NARASIMHA REDDY ENGINEERING COLLEGE

(Autonomous)

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Department Of Mechanical Engineering

Fluid power systems

QUESTION BANK

Unit-I

Part – A (Short Answer Questions)					
1		Write about hydraulic control system?	L1	CO1	PO1,PO2
2		How does the lobe pump differ from the other gear type pump?	L1	CO1	PO1,PO2
3		What is the purpose of hydraulic pump in a fluid power system?	L4	CO1	PO1,PO2
4		Describe fluid	L1	CO1	PO1,PO2
5		List out the advantages and disadvantages of fluid power systems	L1	CO1	PO1,PO2
6		Describe the primary functions of a fluid in the fluid power systems.	L1	CO1	PO1,PO2
7		Name the basic component which is employed in the hydra systems.	L1	CO1	PO1,PO2
8		Define pump.	L2	CO1	PO1,PO2
9		List any four hydraulic fluids that are commonly used in fluid power systems	L2	CO1	PO1,PO2
10		List the losses in the fluid power systems.	L3	CO1	PO1,PO2
11	a)	State Pascal's law and Explain in details about the application of Pascal's law with neat sketch.	L2	CO1	PO1,PO2
	b)	Explain with neat sketch about working principle of basic hydraulic system and pneumatic system	L3	CO1	PO1,PO2
12		Discuss the following i Various types of hydraulic fluids used in the hydraulic systems. ii Properties of hydraulic fluids.	L2	CO1	PO1,PO2
	a)	Explain in details about the various losses in hydraulic fluid power systems.	L2	CO1	PO1,PO2

13	b)	Explain the pumping theory with suitable sketch.	L3	CO1	PO1,PO2
14		Explain the construction and working principle of in-line axial piston pump with suitable sketch.	L3	CO1	PO1,PO2
15		Discuss the following i Balanced vane pump. ii Unbalanced vane pump.	L3	CO1	PO1,PO2
16		Explain the construction and working principle of in-line axial piston pump with suitable sketch.	L3	CO1	PO1,PO2

UNIT–II

S. No.		Questions	BT	CO	PO
Part – A (Short Answer Questions)					
1		Describe actuator.	L2	CO2	PO2
2		Classify the various types of B actuator.	L2	CO2	PO2
3		Discuss about telescoping cylinder.	L2	CO2	PO2
4		What are the advantages of double acting cylinder over a single acting cylinder?	L1	CO2	PO2
5		What is the function of seals in the hydraulic system and list the type of seals used in the systems?	L2	CO2	PO2
6		Describe the three important parameters should controlled the hydraulic system.	L3	CO2	PO2
7		What is the function of sequence valve and pressure reducing valve?	L1	CO2	PO2
8		Discuss the function of pressure control valve	L2	CO2	PO2
9		List out the various types of pressure control valve.	L2	CO2	PO2
10		Describe the function of check valves.	L1	CO2	PO2
11	a)	Explain the working principle following types of cylinders i) Single acting cylinder	L2	CO2	PO2
	b)	Explain the working principle following types of cylinders ii)Cylinder Cushioning	L2	CO2	PO2
12		Explain the construction and working of following with neat sketch A) Gear motor B) Double acting cylinder	L2	CO2	PO2
13		With neat sketch explain the construction of Telescopic cylinder and state its application with example	L1	CO2	PO2
14		Explain with neat sketch about the construction and working principle of vane motor and state its applications.	L1	CO2	PO2
15		Explain the following with neat sketch i Poppet valve. ii Pilot operated check valve.	L1	CO2	PO2
16		Explain with neat sketch about different types of flow control valve used in the hydraulic systems.	L1	CO2	PO2

Unit-III

S.No.		Questions	BT	CO	PO
Part – A (Short Answer Questions)					
1		Draw the different types of accumulator symbols.	L2	CO3	PO2,PO4
2		Discuss the functions of accumulators.	L3	CO3	PO2,PO4
3		What is meant by sizing of accumulator?	L2	CO3	PO2,PO4
4		What is the function of pressure intensifier?	L1	CO3	PO2,PO4
5		Define the term "capacity of accumulator"	L2	CO3	PO2,PO4
6		Why non-separator type gas is loaded accumulator not preferred in hydraulic systems?	L2	CO3	PO2,PO4
7		What condition in a hydraulic system would require an intensifier?	L2	CO3	PO2,PO4
8		List any four applications of intensifier.	L3	CO3	PO2,PO4
9		What is meant by servo control system	L2	CO3	PO2,PO4
10		Describe the hydraulic accumulator and its type.	L2	CO3	PO2,PO4
Part – B (Long Answer Questions)					
11	a)	With a neat sketch, explain the construction and working of a piston type accumulator and diaphragm type accumulator?	L2	CO3	PO2,PO4
12	a)	Design and explain the working of a sequencing circuit.	L2	CO3	PO2,PO4
	b)	Explain the construction and working of pilot operated sequence valve.	L2	CO3	PO2,PO4
13	a)	Design and explain the working of a regenerative circuit.	L2	CO3	PO2,PO4
	b)	Explain the working principle of pressure intensifier, with neat diagram.	L2	CO3	PO2,PO4

