

Reg. No.

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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 = 70Marks)

	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 sketch. How it can be converted into an Universal/Omniversal milling machine?	(14)	1	3

- 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. (14) 4 2
(OR)
- (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

PART- C (1x 10=10Marks)
 (Q.No.16 is compulsory)

**Marks CO RBT
 LEVEL**

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