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BME702

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 value. 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

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		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 shuttlve 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**

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