AR18

CODE: 18MEE443   SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech I Semester Supplementary Examinations, February-2023
INDUSTRIAL HYDRAULICS AND PNEUMATICS
(Mechanical Engineering)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	List out advantages of fluid power system?	6M
	b)	Sketch and explain the working of vane pump	6M

(OR)

2.	a)	What is Hydraulic Actuator; explain its working and applications.	6M
	b)	With a sketch, explain the working of gear pump	6M

UNIT-II

3.	a)	Mention types of the directional control valve and method of their actuation symbols.	6M
	b)	Sketch & explain pressure relief valves.	6M

(OR)

4.	a)	State the application of accumulators. Explain the use of accumulator as leakage compensator with a hydraulic circuit?	6M
	b)	What is the purpose of pressure control valves and explain different types of pressure control valves.	6M

UNIT-III

5.		Explain meter in circuit and meter out circuit. Also mention their applications.	12M

(OR)

6.	a)	Explain the construction and function of regenerative circuit and its applications.	6M
	b)	Sketch and explain clamping circuits in machine tools.	6M

UNIT-IV

7.	a)	What is a check valve? Show various uses of a check valve in the hydraulic circuit?	6M
	b)	With the help of neat sketches explain any one type of air compressor.	6M

(OR)

8.	a)	Discuss the applications of Programmable logic controllers in fluid power control.	4M
	b)	Describe the working principle along with graphic symbols of the following	8M
		i) Directional control Two-Way Valve ii) Shuttle valve	

UNIT-V

9.	a)	Explain the construction and function of Pressure sequence valve.	6M
	b)	Explain the mechanism of AND gate and OR gate with circuit diagram. Draw the Symbol.	6M

(OR)

10.	a)	Sketch and label pneumatic circuit for speed control of a double acting cylinder.	6M
	b)	Explain the construction and function of pressure sensing valve.	6M

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AR16

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech I Semester Supplementary Examinations, February-2023
FUNDAMENTALS OF ROBOTICS
(OPEN ELECTIVE)

Time: 3 Hours   **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	What are the different types of automation? Explain them with examples	7M
	b)	Describe the classification of robots by control system.	7M
		(OR)	
2.	a)	What are the different types of gripper mechanisms used for robots? Explain any one of them in detail?	7M
	b)	What do you understand by degree of freedom (DOF)? Explain.	7M

UNIT-II

3.	a)	Discuss different types of actuators used for robots.	7M
	b)	Explain the working of a stepper motor.	7M
		(OR)	
4.	a)	Explain about Force sensors with neat sketch.	7M
	b)	What are the uses of sensor in robotics? List out different sensors used in robotics?	7M

UNIT-III

5.	a)	Write down the properties of transformation matrix.	4M
	b)	For the point [3 7 5] perform the following operations. Rotate 30^0 about x then translate 6 units along Y- axis.	10M
		(OR)	
6.	a)	What is homogenous transformation matrix? Explain.	4M
	b)	Determine the rotation matrix for a rotation of 45^0 about Y - axis, followed by a rotation by 120^0 about Z- axis and a final rotation of 90^0 about X-axis.	10M

UNIT-IV

7.	Explain different robot online programming methods in detail.	14M
	(OR)	
8.	Explain any two Robot offline programming techniques.	14M

UNIT-V

9.	a)	Discuss robot application for welding and machine loading.	7M
	b)	Discuss robot application for inspection and assembly.	7M
		(OR)	
10.	a)	Discuss the advantages and disadvantages of using robots in industry.	7M
	b)	Describe various factors to be considered for material handling applications.	7M

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AR16

CODE: 16OE4055   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech I Semester Supplementary Examinations, February-2023
BASICS OF MOBILE COMMUNICATIONS
(Open Elective)

Time: 3 Hours   **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.		Explain the operation of basic cellular system	14 M
		(OR)	
2.	a)	Explain the concept of frequency reuse	7 M
	b)	Write about co channel interference	7 M

UNIT-II

3.		Explain the point to point propagation model(Lee model)	14 M
		(OR)	
4.		Derive the expression for the received power in a simple signal propagation environment	14 M

UNIT-III

5.		Explain different handoff initiation techniques	14 M
		(OR)	
6.	a)	Explain how Omni directional antennas used at cell sites	7 M
	b)	Write short notes on space diversity used at cell sites	7 M

UNIT-IV

7.		What is frequency management and explain with an example	14 M
		(OR)	
8.	a)	Explain fixed channel assignment	7 M
	b)	Write about channel sharing and channel borrowing	7 M

UNIT-V

9.		Write about network switching subsystems and base station subsystems	14 M
		(OR)	
10.	a)	What is FDMA ,explain	7 M
	b)	Write the differences between CDMA and TDMA	7 M

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