



12170

11122

3 Hours/100 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**.

MARKS

1. A) Attempt **any three** : 12
 - 1) Differentiate between ideal and real fluids.
 - 2) Define uniform and non uniform flows.
 - 3) What do you mean by cavitation ? Explain.
 - 4) Draw symbols of hydraulic motor and variable speed air motor.

B) Attempt **any one** : 6

 - 5) Draw different types of hoses and connectors. Giving their applications.
 - 6) Compare hydraulic and pneumatic circuits in detail.
2. Attempt **any four** : 16
 - 1) State and explain Pascals law.
 - 2) Define all the coefficients of hydraulics.
 - 3) Explain the need of priming in centrifugal pump.
 - 4) Explain construction of ball valve with sketch.
 - 5) Explain with neat sketch differential manometer.
3. Attempt **any four** : 16
 - 1) Draw a labeled sketch of Bleed-off circuit.
 - 2) Explain the need of air vessels with neat diagrams.
 - 3) Explain the working of air motor.
 - 4) Differentiate between single acting and double acting reciprocating pumps.
 - 5) Explain Bernoulli's Theorem giving its applications.

P.T.O.

**MARKS**

4. A) Attempt **any three** : **12**
- 1) How do you select the centrifugal pump for particular application ? Explain.
 - 2) Draw labeled sketch of pneumatic air braking system.
 - 3) Explain working principle of hydraulic lift.
 - 4) Explain law of continuity and its applications.
- B) Attempt **any one** : **6**
- 1) Draw the labeled sketch of hydraulic circuit in earthmovers. Explain working principle.
 - 2) Define specific weight, relative density and kinematic viscosity of fluid.
5. Attempt **any two** : **16**
- 1) Explain construction and working of NRV.
 - 2) Draw and explain hydraulic circuit used in milling machine.
 - 3) Explain the construction and working of rotary compressor used in pneumatic circuits.
6. Attempt **any two** : **16**
- 1) Draw and explain pneumatic speed control circuit.
 - 2) Obtain an expression of discharge through venturimeter.
 - 3) Write types, functions and applications of seals and gaskets used in hydraulic and pneumatic circuits.
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