

# 17608

16172

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Illustrate your answers with neat sketches wherever necessary.
  - (3) Figures to the right indicate full marks.

**Marks**

1. (A) Solve any **THREE** of the following : **12**

- (a) What is function of (i) oil reservoir (ii) pressure relief valve, (iii) direction control valve, (iv) filters ?
- (b) Draw and explain working of pressure reducing valve.
- (c) Explain piston pump with neat sketch.
- (d) What is an accumulator ? Why accumulator is necessary for huge hydraulic pressers ?

(B) Solve any **ONE** of the following : **06**

- (a) Write the causes and remedies for the following :
  - (i) Excess heat in oil
  - (ii) Noisy pump
  - (iii) Low pressure in system.
- (b) What is pressure compensated flow control valve ? Explain with sketch.

- 2. Solve any TWO of the following :** **16**
- (a) Compare meter-in-circuit with meter-out-circuit, draw neat sketch of meter-in-circuit.
  - (b) Name any eight pipe or tube fitting with their application.
  - (c) What is function of filters ? Classify the filters and draw any two types of filters.
- 3. Solve any FOUR of the following :** **16**
- (a) Explain 4-way-3 position direction control valve used in hydraulic system.
  - (b) Explain gear pump with neat sketch.
  - (c) Explain any four criteria for selection of hydraulic pump in hydraulic system.
  - (d) Name any four components of pneumatic system. What are the factors considered while selecting them ?
  - (e) Draw labelled sketch of air lubricator.
- 4. (A) Solve any THREE of the following :** **12**
- (a) What are actuators ? Draw a double acting cylinder.
  - (b) Explain pressure relief valve in pneumatic system.
  - (c) Explain with sketch, a pneumatic circuit for speed control of bidirectional motor.
  - (d) State any two applications of  $3 \times 2$  DC valve. Draw symbol for the same.
- (B) Solve any ONE of the following :** **06**
- (a) Explain with neat sketch the working of variable displacement vane pump.
  - (b) Compare pressure relief valve and pressure reducing valve.

**5. Solve any TWO of the following :****16**

- (a) List the factors to be considered for selecting the pipe while designing the pneumatic system. Give specification of pipes for the pneumatic system.
- (b) Draw and explain pneumatic meter in circuit to control of speed extension.
- (c) Explain with neat sketch (position based) working of sequencing circuit for two double acting Air cylinders.

**6. Solve any FOUR of the following :****16**

- (a) Draw speed control of single acting cylinder pneumatic circuit using  $3 \times 2$  DC valve.
  - (b) State any four reasons of failure of pneumatic seals.
  - (c) What are the advantages of pneumatic system over hydraulic systems ?
  - (d) Compare positive displacement pump with Rotodynamic pump.
  - (e) What are the various types of Hoses used in pneumatic system ?
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