12242

15116

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

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

Marks

1. Attempt any TEN of the following: **20**

a) Enlist any four applications of Hydraulic system.

b) Represent the symbol of fixed displacement Hydraulic pump.

c) What do you mean by positive displacement pump?

d) State any four functions of 'Actuators'.

e) Draw the symbol of Telescopic cylinder.

f) Enlist any four materials used for hydraulic pipes.

g) How are seals classified?

h) Name any four sources of heat in hydraulic circuit.

i) State any two applications of synchronising circuit.

j) Enlist any four uses of compressed air.

Marks

k) What is meant by FRL in pneumatic circuits and state functions of each.

l) Draw the symbol of Bi - Directional air motor.

m) Enlist any four types of pneumatic cylinder mountings.

n) Draw a symbol of pressure reducing valve.

o) What are the various types of Hoses used in Pneumatic System?

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

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

b) State the use of pressure relief valve, showing it's position in hydraulic circuit.

c) Explain the working of Rotary spool type valve with diagram.

d) List out any four criterias for selection of hydraulic pump in hydraulic system. Explain each in brief.

e) How hydraulic cylinders are classified?

f) Differentiate between positive displacement pumps and roto dynamic pumps.

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

a) Sketch the 'cup seal' and state any four uses of it.

b) Enlist any four advantages and disadvantages of Gas pressurised accumulator.

c) Draw 4/2 way DC valve with neat sketch and symbol.

d) With sketch explain working of piston type pneumatic motor.

e) Draw and explain in brief hydraulic bleed off circuit.

f) Draw impulse pneumatic circuit and explain.

Marks

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

a) Draw a hydraulic circuit diagram for milling machine to control it's table movement and explain it's working.

b) Draw and explain sequencing circuit of two double acting hydraulic cylinders.

c) Draw and explain time delay pneumatic circuit for both stroke of DA cylinder.

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

a) Draw the pneumatic meter - in and meter - out circuit to control the speed of extension of DA cylinder.

b) Differentiate between a seat valve and a spool type DC valve. What are their applications and advantages?

c) State the functions of air compressor? How are compressors classified? Explain the working of reciprocating compressor in brief.

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

a) What are the merits and limitations of pneumatic systems?

b) Explain working of twin screw compressor with the help of sketch.

c) Explain with neat sketch working of time delay valve.

d) Compare air motor with electric motor.

e) Write any four tips for good piping in workshop using pneumatic system.

f) What is intercooler? What is it's function?
