

12170

21314

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) 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. a) Attempt any **THREE** of the following: **12**
- i) Define specific weight, specific gravity, surface tension and capillarity.
- ii) Draw and explain working of micro manometer.
- iii) Define laminar and turbulent flow. Give its example.
- iv) Explain the orifice meter with neat sketch.
- b) Attempt any **ONE** of the following: **6**
- i) Explain with neat sketch gear type hydraulic motor.
- ii) Give the classification of valves used in hydraulic systems. Write four functions of valve.

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2. **Attempt any FOUR of the following:** **16**
- a) Name the different hydraulic coefficient and define them.
 - b) Draw a labelled sketch of non return valve and explain it.
 - c) Compare reciprocating compressor and rotary compressor (any four points).
 - d) Explain flexible hose. State its material and applications.
 - e) With a neat sketch, explain Bourdon tube-pressure gauge.
3. **Attempt any FOUR of the following:** **16**
- a) Explain meter in type hydraulic circuit.
 - b) Draw a symbol for pressure relief valve and variable speed unidirectional pump.
 - c) What are the direction control valves? Explain construction of 3/2 direction control valve.
 - d) Explain with neat sketch pneumatic speed control circuit.
 - e) What is the function of seals and gaskets. State their application.
4. a) **Attempt any THREE of the following:** **12**
- i) Represent schematically atmospheric pressure, gauge pressure and absolute pressure.
 - ii) Explain with neat sketch working of hydraulic jack.
 - iii) Draw a labelled sketch of any one type of filter and describe its working.
 - iv) State Bernoulli's theorem. Also state its assumption.
- b) **Attempt any ONE of the following:** **6**
- i) Compare hydraulic and pneumatic circuit (any six point).
 - ii) What are applications of pneumatic circuit? Draw a circuit of any one.

5. Attempt any TWO of the following:**16**

- a) i) With a neat sketch, explain the construction and application of venturimeter.
- ii) A venturimeter is used to measure that rate of flow of a liquid whose specific gravity is 0.8. Inlet diameter of venturimeter is 80 mm and throat diameter is 50 mm. The differential manometer reads 20 cm of mercury. Calculate the rate of flow if the coefficient of discharge is 0.98.
- b) Explain the working of centrifugal pump with neat sketch. What is meant by priming? Why it is necessary for centrifugal pump.
- c) Explain with neat sketch swash plate type of pump.

6. Attempt any TWO of the following:**16**

- a) Explain with neat sketch construction and working of single acting reciprocating pump.
 - b) Draw the hydraulic circuit used for shaping machine, explain the operation in brief.
 - c) State and explain possible causes if centrifugal pump fail to start pumping.
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