



17552

11819

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.*

Marks

1. A) Attempt **any three** of the following : **12**
- a) Define uniform and non uniform flow with example.
 - b) Differentiate between limit switch and proximity switch.
 - c) Explain with neat sketch 4/3 DC valve.
 - d) Draw neat labelled sketch of internal gear pump.
- B) Attempt **any one** of the following : **6**
- a) Explain six properties of hydraulic fluid.
 - b) Draw the symbol for :
 - i) Telescopic cylinder
 - ii) Air motor
 - iii) FRL unit
 - iv) One way valve
 - v) Oil reservoir
 - vi) Pressure relief valve
2. Attempt **any four** of the following : **16**
- a) State Bernoulli's theorem. Give its assumptions.
 - b) Give the classification of hydraulic pumps.
 - c) What is an accumulator ? Why accumulator is necessary for hydraulic systems ?
 - d) Explain flexible hose. State its material and give any two applications.
 - e) Write the maintenance process of pipe fittings.
3. Attempt **any four** of the following. **16**
- a) Differentiate between strainer and filter (min. 4 points).
 - b) Explain working of counter balance valve with neat sketch.
 - c) Differentiate between poppet and spool type valve.
 - d) Draw neat labelled sketch of axial piston type pump.
 - e) Differentiate between gear type and vane type pump (min. 4 points).

P.T.O.



4. A) Attempt **any three** of the following. 12
- a) Explain gate valve with neat sketch.
 - b) Explain with neat sketch any one non positive displacement pump.
 - c) Sketch and explain the working of vane type hydraulic motor.
 - d) Explain FRL unit with neat sketch.
- B) Attempt **any one** of the following : 6
- a) Draw and explain working of pressure reducing valve.
 - b) Explain with neat sketch centrifugal air compressor.
5. Attempt **any two** of the following : 16
- a) Explain hydraulic drives and list hydraulic circuit elements.
 - b) Explain with neat sketch piston type hydraulic motor. Give its two application.
 - c) Give the classification of air compressor. Explain any one piston type air compressor.
6. Attempt **any two** of the following : 16
- a) i) State and explain Pascal's law.
ii) What are the advantages of hydraulic system over pneumatic system ?
 - b) i) Give any four safety requirements in pneumatics.
ii) Give the applications of pneumatic system.
 - c) i) Explain with neat sketch working of radial piston type pump.
ii) State types of seals and explain the function of seal.
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