

25226

3 Hours / 70 Marks

Seat No.

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- Instructions –*
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

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| 1. Attempt any <u>FIVE</u> of the following : | 10 |
| a) State any two advantages of fluid power system.
b) State significance of viscosity in the selection of hydraulic oil.
c) Draw ISO symbols for twin pressure valve and shuttle valve.
d) List the factors to be consider for selection of compressor for a given application.
e) State the function of seals and gaskets.
f) State the different types of control valves.
g) Draw a regenerative hydraulic circuit. | |
| 2. Attempt any <u>THREE</u> of the following : | 12 |
| a) Differentiate between hydraulic and pneumatic system.
b) Explain construction and working of unbalanced vane pump with neat sketch.
c) With neat sketch explain the construction and working of screw compressor.
d) Draw and explain the working of pressure reducing valve. | |
| 3. Attempt any <u>THREE</u> of the following : | 12 |
| a) Explain the working of radial piston type motor.
b) Draw and explain construction and working of 4/2 spool type direction control valve.
c) State the functions of limit switches, pressure switches, temperature switches and proximity sensors used in electro-pneumatic circuits.
d) Draw and explain meter-out speed control pneumatic circuit. | |
| 4. Attempt any <u>THREE</u> of the following : | 12 |
| a) State the application of FRL unit used in pneumatic system. Explain its working with neat sketch.
b) State the standard centre position in three position direction control valves with their ISO symbols.
c) State the function and location of pressure relief valve in the circuit. Explain the working of direct acting pressure relief valve.
d) Explain the working of pressure compensated flow control valve, used in hydraulic system.
e) A application requires a slow forward stroke and position dependant automatic reversal of stroke using roller operated DC valve. Draw the hydraulic circuit and explain it. | |

5. Attempt any TWO of the following :**12**

- a) Compare various pumps on the basis of following given factors and suggest their applications.
 - i) Delivery pressure
 - ii) Discharge rate
 - iii) Efficiency
- b) A application needs a single acting cylinder capable of giving longer stroke length. However the space available to fit in that cylinder in retracted condition is comparatively less. Suggest type of actuator to be used in such condition with justification. Explain it with neat sketch.
- c) Explain the application of counter balance valve with a suitable example of hydraulic circuit.

6. Attempt any TWO of the following :**12**

- a) With neat sketch explain the construction and working of double acting pneumatic cylinder.
 - b) Develop a ladder diagram for OR logic valve. Explain its working with suitable hydraulic circuit.
 - c) Explain the function of accumulator with neat sketch of dead weight type accumulator.
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