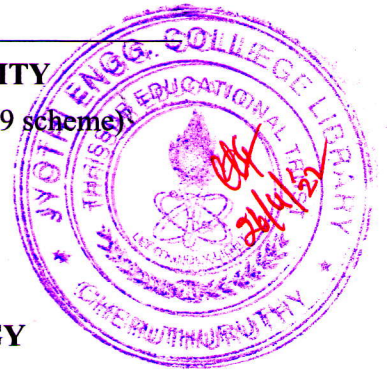


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Fifth Semester B.Tech Degree Examination December 2021 (2019 scheme)



Course Code: MET307

Course Name: MACHINE TOOLS AND METROLOGY

Max. Marks: 100

Duration: 3 Hours

PART A*(Answer all questions; each question carries 3 marks)*

		Marks
1	Define counter boring and explain briefly counterboring process in the lathe.	3
2	Explain how a keyway cut on pulley bore.	3
3	Differentiate Up milling and down milling.	3
4	Explain any one synthetic abrasive used in making grinding wheel and its significant application.	3
5	Explain the purpose of broaches in machining industry.	3
6	Briefly explain gear generation process.	3
7	Describe Taylor's principle of gauges.	3
8	What is the standard deviation in the limit system?	3
9	Compare electrical and electronic comparators.	3
10	What are the different applications of CMM.	3

PART B*(Answer one full question from each module, each question carries 14 marks)***Module -1**

11	a) Differentiate horizontal and vertical spindle screw machines.	5
	b) Explain any three work holding devices used in Slotter machine	9
12	a) Explain any four processes that can be done on a drilling machine with sketches.	8
	b) Draw a block diagram of boring machine and label all parts.	6

Module -2

13	a) Mark all elements of plain milling cutter with neat figure.	7
	b) Explain the principle of indexing head with a good sketch.	7

- 14 a) Explain the method of specifying a grinding wheel with suitable examples. 6
b) Differentiate between hand lapping and machine lapping. 8

Module -3

- 15 a) Describe how a gear is manufactured by broaching. 6
b) Write the procedure of bevel gear manufacturing by form cutters in a milling machine. 8
- 16 a) What are the gear finishing operations and explain any one of them with sketches. 7
b) Write the procedure of cutting spiral gear teeth with suitable example. 7

Module -4

- 17 a) Differentiate systematic error and random error. 6
b) Explain the classification of tolerances with suitable examples. 8
- 18 a) Explain the applications of slip gauge, ring gauge and snap gauges. 6
b) Define precision, accuracy, sensitivity and interchangeability. 8

Module -5

- 19 a) Explain the terminology of gear with a neat figure. 7
b) Explain the measurement of screw thread elements by three wire method. 7
- 20 a) What is interferometry? Explain optical flat and its uses. 8
b) Explain elements of surface roughness with a figure. 6
