Course Code: 20ME0355 **R20**

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
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QUESTION BANK (DESCRIPTIVE)

Subject with Code: General Mechanical Engineering (20ME0355) **Course & Branch**:B.Tech & Open Elective

Year & Sem: III-B.Tech & II-Sem **Regulation:** R20

UNIT –I

1		Discuss about the Mechanical Properties of Engineering Materials?	[L2]	[CO1]	[12M]
2	a	List out classification of materials.	[L1]	[CO1]	[6M]
	b	Describe the differences between ceramics and Polymers.	[L3]	[CO1]	[6M]
3	a	Discuss the application of Biomaterials?	[L2]	[CO1]	[6M]
	b	Biomaterials plays a vital role in human life. Justify	[L4]	[CO1]	[6M]
4	a	Elucidate about the salient properties of ceramics.	[L2]	[CO1]	[6M]
	b	Briefly write a short note on polymers.	[L2]	[CO1]	[6M]
5	a	List out various applications of ceramics.	[L1]	[CO1]	[6M]
	b	Illustrate briefly about composites with its merits and demerits.	[L4]	[CO1]	[6M]
6		Illustrate the material selection process with a flow chart.	[L2]	[CO1]	[12M]
7		List out various Mechanical Handling Equipment used in power plants and explain anyone in detail.	[L2]	[CO1]	[12M]
8	a	Explain about belt drive with its merits and demerits.	[L2]	[CO1]	[6M]
	b	Distinguish between metals and non-metals.	[L4]	[CO1]	[6M]
9		Classify the conveyors used in power plants and explicate them in detail	[L2]	[CO1]	[12M]
10		Describe various power transmission devices used in material handling.	[L2]	[CO1]	[12M]

UNIT –II

1	a	Write a short note of the need of CAD and CAM.	[L2]	[CO2]	[6M]
	b	Explain in detail about the Synthesis process in Product design cycle	[L2]	[CO2]	[6M]
2	a	What is the Role of computers in manufacturing?	[L1]	[CO2]	[6M]
	b	Illustrate the conventional design process in product cycle.	[L2]	[CO2]	[6M]
3		Elucidate the complete design Process of CAD	[L2]	[CO2]	[12M]
4	a	Explain the components of CIM with neat block diagram.	[L3]	[CO2]	[6M]
	b	List out various Benefits of CIM.	[L1]	[CO2]	[6M]
5		Classify the plant layouts used in the Industry and explain them in detail.	[L3]	[CO2]	[12M]

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6	a	Identify the need of Automation in the manufacturing Industry.	[L2]	[CO2]	[6M]
	b	Differentiate between Flexible automation and Programmable Automation	[L2]	[CO2]	[6M]
7		Classify and Explain various types of Automation in the manufacturing Industry	[L3]	[CO2]	[12M]
8		Elucidate various types of strategies used in Automation system.	[L2]	[CO2]	[12M]
9		Explain in detail about the Basic Elements of Automation system	[L2]	[CO2]	[12M]
10	a	Explain briefly about various Levels of Automation.	[L2]	[CO2]	[6M]
	b	Describe various functions of Advanced Automation Systems	[L5]	[CO2]	[6M]

UNIT –III

1	a	What is the need of Robots in Industry?	[L1]	[CO3]	[6M]
	b	Explain in brief about Asimov's laws of Robotics	[L2]	[CO3]	[6M]
2		Classify the robots based on Robot Configurations.	[L2]	[CO3]	[12M]
3	a	Describe in detail about Robot Anatomy.	[L2]	[CO3]	[6M]
	b	Explain about that functional line diagram	[L2]	[CO3]	[6M]
4		Discuss about the following (i) Degrees of freedom (ii) Joints.	[L2]	[CO3]	[12M]
5	a	Write the Industrial Robotics advantages and application	[L2]	[CO3]	[6M]
	b	Discuss in detail about the Wrist configuration of Robots	[L2]	[CO3]	[6M]
6		How do you classify conventional machine tools? Explain	[L4]	[CO3]	[12M]
7	a	List out various types of basic components used in NC machines	[L1]	[CO3]	[6M]
	b	Compare the Traditional and NC machining	[L3]	[CO3]	[6M]
8		Explain briefly about Advanced Machine Tools.	[L1]	[CO3]	[6M]
9	a	Give some classification of Advanced Machine in industry.	[L3]	[CO3]	[6M]
	b	Explain the following machines. i) NC machines ii) CNC machines iii) DNC machines.	[L3]	[CO3]	[6M]
10	a	What are advantage and disadvantages of CNC machines	[L3]	[CO3]	[6M]
	b	Compare the DNC and CNC machines operations in industry.	[L3]	[CO3]	[6M]

