

17608

11718

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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

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|-----------|---|--------------|
| 1. | (A) Attempt any THREE : | 12 |
| | (a) State the four advantages and disadvantages of screw pump. | |
| | (b) Explain the construction of 4/2 poppet valve with neat sketch & symbol. | |
| | (c) State the essential properties of hydraulic fluids. | |
| | (d) Explain any two mounting methods of cylinder. | |
| | (B) Attempt any ONE of the following : | 6 |
| | (a) Draw general layout of hydraulic system and explain its working. | |
| | (b) With a neat sketch explain pressure compensated flow control valve.
Draw symbol of it. | |
| 2. | Attempt any TWO : | 16 |
| | (a) Explain with neat sketch the working of hydraulic circuit for milling machine. | |
| | (b) List various types of air motors. Explain vane type air motor with neat sketch. | |
| | (c) What is seal ? Classify seals according to shape. State the factors for seal selection. | |

3. Attempt any FOUR :**16**

- (a) Explain the working of counter balance valve in hydraulic circuit.
- (b) Discuss pilot operated check valve with neat sketch.
- (c) Explain with neat sketch the working of meter out hydraulic circuit.
- (d) Draw neat labelled sketch of
 - (i) Internal gear pump
 - (ii) Gerotor pump
- (e) What is FRL ? State the function of each component of FRL.

4. (A) Attempt any THREE :**12**

- (a) State the four merits and demerits of using a rubber hose in pneumatic circuit.
- (b) List any four applications of pneumatic rotary actuator. Draw the symbol for variable speed bidirectional air motor.
- (c) Explain time delay valve with neat sketch.
- (d) Draw speed control pneumatic circuit for bi-directional air motor.

(B) Attempt any ONE :**6**

- (a) Explain variable displacement axial piston pump with neat sketch.
- (b) Explain working of counterbalance hydraulic circuit with neat diagram.

5. Attempt any TWO :**16**

- (a) List different types of pressure regulator valves ? Explain any one with neat sketch.
- (b) Develop a pneumatic circuit for operation of two DA cylinders such that one operates after other using travel dependant sequencing.
- (c) Explain pneumatic impulse circuit with neat sketch.

6. Attempt any FOUR :**16**

- (a) State at least four advantages and disadvantages of pneumatic systems.
 - (b) Draw symbol of unloading valve and sequence valve.
 - (c) Enlist the hydraulic oil manufacturer's in India.
 - (d) Enlist applications of hydraulic system.
 - (e) Explain pneumatic circuit for speed control of single acting cylinder with neat sketch.
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