Reg. No.															

Question Paper Code	12875

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Third Semester

Mechanical and Automation Engineering

20MUPC301 - BASIC MANUFACTURING PROCESSES

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Classify the different types of patterns.	2	K2	CO1
2.	List any four welding defects.	2	K1	CO1
3.	Define angle of bite in rolling.	2	K1	CO2
4.	What is spring back effect? And how it is overcome in sheet metal work.	2	K1	CO2
5.	Define chip thickness ratio.	2	K1	CO3
6.	Give the factors that affect the tool life.	2	K1	CO3
7.	How do you classify milling cutters?	2	K1	CO4
8.	List out the gear finishing processes.	2	K1	CO4
9.	What is meant by dressing and truing?	2	K1	CO5
10.	Write the specifications of a grinding machine.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Explain the various step involved in lost wax-process with suitable sketches.	13	K2	CO1
		OR			
	b)	Describe submerged arc welding process with neat diagram, Write down the advantages, disadvantages and applications.	13	K2	CO1
12.	a)	Enumerate with neat sketch on various types of extrusion process, and list out its advantages and applications.	13	K2	CO2
		OR			
	b)	With neat sketches, explain the following smith operation a) Upsetting b) Bending c) Swaging d) Fullering e) Shearing f) Blanking g) Punching	13	K2	CO2

13. a) Explain about various types of taper turning methods with neat sketches. *13 K2 CO3*

OR

b) Discuss about the single spindle automatic lathe and explain Swiss type automatic lathe with neat sketch. *13 K2 CO3*

14. a) Sketch and explain the working principle of a radial arm drilling machine, with its advantages, disadvantages and applications. *13 K2 CO4*

OR

b) With a neat sketch explain the column and knee type milling machine, with its advantages, disadvantages and applications. *13 K2 CO4*

15. a) Explain the working mechanism of cylindrical and surface grinding with a neat sketch. *13 K2 CO5*

OR

b) Explain the surface integrity with neat sketch and what are the factors influencing it? *13 K2 CO5*

PART - C (1 × 15 = 15 Marks)

16. a) The following data from an orthogonal cutting test is available *15 K2 CO6*
Rake angle = 15^{o}
Chip thickness ratio = 0.383
Uncut chip thickness = 0.5 mm
Width of cut, b = 3 mm
Yield stress of material in shear = 280 N/mm²
Average coefficient of friction on the tool face = 0.7.
Determine the normal and tangential forces on the tool face.

OR

b) Briefly explain the Construction and Working principle of LASER beam welding, and list down its advantages, disadvantages and applications. *15 K2 CO6*