

17552

11920

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.
 - (4) Assume suitable data, if necessary.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (7) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Attempt any FIVE :

20

- (a) Classify 'Fluid'. Enlist its four applications.
- (b) Explain :
 - (i) Laminar flow
 - (ii) Turbulent flow
- (c) Enlist advantages of Hydraulics over pneumatics.
- (d) State the functions of 'seal' in Hydraulics.
- (e) Explain the constructional feature of 'Globe valve' with neat sketch.
- (f) Classify positive displacement pump.
- (g) Enlist different types of 'Gear Pump'.

2. Attempt any TWO :

16

- (a) Enlist any eight power hydraulics element. How power is transmitted through hydraulics ?

- (b) Explain the constructional details of sequence valve with neat sketch used in hydraulic circuit.
- (c) State the functions of direction control valve. Explain with neat sketch the working of 4-way valve.
- 3. Attempt any FOUR :** **16**
- (a) State 'Bernoulli's theorem'. Explain with suitable example.
- (b) Enlist desirable properties of ideal fluid for hydraulic system.
- (c) Explain 'Hydraulic Leverage'.
- (d) State 'Pascal's law'. Explain with suitable example related to hydraulics.
- (e) Enlist different types of hydraulic filters.
- (f) State the procedure of 'Oil Maintenance' in hydraulic system.
- 4. Attempt any FOUR :** **16**
- (a) Explain any one Hydraulic drive with neat sketch.
- (b) State the functions of 'strainer' and 'filter'.
- (c) Compare between 'Accumulator' and 'Intensifier'.
- (d) Explain the working of 'Counter balance valve' with neat sketch.
- (e) State the necessity of 'FRL' unit in pneumatic system.
- (f) Enlist any four safety requirements in pneumatic application.
- 5. Attempt any TWO :** **16**
- (a) Explain with neat sketch the construction of 'Sliding Vane Type' pump.
- (b) Explain the working of 'Radial Piston Pump' with neat sketch.
- (c) Draw Pneumatic circuit used in 'Blow moulding machine' showing all elements.
- 6. Attempt any FOUR :** **16**
- (a) Compare positive and non-positive displacement pump.
- (b) Enlist any four characteristics of 'variable' displacement pump.
- (c) Classify 'Air Compressor'.
- (d) Explain – 'Limit Switch'.
- (e) State the functions of pneumatic actuators.
- (f) Enlist different types of shuttle valves. State their functions.
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