17608

21819

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

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.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

(8) Use of Steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. a) **Attempt any THREE of the following:** **12**

(i) List out four properties of hydraulic oil used in hydraulic system.

(ii) State any four types of pressure control valves with their application.

(iii) State any four field application of fluid power.

(iv) Explain with sketch working of sequence valve.

Marks

b) **Attempt any ONE of the following:** **6**

(i) Draw a general layout of hydraulic system representing various parts.

(ii) Draw a neat sketch and symbol of 3/2 normally closed poppet type D.C valve.

2. Attempt any TWO of the following: **16**

a) Describe with sketch the working and application of meter-in–circuit.

b) Describe with neat sketch working of double acting air cylinder.

c) Describe with sketch working of telescope cylinder. State its application also.

3. Attempt any FOUR of the following: **16**

a) State types of flow control valve. Explain non-pressure compensated flow control valve.

b) What is Hose? Explain factors affecting selection of pipe in hydraulic system.

c) With the help of simple example explain sequencing circuit.

d) Explain with sketch working of screw pump.

e) Explain with sketch air filter used in pneumatic system.

4. a) **Attempt any THREE of the following:** **12**

(i) Draw and explain general layout of pneumatic system.

(ii) State advantages and limitation of pneumatic system.

(iii) Draw pneumatic meter-in-circuit for air motor.

(iv) Develop a pneumatic position based sequencing circuit by using all necessary components.

Marks

b) **Attempt any ONE of the following:** **6**

(i) Explain with figure working of Gerotor pump.

(ii) Classify seals in detail. Explain any one with sketch.

5. Attempt any TWO of the following: **16**

a) State different types of pressure regulator. Explain any one with neat sketch.

b) Explain pneumatic circuit for controlling speed of D.A cylinder with circuit diagram.

c) Draw pneumatic time delay sequencing circuit for two double acting cylinders.

6. Attempt any FOUR of the following: **16**

a) Explain with sketch the working of push button operated 5 × 2 DC valve used in pneumatics.

b) Explain with sketch working of time delay valve.

c) What are selection criterion for hydraulic pumps?

d) State the function of accumulator in hydraulic circuit.

e) Explain time delay circuit in pneumatics.