Q.P. Code: 16ME316 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B. Tech III Year I Semester Supplementary Examinations August-2022

MACHINE TOOLS

(Mechanical Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	**a**	What factors influence the formation of the built up edge and give the factors to decrease the built up edge?	**L1**	**6M**
	b	Explain various types of chip breakers with neat sketches.	**L2**	**6M**
		OR		
2	**a**	What are the conditions for producing continuous chips?	**L2**	**6M**
	b	During orthogonal cutting a bar of 90mm diameter is reduced to 87.6mm. If the mean length of the cut is 88.2mm and rake angle is 15°, calculate: (i) Cutting ratio (ii) Shear angle.	**L4**	**6M**

UNIT-II

3		Draw a Merchant's circle diagram and derive expressions to show relationships among the different forces acting on the cutting tool and coefficient of friction.	**L3**	**12M**
		OR		
4	**a**	Explain work done in metal cutting process.	**L3**	**6M**
	b	Define the terms (i) cutting speed, (ii) feed, and (iii) depth of cut.	**L1**	**6M**

UNIT-III

5	**a**	Define the working principle of lathe. How can you specify a lathe?	**L2**	**6M**
	b	Show the lathe set up for thread cutting operation and explain thread cutting.	**L3**	**6M**
		OR		
6	**a**	List the common tools and attachments used on Turret and Capstan lathes.	**L2**	**6M**
	b	List the Turret lathe operations and with neat sketch explain any one operation.	**L1**	**6M**

UNIT-IV

7		Draw the block diagram of a shaper machine and explain briefly its various parts and operations performed.	**L3**	**12M**
		OR		
8	**a**	Write short notes on (i) Face milling (ii) Straddle milling (iii) End milling.	**L2**	**6M**
	b	Explain briefly plain indexing and differential indexing with suitable example.	**L1**	**6M**

UNIT-V

9	**a**	Define the terms: i) Grinding ii) Rough Grinding iii) Precision Grinding	**L1**	**6M**
	b	How is "grinding" classified?	**L2**	**6M**
		OR		
10	**a**	Define and explain the terms i) Jig ii) Fixture with its uses.	**L2**	**6M**
	b	Describe briefly "Principles of jig and fixture design".	**L3**	**6M**

*** END ***