05 MAY 2023

Reg. No.												

Question Paper Code	11843

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Sixth Semester

Production Engineering

PR8602 - METAL CUTTING AND CNC MACHINES

(Regulations 2017)

Duration: 3 Hours | Max. Marks: 100

PART-A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	Classify the various angles in cutting tool.	2,K2,CO1
2.	What is tool signature?	2,K1,CO1
3.	What is meant by tool life? Mention Taylor's Tool life equation.	2,K1,CO2
4.	Define machinability of metal.	2,K1,CO2
5.	What are the various types of gear generating process?	2,K1,CO3
6.	What is broaching and mention its types?	2,K1,CO3
7.	Differentiate between NC and CNC.	2,K2,CO4
8.	What is a CNC machining center?	2,K1,CO5
9.	What is the difference between incremental and absolute system?	2,K1,CO6
10.	What is a canned cycle?	2,K1,CO6

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain various tool parts of a single point cutting tool with a neat sketch.	13,K2,CO1
		OR	
	b)	Briefly explain the following with neat sketches: a) Orthogonal Cutting b) Oblique Cutting.	13,K2,CO1
12.	a)	List the various type of tool wear and discuss the factors affecting them.	13,K2,CO2
		OR	
	b)	Discuss the different types of chips produced during machining process with neat sketches.	13,K2,CO2
13.	a)	Why is gear finishing required? Discuss the various types of gear finishing operations.	13,K2,CO3

OR

b) Explain the principle of operation of gear hobbing process. *13,K2,CO3*

14. a) Explain open loop and closed loop system used for suitable application. *13,K2,CO4*

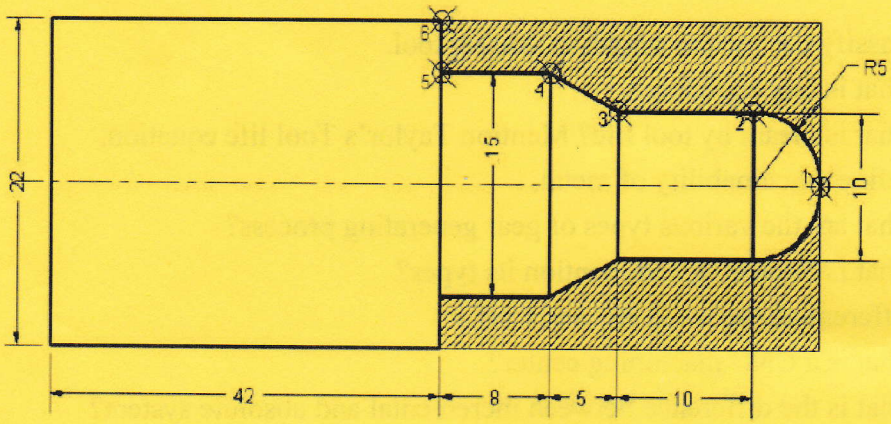
OR

b) Describe the spindle and feed drives. State the requirement of the drives of CNC machine tools. *13,K2,CO4*

15. a) Explain the various types of statements used in APT programming. *13,K2,CO6*

OR

b) Create a CNC program using canned cycle for manufacturing the following component. *13,K3,CO6*



PART - C (1 × 15 = 15 Marks)

16. a) Explain the working principle of CNC wire cut EDM with a neat sketch. *15,K2,CO5*

OR

b) Explain in detail about machining center and turning center with a neat sketch. *15,K2,CO5*