

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT
(An Autonomous Institute U/s UGC Act 1956)

B.Tech. SEMESTER-III, SEMESTER END EXAMINATION – WINTER 2025

SUBJECT CODE: 1ME303

DATE: 20-12-2025

SUBJECT NAME: MACHINING PROCESSES

TIME: 11:00 AM to 01:30 PM

TOTAL MARKS: 70

Instructions

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Write answers of **Section A** and **Section B** in **separate answer books**.
3. Attempt all questions from both **Section A** and **Section B**.
4. Each section carries **35 marks**, with a total of **70 marks** for the examination.
5. The figures to the right of each question indicate full marks, make suitable assumptions with justification.
6. BL - Cognitive Level (As per Revised Bloom's Taxonomy) (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

SECTION A

		Marks	BL	CO
Q.1	(a) Explain working motions and auxiliary motions in a lathe machine.	03	U	1
	(b) Draw single point cutting tool geometry and write tool signature.	04	R	1
Q.2	(a) Define the following operations: Turning, Knurling and Grooving.	03	R	2
	(b) Give the difference between three jaw chuck and four jaw chuck.	04	R	2
	(c) List the types of lathe machine and explain any one lathe machine with neat sketch.	07	U	2
OR				
Q.2	(a) Define the following parameters: Cutting speed, feed rate and depth of cut.	03	R	2
	(b) Explain with neat sketch the compound rest method for taper turning on a lathe.	04	U	2
	(c) Calculate the time required to machine a workpiece 170 mm long and 60 mm diameter to 165 mm long to 50 mm diameter. The workpiece rotates at 440 rpm, feed rate is 0.3 mm/rev and maximum depth of cut is 2 mm. Assume total approach and overtravel distance as 5 mm for turning operation.	07	A	2
Q.3	(a) Draw the neat sketch of Twist drill with its nomenclature.	03	R	3
	(b) Explain the Horizontal Boring Machines (HBM).	04	U	3
	(c) Explain with neat sketch the Radial drilling machine.	07	U	3

OR

Q.3	(a) Draw the neat sketch of Broach teeth with its nomenclature.	03	R	3
	(b) Explain the Sensitive drilling machine.	04	U	3
	(c) Explain Precision Boring Machine with its line diagram.	07	U	3

SECTION B

		Marks	BL	CO
Q.4	(a) List out various milling machine operations and explain any two	03	U	4
	(b) Differentiate between Up milling and Down milling processes.	04	N	4
Q.5	(a) Describe the any three parts of slotter machine.	03	R	5
	(b) Compare Shaping and Planning in terms of movement and applications	04	N	5
	(c) A neat sketch explain crank and slotted quick return mechanism in shaping machine	07	U	5
	OR			
Q.5	(a) Define the speed, feed and depth of cut w.r.t shaping machine.	03	R	5
	(b) State the advantages, limitations and applications of a slotter machine.	04	U	5
	(c) Draw the block diagram of standard double housing planer, showing its main parts and briefly describe these parts.	07	U	5
Q.6	(a) Classify the grinding machine.	03	R	6
	(b) Explain the external centerless grinding machine with sketch.	04	U	6
	(c) Explain the specifications of a grinding wheel. Explain why a soft wheel is suggested to grind a hard material.	07	u	6
	OR			
Q.6	(a) Explain the importance of grain size in Grinding Process.	03	U	6
	(b) Define Trueing, Dressing, Loading and Glazing w.r.t. grinding machine.	04	U	6
	(c) Explain the construction and working of a plan cylindrical grinder with help of a neat diagram.	07	U	6
