22232

3 Hours / 70 Marks Seat No. | | | | | | | | |

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.

Marks

1. Attempt any FIVE of the following : **10**

(a) Define specific gravity.

(b) Define atmospheric pressure & gauge pressure.

(c) State law of continuity.

(d) State any four properties of hydraulic oil.

(e) Define priming.

(f) Draw a symbol of time delay valve.

(g) State the function of Air Receiver.

2. Attempt any THREE of the following : **12**

(a) Describe the working of Pitot tube with suitable sketch.

(b) Explain Meter-in hydraulic circuit for double acting cylinder.

(c) Differentiate between hydraulic & pneumatic system.

(d) Define surface tension and capillarity with example.

3. Attempt any THREE of the following : **12**

(a) Draw the general layout of Hydraulic system and show the direction of flow.

(b) State the different function of hydraulic seals.

(c) Define the following type of flow

(i) Laminar flow

(ii) Turbulent flow

(d) Describe the working of Bourdon's gauge with suitable sketch.

4. Attempt any THREE of the following : **12**

(a) A circular plate 1.2 m diameter is placed vertically in water so that centre of the plate is 2 m below the free surface. Determine total pressure and depth of centre pressure.

(b) Explain with neat sketch the working and function of FRL unit.

(c) Differentiate between meter-in & meter-out.

(d) Explain proportional flow type filter with neat sketch.

(e) State the merits and limitations of pneumatic system.

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

(a) State Bernoulli's theorem and derive the equation of Bernoulli's theorem.

(b) State different types of pipe and hoses with material used.

(c) Explain the sequencing circuit.

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

(a) Explain Air motor (vane type) with construction & working.

(b) (i) State laws of fluid friction for laminar flow.

(ii) State Darcy's and Chezy's equation with meaning of each terms.

(c) Classify the actuators in details and explain any one.
