

T.Y. Diploma : Sem. VI
[ME/MH/MI/PG/PT]
Industrial Fluid Power
Prelim Question Paper



Time: 3 Hrs.]

[Marks : 100

- 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, Page and any other Electronic Communication devices are not permissible in Examination Hall.

1. (a) Attempt any **THREE** of the following: [12]
 - (i) Write any four applications of oil hydraulic systems.
 - (ii) What are the effects of contaminants in the oil?
 - (iii) Draw a general layout of pneumatic system and state the function of components.
 - (iv) Draw the hydraulic circuit showing control of DA cylinder. Using 4×2 DC valve. Explain the working in brief.
(b) Attempt any **ONE** of the following : [6]
 - (i) Draw actual hydraulic system and explain its working.
 - (ii) Explain with neat sketch the working of rotary spool type DC valve.
2. Attempt any **TWO** of the following : [16]
 - (a) What is swash plate? What is its use? What will happen if we change the angle of swash plate? Explain with sketch.
 - (b) Why pressure relief valve is used in hydraulic circuit? Explain in details with neat sketches.
 - (c) Explain the construction and working of doubled acting reciprocating compressor with neat sketch.
3. Attempt any **FOUR** of the following : [16]
 - (a) State advantages and disadvantages of poppet type directional control valve.
 - (b) What are the various materials used for pipes in hydraulic circuit?
 - (c) Explain with neat sketch the working and applications of meter-in hydraulic circuit.
 - (d) Enlist any four applications of oil hydraulic system.
 - (e) What is FRL? State its importance.
4. (a) Attempt any **THREE** of the following : [12]
 - (i) State any four advantages and disadvantages of pneumatic system.
 - (ii) What are the features of air? List any four features.
 - (iii) Sketch and explain speed control of bi-directional air motor in pneumatics.
 - (iv) Explain time delay pneumatic circuit with neat sketch.
(b) Attempt any **ONE** of the following : [6]
 - (i) Explain with neat sketch the construction of gerotor pump. [S-16]
 - (ii) Enlist the factors to be considered for selection of seal. What are the main causes of seal failure? [S-16]
5. Attempt any **TWO** of the following : [16]
 - (a) List different types of pressure regulator valves? Explain any one with neat sketch.
 - (b) Develop a pneumatic circuit for operation of two DA cylinders such that one operates after other using travel dependant sequencing. Write advantages of pneumatic system.
 - (c) Explain pneumatic impulse circuit with neat sketch.

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

[16]

- (a) Draw speed control of single acting cylinder pneumatic circuit using 3 × 2 DC valve.
- (b) State any four reasons of failure of pneumatic seals.
- (c) What are the advantages of pneumatic system over hydraulic systems?
- (d) Compare positive displacement pump with Rotodynamic pump.
- (e) What are the various types of Hoses used in pneumatic system?

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Paper Discussion Schedule for: T.Y. Diploma Sem. VI

Date	Day	Timing	Centre
15 April	Sunday	8 a.m. to 11 a.m.	Dadar
15 April	Sunday	12 a.m.to 3 p.m.	Thane