



17552

16172

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) 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**
- a) Distinguish between laminar and turbulent flow with suitable example.
 - b) Explain with neat sketch working of pressure reducing valve.
 - c) Explain hydraulic accumulator with sketch.
 - d) Define positive and non-positive displacement pumps. What are advantages of positive displacement pumps ?
- B) Attempt **any one** of the following : **6**
- a) Explain the different properties of fluid (any 6).
 - b) Explain working of 4/2 direction control valve with neat sketch.
2. Attempt **any four** of the following : **16**
- a) State Bernoulli's theorem and write its two application.
 - b) State Pascal law. Explain how Pascal law is used in power hydraulics.
 - c) Draw the symbols for :
 - i) 3/2 direction control valve
 - ii) Filter
 - iii) Hydraulic pump
 - iv) Double acting cylinder.
 - d) Give the different functions of hydraulic seals.
 - e) Explain working of full flow filter with neat sketch.

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3. Attempt **any four** of the following : 16
- a) Explain with neat sketch hydraulic reservoir and write its function.
 - b) Draw a neat sketch of hydraulic intensifier.
 - c) Explain with neat sketch flow control gate valve.
 - d) Explain working of lobe pump with sketch.
 - e) Explain with neat sketch gear type hydraulic motor.
4. A) Attempt **any three** of the following : 12
- a) Draw a neat sketch of check valve and explain it.
 - b) What do you understand by characteristic curve of a pump ? State its significance.
 - c) With a neat sketch explain vane type pump.
 - d) Explain with neat sketch shuttle valve.
- B) Attempt **any one** of the following : 6
- a) With symbol explain FRL unit.
 - b) List types of air motors and draw labelled sketch of any one.
5. Attempt **any two** of the following : 16
- a) i) List hydraulic circuit elements.
ii) Write any four advantages of hydraulics.
 - b) Explain with neat sketch construction and working of swash plate type axial piston pump.
 - c) Draw a neat sketch of rotary vane type air compressor and explain working of it.
6. Attempt **any two** of the following : 16
- a) i) How power is transmitted through hydraulics ?
ii) Explain hydraulic drives.
 - b) Explain with neat sketch pneumatic circuit used in blow moulding machine.
 - c) Compare fixed displacement pump and variable displacement pump.
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