UNIT –IV

1	a	Define Engine and Heat Engine.	[L1]	[CO4]	[6M]
	b	Differentiate between External Combustion Engine and Internal Combustion Engine.	[L2]	[CO4]	[6M]
2		Classify Internal Combustion engines and write a detail note on that.	[L4]	[CO4]	[12M]

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3.	a	What are the parts in Internal combustion engine?		[CO4]	[6M]
	b	How Rotary engine is different from Reciprocating Engine	[L2]	[CO4]	[6M]
4		List and explain the functions of various components of an IC Engine.	[L2]	[CO4]	[12M]
5	a	Explain the Working Principle of 2-Stroke petrol Engine.	[L2]	[CO4]	[6M]
	b	Describe the Working Principle of 4-Stroke diesel Engine.	[L2]	[CO4]	[6M]
6	a	Compare 2-stroke engine with 4-stroke engine.	[L2]	[CO4]	[6M]
	b	Draw and discuss about valve timing diagram of four stroke petrol engine	[L4]	[CO4]	[6M]
7	a	How diesel engine is different from petrol engine	[L2]	[CO4]	[6M]
	b	Draw the Layout of an Automobile and explain it briefly.	[L4]	[CO4]	[6M]
8	a	Identify some important components an automobile and also mention its functions.	[L4]	[CO4]	[6M]
	b	Judge the factors to be considered while purchasing an automobile.	[L5]	[CO4]	[6M]
9		Illustrate the importance of Vehicle chassis and also mention its functions	[L4]	[CO4]	[12M]
10		Classify and Elucidate about Vehicle frame with neat sketch.	[L2]	[CO4]	[12M]

UNIT –V

1	a	Write the working principle of Refrigeration with an example	[L2]	[CO5]	[6M]
	b	List out the major applications of Refrigeration	[L1]	[CO5]	[6M]
2		Classify various types of refrigeration systems in detail	[L2]	[CO5]	[12M]
3	a	Define the following terms relates to Refrigeration (i)Refrigeration Effect (ii) COP (iii) Unit of refrigeration	[L1]	[CO5]	[6M]
	b	A refrigerator requires 1.3KW per ton of refrigeration. Find the COP of refrigerator and heat pump.	[L4]	[CO5]	[6M]
4		Explain in detail about the components, merits, demerits and applications of VCR system	[L2]	[CO6]	[12M]
5		Illustrate the working of Vapour Absorption Refrigeration System with its merits and demerits	[L2]	[CO5]	[12M]
6	a	Differentiate between Vapour Absorption system and Vapour Compression system	[L2]	[CO6]	[6M]
	b	In an vapour absorption refrigeration system heating, cooling and refrigeration takes place at temp 100^0C, 20^0C, and -10^0C. Find out theoretical COP of the system	[L4]	[CO5]	[6M]
7	a	Define the following terms regarding Air conditioning	[L3]	[CO5]	[6M]

		(i)Absolute Humidity (ii) Relative Humidity (iii) Specific Humidity			
	b	List out various Essential components of an Air conditioning system	[L1]	[CO5]	[6M]
8	a	Explain the working of summer Air conditioning with a neat sketch	[L2]	[CO5]	[6M]
	b	With the neat circuit diagram describe the functioning of Winter Air conditioning system	[L2]	[CO5]	[6M]
9	a	Illustrate the working of year round Air conditioning with a neat sketch	[L2]	[CO5]	[6M]
	b	How central Air conditioning is different from Unitary Air conditioning system	[L2]	[CO5]	[6M]
10	a	Elucidate the working of Split Air conditioning system with a neat sketch	[L2]	[CO6]	[6M]
	b	Differentiate between Window Air conditioning and Split Air conditioning systems	[L2]	[CO5]	[6M]

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