17552

15116

3 Hours / 100 Marks Seat No. | | | | | | | | |

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** : **12**

a) Define laminar flow and turbulent flow.

b) State and explain Pascal's law.

c) Describe functions, materials and types of Hose.

d) Draw the symbols for

i) Air compressor

ii) FRL unit

iii) Shuttle valve

iv) Bidirectional air motor.

B) Attempt **any one** : **6**

a) Describe 4 × 2 sliding spool type direction control valve with neat sketch.

b) Explain Vane type pump with neat sketch.

2. Attempt **any four** : **16**

a) Define :

i) Specific weight

ii) Viscosity

iii) Specific gravity

iv) Surface tension.

b) State Bernoullis Theorem and write its applications.

c) Write any four advantages of hydraulics.

d) State various pressure measurement devices and explain any one.

e) State four functions of seals.

P.T.O.

Marks

3. Attempt **any four** : **16**

a) State and explain types of flow of fluids.

b) Draw the symbols for following components :

i) Variable unidirectional motor

ii) Pressure relief valve

iii) Filter

iv) Non return valve.

c) Explain any one type of filter used in hydraulic system with neat sketch.

d) Write the classification of valves used in hydraulic system.

e) Compare unbalanced vane pump with balance vane pump.

4. A) Attempt **any three** : **12**

a) Draw the general layout of hydraulic circuit and name the components.

b) Draw neat sketch of pressure reducing valve and describe its working.

c) State the functions of flow control valves and also state its types.

d) Differentiate between limit switch and proximity switch.

B) Attempt **any one** : **6**

a) Explain Gear type hydraulic motor with neat sketch.

b) Compare Gear pump and Vane pump (6 points).

5. Attempt **any four** : **16**

a) State and explain law of conservation of energy.

b) Draw and explain double acting cylinder type actuator.

c) Write the classifications of pumps.

d) State any four safety requirements for pneumatic circuit.

e) Draw the general layout for pneumatic circuit and name the components.

f) State two applications of hydraulic circuits and two applications of pneumatic circuit in plastic engineering.

6. Attempt **any two** : **16**

a) Draw neat sketch of hydraulic intensities and describe its working.

b) With neat sketch explain construction and working of axial piston pump.

c) Construct the pneumatic circuit for blow moulding machine and describe its working.
