

**P.E.S. College of Engineering, Mandya - 571 401***(An Autonomous Institution affiliated to VTU, Belagavi)***Fourth Semester, B.E. - Industrial and Production Engineering****Semester End Examination; July/August - 2022****Manufacturing Technology - II**

Time: 3 hrs

Max. Marks: 100

Course Outcome*The Students will be able to:**CO1: Identify lathe parts and explain its operations.**CO2: Explain the drilling machine, its operations and distinguish shaper and planer.**CO3: Describe the importance of milling machine and solve different types of indexing calculations.**CO4: Describe the types of grinding machines and abrasive particles with its applications.**CO5: Summarize surface finishing processes and explain importance of broaching and gear cutting.***Note:** i) **PART-A** is compulsory. One question from each unit for maximum of 2 marks.ii) **PART-B** Answer any **TWO** sub questions (from a, b, c) from each unit for a Maximum of 18 marks.

Q. No.	Questions	Marks	BLs	COs	POs
I:PART - A		10			
I a.	Write the operations of lathe.	2	L1	CO1	PO1
b.	List work holding devices in drilling machines.	2	L1	CO2	PO1
c.	What is indexing?	2	L1	CO3	PO1
d.	Define Grindability.	2	L1	CO4	PO1
e.	List the classification of broaching machine according to method operation.	2	L1	CO5	PO1
II:PART - B		90			
UNIT - I		18			
1 a.	Draw a neat sketch of Lathe and explain briefly the different parts of a lathe.	9	L2	CO1	PO4
b.	During machining of C-20 steel with a cutting tool 0-8-6-7-10-70-1. The following data was obtained: i) Feed = 0.18 mm/rev ii) Depth of cut = 2 mm iii) Cutting speed = 120 m/min iv) Chip thickness = 0.4 mm.	9	L3	CO1	PO3
	Determine; I) Chip reduction coefficient II) Shear angle				
c.	Explain the following lathe operations: i) Taper turning operation ii) Threading operation iii) Knurling operation	9	L2	CO1	PO1

UNIT - II		18
2 a.	Why bench drilling machine is called sensitive drilling machines. Explain drilling machine (bench drilling machine) with a neat sketch.	9 L2 CO2 PO1
b.	With a neat sketch, explain the principle of quick return mechanism used in shaper.	9 L2 CO2 PO1
c.	Differentiate between shaper and a planer.	9 L3 CO2 PO1
UNIT - III		18
3 a.	Explain with a neat sketch upward milling and down ward milling operations.	9 L2 CO3 PO1
b.	With a neat sketch, explain principal parts of column and knee type milling machine.	9 L2 CO3 PO1
c.	What is simple indexing? With a neat sketch of simple indexing mechanism, describe the procedure of simple indexing method.	9 L2 CO3 PO1
UNIT - IV		18
4 a.	Explain the types of bonds used in grinding wheel.	9 L2 CO4 PO1
b.	With the help of sketch, explain surface grinding machine.	9 L2 CO4 PO1
c.	Discuss the following:	
	i) Balancing of grind wheel	9 L2 CO4 PO1
	ii) Wheel truing and dressing	
UNIT - V		18
5 a.	Explain the internal pull type broaching with a neat sketch.	9 L2 CO5 PO1
b.	Explain honing procedure with sketch.	9 L2 CO5 PO1
c.	Illustrate Rack cutter generating process with sketch.	9 L1 CO5 PO1

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