AR13

CODE: 13ME4040 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, February,2021

UNCONVENTIONAL MACHINING PROCESSES

(Mechanical Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) How conventional machining do differs with unconventional machining process?
   b) What are the applications of ultrasonic machining?
   c) List the process variables which will influence the MRR and accuracy in abrasive jet machining
   d) Explain the working principle of abrasive jet machining.
   e) What are the various types of electrolytes used in ECM?
   f) What are the limitations of ECM?
   g) Why dielectric fluid is used in Electric Discharge Machining?
   h) Discuss the advantages of EDM
   i) Can you machine electrically non conducting materials using EBM process? Why
   j) Explain the plasma generation in Plasma Arc Machining

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Discuss the classification of Unconventional Machining Processes. 6M
   b) Enlist the requirements that demand the use of Advanced machining processes 6M

(OR)

3. a) Sketch and explain the tool feed mechanism used in ultrasonic machining. 8M
   b) What are the limitations of Ultrasonic machining? 4M

UNIT-II

4. a) How does the below variables effect the metal removal rate and accuracy of machining in AJM? 6M
      i) Type of abrasive ii) Grain size iii) Jet velocity
   b) Explain the working of abrasive water jet machining with a neat sketch 6M

(OR)

5. a) Write short notes on metal removal rate and wear rate of nozzle in abrasive water jet machining. 8M
   b) What are the advantages and limitations of water jet machining 4M

UNIT-III

6. Write short notes on: 12M
   i) The economics of electro chemical machining.
   ii) The effect of high temperature and pressure of electrolyte in the ECM process
   iii) Applications of electrolytic grinding process

(OR)

7.	a)	What are the specific advantages of using chemical machining over electro chemical machining?	4M
	b)	With a neat sketch explain the working of Electrochemical honing.	8M

UNIT-IV

8.	a)	What is flushing in EDM and explain flushing methods?	9M
	b)	What are the applications of Electric Discharge Machining?	3M
		(OR)	
9.	a)	Sketch and explain the electrode feed control in Electric Discharge Machining.	8M
	b)	Explain the properties of dielectric fluid in Electric Discharge Machining.	4M

UNIT-V

10.	a)	Explain the process characteristics of Laser Beam Machining.	8M
	b)	Write the advantages and limitations of Laser Beam Machining.	4M
		(OR)	
11.	a)	Explain the construction and working principle of Electron Beam Machining.	9M
	b)	Why is EBM carried out in vacuum?	3M

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AR13

CODE: 13EC4044 SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, February,2021

EMBEDDED & REAL TIME OPERATING SYSTEMS

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) List out Common Characteristics of an Embedded System
   b) For a Product, non-recurring cost is Rs.60000 and the unit cost of the product is Rs.3500. If 4000 units of the product is manufactured, the per Unit cost is given by _____
   c) What is Process Scheduling?
   d) What is the Purpose of Mutex?
   e) List out different Communication Interfaces.
   f) State the function of UART.
   g) What are various kernel Objects?
   h) Define Interrupt Service Routine.
   i) What is the purpose of Timers in RTOS?
   j) What are the different functions provided by kernel to manage memory?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) What are the Common Design metrics has to be considered by Embedded System designer 6M
   b) Explain basic architecture of General purpose processor with a neat diagram. 6M

(OR)

3. a) Explain about Processor technology in Embedded System Design. 6M
   b) By Considering GCD example, explain how a Custom Single Processor is designed 6M

UNIT-II

4. a) What are the basic Operations on processes in Concurrent Process model? 6M
   b) How a system is designed in Date Flow Graph model? Explain with an example. 6M

(OR)

5. a) How a system is designed in Program State Machine Model? Explain with an example. 6M
   b) Explain about various techniques used for Synchronization among Processes. 6M

UNIT-III

6. a) Explain about RS232 Communication Interface. 6M
   b) Discuss about IEEE 802.11 Standard 6M

(OR)

7. a) Explain about Infrared Communication Interface. 6M
   b) Discuss about Ethernet LAN protocol Architecture 6M

UNIT-IV

8. a) Briefly discuss about states of a task 4M
   b) Explain different Scheduling Algorithms 8M

(OR)

9. a) How a semaphore is used for Resource Synchronization and Task Synchronization 6M
   b) Discuss about Mailboxes and Message Queues 6M

UNIT-V

10. a) Discuss about Priority Inversion Problem 6M
    b) Explain about Windows CE Real Time Operating System 6M

(OR)

11. a) Explain about Embedded Linux and RT Linux 6M
    b) Discuss about different Handheld Operating Systems 6M

AR13

CODE: 13CS4043 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech II Semester Supplementary Examinations, February,2021
MOBILE ADHOC AND SENSOR NETWORKS
(ELECTIVE – IV)
(Computer Science & Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Define sensor network
   b) Define data aggregation
   c) Define flooding
   d) Define IDS
   e) Define Geo casting
   f) Differentiate multicasting and broad casting
   g) List out the applications of MANET
   h) Differentiate reactive and proactive protocols
   i) Define self configuration
   j) List out the applications of sensor networks

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Write a short note on characterstics of MANETs 6M
   b) Differentiate topology based protocols and position based protocols 6M

(OR)

3. a) Write about challenges and issues of MANETs 6M
   b) Explain about OLSR protocol in Ad-Hoc networks 6M

UNIT-II

4. a) Write a short notes on broadcast storm 6M
   b) Explain header format of TCP 6M

(OR)

5. a) Write a short notes on multicast routing protocols 6M
   b) Suggest solution for TCP over Ad Hoc 6M

UNIT-III

6. a) Write a short note on Clustering in sensor networks 6M
   b) Write a short note on challenges of security in Ad Hoc networks 6M

(OR)

7. a) Write a short note design issues of sensor networks 6M
   b) Write a short note on cooperation in MANETs 6M

UNIT-IV

8. a) Explain about MAC layer 6M
   b) Write a short note on programming challenges of sensor networks 6M

(OR)

9. a) Explain about routing layer 6M
   b) Write a short note on node level software platforms 6M

UNIT-V

10. a) Write a short note on data aggregation in sensor networks 6M
    b) Explain wireless mesh networks 6M

(OR)

11. a) Explain about vehicular ad Hoc networks 6M
    b) Explain about key management in WSN 6M