neat sketch. (10)

OR

Explain working principal of pressure control valves, direct operated and pilot operated pressure relief valves. Also write the function of pressure reducing valve. (10)

Q.4 How the speed controlled in case of hydraulic actuators? Sketch a typical hydraulic circuit used for operating a cylinder continuously to and fro. (10)

OR

What are the different cylinders mounting? Draw a typical sequencing circuit for sequencing of motion of two cylinders. (10)

Q.5 Compare pneumatics with hydraulics power transmission. Draw a neat sketch and explain working of typical lubricator used in pneumatic systems. (10)

OR

Write short note on (10)
i) FRL unit used in pneumatics
ii) Types and selection of compressors.

Q.6 Draw and analyze meter out flow control circuit. (10)

OR

Draw and analyze regenerative circuit. (10)

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