

Reg. No.:						
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Question Paper Code: 41392

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Fourth/Sixth Semester Mechanical Engineering

ME 6402 - MANUFACTURING TECHNOLOGY - II

(Common to Mechanical Engineering(Sandwich)/Industrial Engineering/Industrial
Engineering and Management/Mechanical and Automation Engineering)
(Regulations 2013)

Time: Three Hours

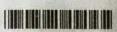
Maximum: 100 Marks

Answer ALL questions.

PART - A

 $(10\times2=20 \text{ Marks})$

- 1. List the physical functions of a machine tool in machining.
- 2. Define the oblique cutting.
- 3. What are the various mechanisms that are used for automatic feeding in lathes?
- 4. Write the advantages of automats over conventional lathes.
- 5. Name any four work holding devices in shaper.
- 6. List the applications of gear hobbing.
- 7. What are the specifications of grinding wheel?
- 8. Why is the centre less grinders called specialized machine for Cylindrical parts?
- 9. Write the disadvantages of manual part programming.
- 10. What are the challenges in wafer machining?



PART - E

		PART – B	(5×13=65 Marks)
11. a	i) i) The following data from	an orthogonal cutting test is	s available (9)
	a) Rake Angle		15°
	b) Chip Thickness Ra	tio =	0.383
	c) Uncut Chip Thickr	ness =	0.5 mm
	d) Width of Cut, B	3 - 3 V 3 (1) - 1	3 mm
	e) Yield Stress of Mat	erial In Shear =	280 N/mm ²
	f) Average coefficient	of friction on the tool face =	0.7
	Determine the normal	and tangential forces on the	tool face.
		gram illustrating the charact mation in the machining pro	
	(OR)		
b) Describe the following:		
	i) Mechanisms and patter	n (geometry) of cutting tool w	
	ii) Essential properties of c	utting fluids.	(5)
12. a)	With the help of suitable sk	etches describe the following	
	i) Taper turning by using	taper turning attachment.	(9)
	ii) Taper turning by combin	ning longitudinal feed and cr	ross feed. (4)
	(OR)		
b)	Enumerate the construction mechanism in Capstan and		ciple of turret indexing (9+4)
13. a)	Discuss in detail about the and list its advantages also.		a horizontal shaper (9+4)
	(OR)		
b)	Write short notes on gear sl gear shaping process.	naping. List the advantages	and disadvantages of
14. a)	Explain the working mechan	nism of the following grindin	g process briefly
	i) Cylindrical surface grind	ling.	(7)
	ii) Centerless grinding.		(6)
	(OR)		



	b)	Ex	plain the working mechanism of the following broaching process briefly	
		i)	Surface broaching.	(7)
		ii)	Continuous broaching.	(6)
15.	a)	Des	scribe the drive systems used in CNC machine tools. (OR)	13)
	b)	De	escribe the following:	
		i)	With a neat sketch, explain the working of ATC.	(8)
		ii)	Write short notes on APT language.	(5)
			PART - C (1×15=15 Mar	ks)
16.	a)	i)	Explain the part program segment given below. Draw the trajectory of table motion that this program seeks to create. N0010G90; N0011G01X1Y2; N0012G01X2Y2 N0013G91; N0014G01X1; N0015G92X2Y2; N0016G01X1Y1	1+4)
		ii)	Is there any connection between the choice of coordinate system and the position sensor used in the machine tool?	(4)
		iii)	Comment on the sensing requirements for PTP and Contouring axes. (OR)	(3)
	b)) W	Trite a note on heat generation in metal cutting. What is the importance of nalysing the thermal aspects of machining?	(15)