14		Design the accumulator circuit for the application of hydraulic shock absorber and Emergency power source in the hydraulic circuit.	L3	CO3	PO2,PO4
15	a)	Design and explain the working of Electro hydraulic circuit.	L4	CO3	PO2,PO4
	b)	Design the intensifier circuit for the application of punching press in the hydraulic circuit.	L4	CO3	PO2,PO4
16	a)	Discuss the construction and working of a Mechanical hydraulic servo system with a diagram.	L2	CO3	PO2,PO4

UNIT–IV

S.No.		Questions	BT	CO	PO
Part – A (Short Answer Questions)					
1		Discuss the function of an air filter	L2	CO4	PO1,PO2,PO4
2		Point out the purpose of a Pressure regulator.	L2	CO4	PO1,PO2,PO4
3		Point out the purpose of a quick Exhaust Valve	L2	CO4	PO1,PO2,PO4
4		Sketch the graphical symbol of pneumatic regulator.	L2	CO4	PO1,PO2,PO4
5		Discuss the function at reservoir in a pneumatic system	L2	CO4	PO1,PO2,PO4
6		How are logic circuits classified?	L2	CO4	PO1,PO2,PO4
7		Define ladder diagram.	L3	CO4	PO1,PO2,PO4
8		Mention the few applications of air cylinder.	L3	CO4	PO1,PO2,PO4
9		Define fluidics	L2	CO4	PO1,PO2,PO4
10		List the components present in PLC.	L2	CO4	PO1,PO2,PO4
11	a)	Define compressor. Explain the working principle of piston type compressor and screw type compressor with neat sketch.	L2	CO4	PO1,PO2,PO4

11			L2	CO4	PO1,PO2,PO4
12	a)	With a neat sketch of the pneumatic filter and explain its construction and working of cartridge filter.	L2	CO4	PO1,PO2,PO4
	b)	With a neat sketch of the pneumatic Regulator and explain its construction and working.	L3	CO4	PO1,PO2,PO4
13		Explain the construction and working principle of Muffler with neat sketch.	L3	CO4	PO1,PO2,PO4
14		Explain the construction and working of following pneumatic control components 1) check valve 2) Shuttle valve 3) Sequence valve 4) Flow control valve	L3	CO4	PO1,PO2,PO4
15		Explain the construction and operation of quick exhaust valve with neat sketch.	L3	CO4	PO1,PO2,PO4
16		Design a pneumatic circuit for the following sequence using cascade method A+B+B-A- where the + cylinder extraction and - cylinder retraction.			

UNIT–V

S.No.		Questions	BT	CO	PO
Part – A (Short Answer Questions)					
1		What are the basic requirements for trouble free life of fluid power systems?	L1	CO5	PO1,PO2
2		List any two common faults in hydraulic system.	L2	CO5	PO1,PO2
3		Name any two faults that can be found in pneumatic systems.	L3	CO5	PO1,PO2
4		How a hydraulic system breaks down?	L2	CO5	PO1,PO2
5		Distinguish between hydraulic and pneumatic systems.	L2	CO5	PO1,PO2
6		List four causes of hydraulic system break down.	L2	CO5	PO1,PO2
7		List any four pump faults.	L4	CO5	PO1,PO2
8		Name two causes of relief valve faults.	L2	CO5	PO1,PO2
9		What is meant by interlock contacts?	L2	CO5	PO1,PO2
10		What is a power pack? What are the important components of a hydraulic power Pack?	L2	CO5	PO1,PO2
11	a	Design and draw a circuit using the hydraulic components for the Shaping operation	L3	CO5	PO1,PO2
	b	Design and draw a circuit using the hydraulic components for the Drilling operation	L3	CO5	PO1,PO2
12	a	Design a circuit using the hydraulic components for the Press operation.	L3	CO5	PO1,PO2
	b	Tabulate the various faults, probable causes and also the remedial actions for the following hydraulic system components: a. Pump b. DC valve	L3	CO5	PO1,PO2
13		List out any seven types of faults that can be found in pneumatic system. Also write the remedial actions for the faults.	L3	CO5	PO1,PO2
14		List down the features of low cost automation	L3	CO5	PO1,PO2