# AR13

**CODE: 13CE4037** **SET-2**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**IV B.Tech II Semester Regular & Supplementary Examinations, April, 2018**
**PAVEMENT ANALYSIS AND DESIGN**
**(Elective-4)**
**(Civil Engineering)**

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

**PART-A**

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

1. a) Define the ESWL.
   b) Write the equations for temperature stresses in concrete pavements
   c) Define the contact pressure and tyre pressure.
   d) Write the importance of joints in Rigid pavement
   e) Define the critical load positions.
   f) Enumerate various maintenance steps in maintenance of a rigid pavement
   g) Write the uses of Benkleman Beam Method.
   h) Write a short note on use of tie bars in cement concrete pavement
   i) Define the Longitudinal cracking.
   j) Write the uses of soil Cement stabilization

**PART-B**

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

**UNIT-I**

2. a) List out the differences between Flexible and rigid pavement. 6 M
   b) Explain how Material Characteristics influence design of pavement 6M

**(OR)**

3. Explain various factors effecting design and performance of pavement. 12 M

**UNIT-II**

4. a) List out various equation suggested by Westerguard for the calculation of wheel load stresses acting on a Rigid pavement 6 M
   b) Explain a) relative stiffness of slab b) modulus of sub-grade reaction 6 M

**(OR)**

5. Explain Boussinesq theory and Burmister theory for pavement design with neat sketch 12 M

# AR13

**CODE: 13CE4037** **SET-2**

**UNIT-III**

| | | | |
|---|---|---|---|
| 6. | a) | Explain the CBR method for designing of flexible pavement with neat sketch | 6 M |
| | b) | Write about importance and uses of dowel bars | 6 M |
| | | **(OR)** | |
| **7.** | a) | Write about different types of joints in rigid pavements with neat sketch. | 6 M |
| | b) | Explain the AASHO Method of Flexible Pavement design | 6 M |

**UNIT-IV**

| | | | |
|---|---|---|---|
| 8. | | What are tests conducted on Bitumen. Explain briefly each one. | 12 M |
| | | **(OR)** | |
| 9. | a) | Explain various Steps in Construction of Reinforced Concrete Pavements | 6 M |
| | b) | Explain various Methods and Objectives of soil stabilization | 6 M |

**UNIT-V**

| | | | |
|---|---|---|---|
| 10. | a) | Explain briefly about failures of flexible pavements with neat sketch. | 6 M |
| | b) | Explain the pavement overlays technique for existing pavements | 6 M |
| | | **(OR)** | |
| 11. | a) | what are methods involved in pavement evaluation ? Explain briefly | 6 M |
| | b) | Explain briefly about failures of rigid pavements with neat sketch | 6 M |



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# AR13

**CODE: 13EE4037** **SET-1**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**IV B.Tech II Semester Regular & Supplementary Examinations, April, 2018**
**POWER QUALITY MANAGEMENT**
**(Elective-IV)**
**(Electrical and Electronics Engineering)**

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

**PART-A**

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

1. a) Define power quality?
   b) Define voltage sag
   c) What is called an interrupt?
   d) Define harmonics?
   e) What is the use of chart recorder?
   f) Define THD?
   g) What is a voltage regulator?
   h) What is harmonic analyser?
   i) Define oscillatory transients?
   j) How are harmonic distortions produced?

**PART-B**

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

**UNIT-I**

2. a) Explain the power quality issues? **6**
   b) What is a power quality? Why do we concerned about power quality? **6**

**(OR)**

3. a) Explain about power quality verses equipment immunity? **6**
   b) Explain the causes of power quality problems? **6**

**UNIT-II**

4. a) Explain about cures for low frequency disturbances? **6**
   b) What is the need for protection against over voltages? What are the basic principles of over voltages protection of load equipments? **6**

**(OR)**

| | | | |
|---|---|---|---|
| **5.** | a) | Explain about common power frequency disturbances? | **6** |
| | b) | Explain in detail about various methods to mitigate voltage sag? | **6** |

**UNIT-III**

| | | | |
|---|---|---|---|
| 6. | a) | Explain about capacitor switching transients? | **6** |
| | b) | Explain the causes, effects and cures for transient disturbances? | **6** |
| | | **(OR)** | |
| **7.** | a) | What are the different sources of transient over voltages? | **6** |
| | b) | What are the important concerns for capacitor bank switching? | **6** |

**UNIT-IV**

| | | | |
|---|---|---|---|
| 8. | a) | Explain the sources of harmonics? | **6** |
| | b) | Explain the effects of harmonics on power system equipments and load? | **6** |
| | | **(OR)** | |
| 9. | a) | Explain the causes of voltage and current harmonics? | **6** |
| | b) | Explain in detail the harmonic sources of commercial and industrial loads. | **6** |

