

Total No. of Questions :8]

SEAT No. :

P3479

[Total No. of Pages :3

[5560]-115

T.E. (Mechanical)
HYDRAULICS AND PNEUMATICS
(2012 Pattern) (Semester-I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q.No.1 or Q.No.2, Q.No.3 or Q.No.4, Q.No.5 or Q.No.6, Q.No.7 or Q.No.8,*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right Indicate full marks.*
- 4) *Use of Electronic pocket calculator is allowed.*
- 5) *Assume suitable data, if necessary.*

- Q1)** a) What is the difference between the terms fluid power, hydraulics and pneumatics? [6]
- b) Explain the different types of accumulator used in hydraulic circuit and state their applications. [6]
- c) A positive displacement pump has geometric displacement of 81.95 cm^3 It delivers of 75.84 lpm of oil while operating at 1000 RPM at a pressure of 6.9 MPa the input torque of the prime mover is 101.25 N-m find: [8]
- (a) Overall efficiency of the pump.
 - (b) Theoretical torque required to operate the pump.

OR

- Q2)** a) What are effects of contaminants on different components of hydraulic system? [6]
- b) Explain the term Beta rating in relation with filter. [6]
- c) State and explain governing law used in fluid power system in detail. [8]
- Q3)** a) What is a function of a shuttle valve? Explain its working with simple sketch. [6]
- b) Draw a circuit showing the application of a 3/2DCV. [6]
- c) Draw a neat sketch and explain working of a pressure reducing valve. [6]

OR

P.T.O.

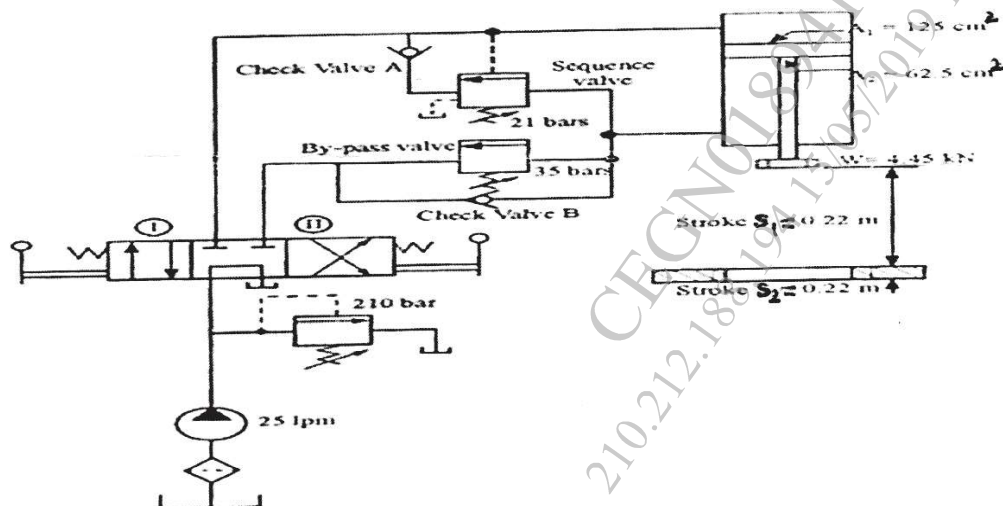
- Q4)** a) Draw a regenerative circuit by using 4/3 DCV and explain its application [6]
 b) Name three different types of cylinder mounting with sketch. [6]
 c) Differentiate between meter in circuit and meter out circuit. [6]

- Q5)** a) Explain with a neat sketch of quick exhaust valve and draw a typical circuit showing all parts. [6]
 b) Explain the terms in respect of a hydraulic motor. [6]
 i) Volumetric Efficiency
 ii) Mechanical Efficiency
 iii) Overall Efficiency
 c) Explain the difference between direct and pilot operated pressure relief valve. [4]

OR

- Q6)** a) Draw a typical circuit showing control of a double acting cylinder operated through use of an air pilot actuated direction control valve and explain working of the circuit. [6]
 b) Draw and Explain a typical sketch for sequencing of two double acting cylinders in respect of pneumatics. [6]
 c) Draw a typical symbol of FRL unit and Explain its function. [4]

- Q7)** Analyze the hydraulic press circuit given below and find load and time required for press operation. [16]



OR

Q8) identify the different components and analyze the given circuit with operations [16]

