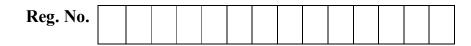
Q. Code:149495



B. E / B. TECH.DEGREE EXAMINATIONS, MAY 2023

Fourth Semester

AE18404 - Manufacturing Technology and Systems

(Automobile Engineering)

(Regulation 2018A)

TIME: 3 HOURS

MAX. MARKS: 100

- **CO1** Identify the capabilities of conventional machining processes and will select a suitable process for a particular application
- CO2 Outline the concepts of manufacturing, testing, measurement of gears and screw threads.
- CO3 Apply NC and CNC programming concepts to develop part program for Lathe and Milling Machines.
- **CO4** Identify the capabilities of unconventional machining processes and will select a suitable process for a particular application.
- CO5 Summarize the various concepts in advanced manufacturing processes and systems.

PART-A (10x2 = 20Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Identify the main differences between a Shaper and a Planer.	1	3
2.	What do you mean by Countersinking and state its purpose?	1	2
3.	What are the various methods of gear finishing?	2	2
4.	Mention the methods used for checking gear tooth profile.	2	2
5.	Identify the importance of linear interpolation in NC.	3	3
6.	Identify the significance of machine interface software used in CNC machine.	3	3
7.	Why electron beam machining is performed in a vacuum chamber?	4	2
8.	Compare electro chemical grinding with conventional grinding.(any two points)	4	2
9.	Mention the different types of part classification.	5	2
10.	Identify the limitations of additive manufacturing process.	5	3

PART- B (5x14 = 70 Marks)

		Marks	CO	RBT
				LEVEL
11. (a)	Describe the principal parts of a Lathe with a neat sketch. Justify how it can be used to perform a variety of operations with the help of tools and attachments.	(14)	1	3

(OR)

(b) Illustrate and explain the parts of a horizontal milling machine with a neat (14) 1 3 sketch. How it can be converted into an Universal/Omniversal milling machine?

12. (a)	(i) Explain with a neat sketch any one method of gear generation process.	(7)	2	3
	(ii) What are the various instruments used to measure the elements of a screw thread?	(7)	2	3
	(OR)			
(b)	Describe the construction and working of any two types of CMM.	(14)	2	3
13. (a)	Configure the basic components of a CNC machine control unit and discuss them in detail.	(14)	3	3
	(OR)			
(b)	Discuss the types of coordinate systems, motion control systems and interpolation methods used in used in NC technology.	(14)	3	3
14. (a)	Explain with a neat sketch the Electro-Chemical Machining (ECM) process in detail. Write its advantages, limitations and typical applications. (OR)	(14)	4	2
(b)	Explain with a neat sketch the Electric Discharge Machining(EDM) process in detail. Write its advantages, limitations and typical applications.	(14)	4	2
15. (a)	What are the components of FMS? Discuss the function, application and advantages of FMS.	(14)	5	2
	(OR)			
(b)	Describe the various types of industrial robot and briefly explain the basic structure of a robotic system with neat sketch.	(14)	5	2
	<u>PART- C (1x 10=10Marks)</u> (Q.No.16 is compulsory)	Marks	СО	RBT LEVEL

16. How will you decide to recommend specific unconventional machining (10) 4 3 processes for cutting a glass into two pieces, making a hole in a mild steel workpiece?
