

22345

23124

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.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define Density and write its unit.
- (b) Define Specific weight with its unit.
- (c) State the types of fluid flow.
- (d) State any four physical properties of hydraulic oil.
- (e) State principle of centrifugal pump.
- (f) Define priming & write methods of priming.
- (g) Sketch the symbol of FRL unit & what is meant by FRL ?

2. Attempt any THREE of the following :

12

- (a) Differentiate between Ideal and Real fluid.
- (b) Describe the construction and working of pneumatic gear motor.
- (c) Differentiate between hydraulic and pneumatic system.
- (d) Describe the working of Pitot tube with suitable sketch.



- 3. Attempt any THREE of the following :** **12**
- (a) Describe construction and working of Vane type pump.
 - (b) Explain construction and working of pressure regulating valve.
 - (c) Explain the phenomenon of capillary rise with suitable sketch.
 - (d) Describe the working of venturimeter with suitable sketch.
- 4. Attempt any THREE of the following :** **12**
- (a) Explain with neat sketch working of time delay circuit.
 - (b) Describe construction and working of vane type air motor.
 - (c) Describe working of meter-in hydraulic circuit with neat sketch.
 - (d) Differentiate between Gauge pressure and Vacuum pressure.
 - (e) Write down the applications of meter-in, meter-out circuit.
- 5. Attempt any TWO of the following :** **12**
- (a) Calculate the maximum allowable discharge of water through venturimeter throat 50 mm fitted in 100 mm dia. pipe line close to an open channel in farm land. Take $C_d = 0.95$. Assume that the absolute pressure desired to remain atleast 3 m of water.
 - (b) Write any four applications of Double Acting Cylinder.
 - (c) State the phenomenon of water hammering and cavitation, write two effects of each.
- 6. Attempt any TWO of the following :** **12**
- (a) State application of gear pump, vane pump, screw pump, piston pump in industry.
 - (b) Draw pneumatic symbols for
 - (i) Compressor
 - (ii) Pressure relief valve
 - (iii) 4/2 way direction control valve
 - (iv) Single acting cylinder
 - (v) Flow control valve
 - (vi) Pressure reducing valve
 - (c) State applications of seal and gasket.
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