

Code No: P18MET10

HALL TICKET NUMBER

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PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)

III B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, MARCH/APRIL – 2023
METAL CUTTING & MACHINE TOOLS
(ME BRANCH)

Time: 3 hours

Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

PART-A

Answer all the questions in Part-A (5X2=10M)

Q.No.	Questions	Marks	CO	KL
1.	a) Explain Taylor's tool life equation	[2M]	1	1
	b) How do you specify a lathe machine? Explain with an example	[2M]	2	1
	c) Differentiate up milling and down milling	[2M]	3	1
	d) Explain lapping and honing operations	[2M]	4	1
	e) Write a few applications of CNC machines	[2M]	5	1

PART-B

Answer One Question from each UNIT (5X10=50M)

Q.No.	Questions	Marks	CO	KL
UNIT-I				
2.	a) Write the mechanism of chip formation and different types of chips	[5M]	1	2
	b) Write the nomenclature of single point cutting tool and explain	[5M]	1	2
OR				
3.	a) Differentiate orthogonal cutting and oblique cutting in detail	[5M]	1	2
	b) Draw the Merchant's force diagram and explain	[5M]	1	2
UNIT-II				
4.	a) Differentiate turret and capstan lathe machines	[5M]	2	2
	b) Explain any two work holding devices in detail	[5M]	2	1
OR				
5.	a) Discuss the working principle of multi spindle lathe machine	[5M]	2	2
	b) Explain work holding by collet chucks	[5M]	2	1
UNIT-III				
6.	a) Explain the working principle of universal milling machine	[5M]	3	1
	b) Briefly discuss different work holding devices in milling	[5M]	3	2
OR				
7.	a) Discuss Whitworth Quick return mechanism used in shapers	[5M]	3	2
	b) Discuss drilling and boring operations	[5M]	3	2
UNIT-IV				
8.	a) Explain centre less grinding with diagrams	[5M]	4	1
	b) Explain different types of abrasives used in grinding wheel manufacturing	[5M]	4	1
OR				
9.	a) What are the selection criteria of a grinding wheel? explain	[5M]	4	1
	b) Discuss any two surface finishing operations with possible applications	[5M]	4	2
UNIT-V				
10.	a) Explain the design principles of Jigs and Fixtures	[5M]	5	1



	b)	Discuss the advantages of CNC machines over conventional machine tools?	[5M]	5	2
OR					
11.	a)	Discuss 3-2-1 principle of location	[5M]	5	2
	b)	Write brief notes on constructional features of CNC machines	[5M]	5	1
