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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S4 (R) (FT/WP) Examinations April 2026 (2024 Scheme)

Course Code: PCMET402
Course Name- MACHINE TOOLS AND METROLOGY

Max. Marks: 60

Duration: 2 hours 30 minutes

PART A

(Answer all questions. Each question carries 3 marks)

		CO	Marks
1	Differentiate between orthogonal cutting and oblique cutting.	1	(3)
2	List any six operations that can be performed in a Lathe.	1	(3)
3	Differentiate up milling and down milling operations.	1	(3)
4	Briefly explain lapping process with a sketch.	2	(3)
5	Explain tolerance and its significance.	3	(3)
6	Describe gauge tolerance and wear allowance.	3	(3)
7	Describe the use of comparators and name any three types..	4	(3)
8	Explain Interferometry and its applications.	4	(3)

PART B

(Answer any one full question from each module, each question carries 9 marks)

Module -1

9	With a neat sketch, explain the nomenclature of a single point cutting tool.	1	(9)
10	Describe the various parts and its functions of an engine lathe with a neat sketch.	1	(9)

Module -2

- 11 a) Explain the various operations that can be performed in a drilling machine with the help of line sketches. 1 (6)
- b) Explain different parameters influencing machining time for drilling operations. 2 (3)
- 12 a) With a neat sketch, explain the various parts and their functions of a milling machine. 1 (5)
- b) Define the terms speed, feed, depth of cut and machining time in a milling operation. 2 (4)

Module -3

- 13 Explain limits and fits, their classification and applications with the help of neat diagrams. 3 (9)
- 14 a) Explain the function of gauges and describe the different types of gauges and their applications. 3 (6)
- b) Define Taylor's Principle of gauges. 3 (3)

Module -4

- 15 Explain the principle and working of NPL Flatness Interferometer with the help of a neat sketch. 4 (9)
- 16 Describe the principle working of a coordinate measuring machine (CMM) and mark all the parts on a neat diagram.. 4 (9)