**UNIT-V**

| | | | |
|---|---|---|---|
| 10. | a) | Write about harmonic analyser? | **6** |
| | b) | Write short notes on power quality measurement system? | **6** |
| | | **(OR)** | |
| 11. | a) | Explain in detail about power quality monitoring standards? | **6** |
| | b) | What are the characteristics of power measurement equipments? | **6** |



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# AR13

**CODE: 13ME4040** **SET-2**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**IV B.Tech II Semester Regular & Supplementary Examinations, April, 2018**
**UNCONVENTIONAL MACHINING PROCESSES**
**(Mechanical Engineering)**

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

**PART-A**

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

1. a) What is meant by Conventional Machining Processes?
   b) List the unconventional machining process which uses mechanical energy?
   c) Name the unconventional machining process which consumes maximum power?
   d) Write two process parameters affecting the MRR in AJM.
   e) Name some tool material used in EDM?
   f) What is the electrolysis commonly used in ECM?
   g) What are the important functions of abrasive particles used in ECG?
   h) Why vacuum is needed in EBM?
   i) What are the gases commonly used in LASER?
   j) How the basic plasma does is generated?

**PART-B**

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

**UNIT-I**

2. a) What are the basic limitations of conventional machining process? 6
   b) Write short notes on Transducers used in USM machine 6

(OR)

3. a) Justify the need of unconventional machining process in today's industries. 6
   b) What are the advantage and limitations of Ultrasonic machining? 6

# AR13

**CODE: 13ME4040** **SET-2**

**UNIT-II**

| | | | |
|---|---|---|---|
| 4. | a) | Explain the working principle of Water jet cutting with neat sketch. | 6 |
| | b) | Sate clearly the process capabilities of AJM | 6 |
| | | (OR) | |
| 5. | a) | Write advantages, limitations and applications of Water Jet machining | 6 |
| | b) | Explain the working principle of magnetic abrasive finishing machine with neat sketch. | 6 |

**UNIT-III**

| | | | |
|---|---|---|---|
| 6. | a) | In chemical machining, what are the factors by which the selection of etchants is governed? | 6 |
| | b) | Explain briefly, the chemical machining process with help of neat flow chart. | 6 |
| | | (OR) | |
| 7. | a) | In what ways the electrochemical grinding differs from ordinary grinding process. | 6 |
| | b) | List out various advantages and applications of chemical machining. | 6 |

**UNIT-IV**

| | | | |
|---|---|---|---|
| 8. | a) | Explain briefly the wire electro discharge machining process by using sketch. | 6 |
| | b) | List the Process parameters of EDM and explain their significance in machining. | 6 |
| | | (OR) | |
| 9. | a) | List the commonly used dielectric fluids in EDM process. What properties should they posses? | 6 |
| | b) | Explain the mechanism of EDM showing the circuit and movements of ions. | 6 |

**UNIT-V**

| | | | |
|---|---|---|---|
| 10. | a) | Explain the electron beam machining process with a simple sketch. | 7 |
| | b) | How MRR could be effect on surface finish and Accuracy in PAM. | 5 |
| | | (OR) | |
| 11. | a) | Explain the working of Laser beam machining with neat sketch. | 7 |
| | b) | List the applications of plasma in machining. | 5 |

# AR13

**CODE: 13EC4044** **SET-1**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**IV B.Tech II Semester Regular & Supplementary Examinations, April, 2018**
**EMBEDDED & REAL TIME OPERATING SYSTEMS**
**(ELECTIVE – IV)**
**(Electronics & Communication Engineering)**

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

**PART-A**

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

1. a) What is an embedded system?
   b) What are the typical characteristics of an embedded system?
   c) Explain the importance of shared data technique in concurrent process.
   d) What is program state machine?
   e) What are the four types of data transfer used in USB?
   f) What do you meant by high speed device interfaces?
   g) Explain the use of semaphore
   h) What is RTOS?
   i) What are the real-time requirements of an embedded system?
   j) Give the needs for memory management.

