



17522

14115

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.
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**MARKS**

1. A) Attempt **any three** :

**12**

- a) Define the following terms and state their S.I. unit.
  - i) specific weight
  - ii) viscosity
- b) Write the classification of control valves.
- c) Explain construction and working of sliding spool type 4/3 direction control valve.
- d) State the functions of flexible hose and gaskets.

B) Attempt **any one** :

**6**

- a) Define all hydraulic coefficients. Derive relation between the hydraulic coefficients.
- b) State the types of hydraulic actuators. Describe construction and working of single acting cylinder with neat sketch.

2. Attempt **any four** :

**16**

- a) Define laminar and turbulent type fluid flow. State one example of each.
- b) What factors will you considered while selecting a centrifugal pump ?

**P.T.O.**



- c) State the possible causes and remedies for following faults in centrifugal pumps.
- i) failure to deliver water
  - ii) produces noise
- d) Draw a labelled diagram of swash plate type pump.
- e) Describe with neat sketch working of hydraulic ram.

3. Attempt **any four** :

16

- a) Compare gear pump and vane pump on the basis of :
- i) construction
  - ii) pressure
  - iii) speed
  - iv) applications
- b) Write the construction and working of piston type air motor with neat sketch.
- c) Draw labelled sketch of sequence valve and describe its working.
- d) State two applications and two materials of seals used in hydraulic systems.
- e) Why FRL unit is used in pneumatic system ? State the functions of each component of FRL unit.

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

12

- a) Describe the working of hydraulic lift with neat sketch.
- b) Explain working of gear type hydraulic motor with neat sketch.
- c) Draw a neat sketch of proportional flow type filter and describe its working.
- d) Draw a neat sketch of meter in hydraulic circuit.



B) Attempt **any one** :

6

a) Draw and explain pneumatic circuit to control the speed of double acting cylinder.

b) i) identify the following circuit in figure No.1

ii) label it and explain its working

iii) state its applications.

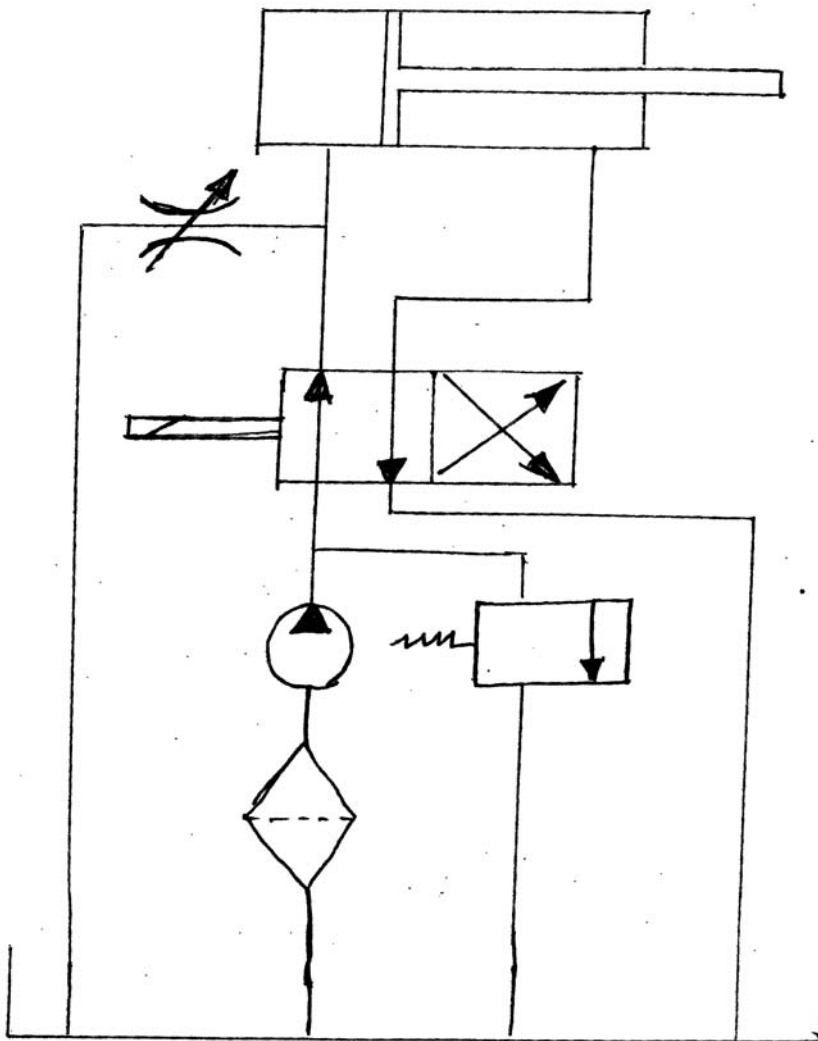


Figure. 1

**MARKS**

5. Attempt **any two** : **16**
- a) State Bernoulli's theorem. Explain orificemeter with neat sketch.
  - b) Compare reciprocating pump and centrifugal pump on the basis of discharge, pressure, speed, weight of pump, floor area used, maintenance, cost and applications.
  - c) Explain hydraulic power steering with neat labelled sketch.
6. Attempt **any two** : **16**
- a) Explain bourden tube pressure gauge with figure and state its applications.
  - b) Draw a labelled sketch of double acting reciprocating pump and describe its construction and working.
  - c) Construct the pneumatic circuit using sequence valve to control two operations performed in a proper sequence and describe its working.
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