22650

21222

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

15 minutes extra for each hour

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.

Marks

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

a) Define specific weight.

b) State law of continuity.

c) State the reason for using mercury in manometer.

d) Define hydraulic actuator.

e) List valves for hydraulic systems.

f) Write two applications of pneumatic circuits.

g) List two applications of hydro - pneumatic circuits in an automobile.

h) Draw a neat sketch of meter in circuit.

Marks

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

a) Explain with sketch construction and working of pitot tube. Show how the discharge is measured with it.

b) State Bernoulli's theorem and its assumption.

c) Compare centrifugal and reciprocating pump. (four points)

d) Explain negative slip in reciprocating pump.

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

a) Draw a labelled sketch of Bourdon's pressure gauge.

b) Explain with sketch the working principle of hydraulic press.

c) Explain with sketch the working of gear pump.

d) Differentiate between gear pump and vane pump on the basis of construction, pressure, speed and application.

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

a) Explain working of piston type air motor with sketch.

b) Explain working of proportionating valve with sketch.

c) Sketch and explain working of 4/2 direction control valve used in hydraulic system.

d) Sketch and explain working of sequencing valve.

e) Differentiate between spool and poppet type valves. (four points)

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

a) Predict two faults relevant to centrifugal pump. Write 2 causes and two remedies for each fault.

b) Classify filter and state their applications.

c) Justify use of flexible hose in hydraulic braking - system. Draw relevant connector.

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

a) Explain with sketch the milling machine hydraulic circuit.

b) Sketch and describe brake booster of heavy vehicle.

c) Compare hydraulic and pneumatic circuits (six points)