

Seventh Semester B.E./B.Tech. Degree Examination, June/July 2026

Hydraulics and Pneumatics

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M : Marks , L: Bloom's level , C: Course outcomes.

Module – 1			M	L	C
Q.1	a.	Sketch and explain the components used in hydraulic control system.	10	L1	CO1
	b.	What are the desirable properties of a hydraulic fluid explain any three?	10	L1	CO1
OR					
Q.2	a.	State Pascal's law. Explain briefly its application.	10	L1	CO1
	b.	Sketch and explain different filtering system in a hydraulic circuit.	10	L2	CO1
Module – 2					
Q.3	a.	With the help of diagram, explain the construction and working of external gear pump.	10	L2	CO2
	b.	A pump having a displacement volume of 90 cm ³ delivers 82 LPM at 1000 rpm and 6.9 MPa. If the input torque is 102 Nm, find (i) The overall efficiency of pump. (ii) Theoretical torque required to operate pump.	10	L3	CO2
OR					
Q.4	a.	With the aid of neat sketch, explain the principal of operation of internal gear pump.	10	L2	CO2
	b.	Explain the following single acting cylinder with neat sketches : (i) Telescopic (ii) Tandem	10	L2	CO2
Module – 3					
Q.5	a.	Explain compensated and non compensated flow control valve. Also draw the symbol.	10	L2	CO3
	b.	Explain the working of pilot operated check valve with a neat sketch. Illustrate graphical symbol of the valve.	10	L3	CO3
OR					
Q.6	a.	Explain with a neat sketch of pilot operated pressure relief valve.	10	L2	CO3
	b.	Explain the following valves with a neat sketch : (i) Sequence valve (ii) Counter balance valve	10	L3	CO3

Module – 4					
Q.7	a.	With a neat sketch, explain the structure of pneumatic system.	10	L2	CO4
	b.	State the advantages and disadvantages of pneumatic systems.	10	L1	CO4
OR					
Q.8	a.	Explain different types of seal with a neat sketch.	10	L2	CO4
	b.	Sketch and explain the mechanism of end position cushioning.	10	L2	CO4
Module – 5					
Q.9	a.	Explain a typical pneumatic circuit with OR logic using shuttle valve.	10	L2	CO5
	b.	Explain the principle of cascade control system.	10	L2	CO5
OR					
Q.10	a.	What are the different methods of signal elimination? Explain.	10	L1	CO5
	b.	Explain displacement step and displacement time diagrams.	10	L2	CO5
