

22655

22223

3 Hours / 70 Marks

Seat No.

--	--	--	--	--	--	--	--

- 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.

Marks

- 1. Attempt any FIVE of the following: 10**
 - a) State desirable properties of hydraulic oil used in hydraulic system.
 - b) List different safety precautions required for handling industrial pneumatic system.
 - c) State two applications of double acting cylinder.
 - d) List the types of positive displacement pump.
 - e) State different types of control valves.
 - f) State function of seal and gaskets.
 - g) State the common application of hydro-pneumatic system.

- 2. Attempt any THREE of the following: 12**
 - a) Explain working of hydraulic system with its general layout.
 - b) Compare positive displacement pump with non-positive displacement pump.
 - c) Explain construction and working of sliding spool type 4/3 direction control valve.
 - d) Explain function of FRL unit with neat sketch. P.T.O.

- 3. Attempt any THREE of the following: 12**
- a) Explain principle and working of external gear pump with sketch.
 - b) Explain need of pressure and temperature compensation in flow control valve.
 - c) Draw meter-out Hydraulic circuit.
 - d) It is required to move two or more number of cylinder simultaneously. Draw the suitable circuit for this application.
- 4. Attempt any THREE of the following: 12**
- a) State the function of pressure control valve and flow control valve.
 - b) Explain with neat sketch working of pressure relief valve.
 - c) Explain with neat sketch working of centrifugal compressor.
 - d) Draw the neat labeled hydraulic circuit of milling machine.
 - e) Discuss the remedies and fault detection in pneumatic circuits.
- 5. Attempt any TWO of the following: 12**
- a) One application needs a single acting cylinder capable of giving longer stroke strength. However the space available to fit in that cylinder in retracted condition is comparatively less. Suggest the type of actuator to be used in such condition with justification. Explain its working with neat sketch.
 - b) Describe construction and working of Pilot operated check valve with neat sketch.
 - c) Explain construction and working of “Time Delay Valve.” With neat sketch.
- 6. Attempt any TWO of the following: 12**
- a) Describe the routine maintenance procedure of hydraulic circuit of shaper machine.
 - b) Construct pneumatic circuit using sequence valve to control two applications performed in a proper sequence and describe its working.
 - c) Draw and explain pneumatic circuit to control the speed of double acting cylinder.
-