**PART-B**

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

**UNIT-I**

2. a) What is ISR and briefly explain. **6M**
   b) Explain about Less - General ASIP environments. **6M**

**(OR)**

3. a) Explain the concept of pipelining with neat sketches. **5M**
   b) Compare general purpose processor, single purpose processor and application-specific processor with neat sketches. **7M**

**UNIT-II**

4. a) Explain about Concurrent Process Model. **4M**
   b) Compare the state machine and sequential program model. **8M**

**(OR)**

5. a) Illustrate Finite-state machines with data paths. **4M**
   b) Describe the elevator's Unit Control process using a state machine. **8M**

# AR13

**CODE: 13EC4044** **SET-1**

**UNIT-III**

| | | | |
|---|---|---|---|
| 6. | a) | What are the devices that can be connected through IEEE 1394 Bus? Explain its limitations. | **7M** |
| | b) | Explain the need of communication interfaces. | **5M** |
| | | **(OR)** | |
| **7.** | a) | List the features of Bluetooth. | **3M** |
| | b) | Write short notes on<br>a) RS232, b) RS422 c) RS485. | **9M** |

**UNIT-IV**

| | | | |
|---|---|---|---|
| 8. | a) | Explain with an example the mail boxes in an embedded system with Real time operations. | **6M** |
| | b) | What is the difference between mutex and semaphore? | **6M** |
| | | **(OR)** | |
| 9. | a) | Explain about the interrupt routine rules used in RTOS environment. | **4M** |
| | b) | List the function calls used for shared memory and message queues. | **8M** |

**UNIT-V**

| | | | |
|---|---|---|---|
| 10. | a) | What is an RTLinux module? What is the function calls provided for timer management in RTLinux? | **8M** |
| | b) | Describe windows CE serial communication functions? | **4M** |
| | | **(OR)** | |
| 11. | a) | Explain in detail about priority inversion problem. | **6M** |
| | b) | Explain the memory management that is required for embedded RTOS. | **6M** |



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# AR13

**CODE: 13CS4043** **SET-I**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**
**(AUTONOMOUS)**
**IV B.Tech II Semester Regular & Supplementary Examinations, April, 2018**
**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) What is a cellular network
   b) List any four applications of MANETs
   c) What is Broadcasting Storm problem
   d) How are geocasting protocols classified
   e) What is a Mica Mote
   f) Define a Sensor Cluster
   g) What is TinyOS
   h) List some node level simulators of sensor networks
   i) What is an IDS
   j) Define a VANET

**PART-B**

**Answer one question from each unit** **[12 x 5 = 60 M]**

## UNIT-1

2. a) List and explain the various challenges involved with MANETs 7M
   b) Compare proactive & reactive routing protocols 5M

**(OR)**

3. a) Explain any one proactive routing protocols in detail 5M
   b) What is Position based routing and explain about Greedy forwarding strategy 7M

# AR13

**CODE: 13CS4043** **SET-I**

**UNIT- II**

4. a) Draw the header format of TCP & explain the functionalities of different fields 8M
   b) List and explain different mechanisms utilized by TCP to provide reliability 4M

**(OR)**

5. Explain the different multicasting approaches of MANETs 12M

**UNIT- III**

6. a) List and explain the advantages of WSN's over wired ones 5M
   b) Explain about cooperations in MANET 7M

**(OR)**

7. Describe briefly about Secure Routing in MANETs 12M

**UNIT – IV**

8. Explain the issues involved in MAC layer in MAC layer of WSN 12M

**(OR)**

9. a) Explain briefly about sensor network programming challenges 6M
   b) List and describe the key concepts of a node-level simulator 6M

**UNIT –V**

10. Describe briefly about major issues related to WSN Security 12M

**(OR)**

11. Explain about Wireless Mesh Networks 12M



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# AR13

**CODE: 13CS4038** **SET-2**

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI**

**(AUTONOMOUS)**

**IV B.Tech II Semester Regular & Supplementary Examinations, April, 2018**

**MACHINE LEARNING**

**(Information Technology)**

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

**PART-A**

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

1. a) What is Machine learning?
   b) What are the goals and applications of machine learning?
   c) What are issues in decision tree learning?
   d) Write about decision tree representation
   e) Define Bayes theorem.
   f) List out some examples to classify text.
   g) Define probability learning.
   h) Write about explicit generalization
   i) Define First-order rule
   j) Write short note on inverse resolution.

## PART-B

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

## UNIT-I

2. a) Explain how hypothesis space search is carried in decision tree learning. 8M
   b) Write short notes on learning conjunctive concepts. 4M

**(OR)**

3. a) How to find maximally specific hypotheses? 4M
   b) Describe different aspects of developing a learning system. 8M

## UNIT-II

4. Discuss about basic decision tree learning algorithm with example. 12M

**(OR)**

5. a) Explain about appropriate problems for decision tree learning. 6M
   b) Write short notes on inductive bias in decision tree learning. 6M

## UNIT-III

6. a) Discuss maximum likelihood hypothesis for predicting probabilities in Bayesian learning. 6M
   b) How is Naïve Bayes algorithm useful for learning and classifying text? 6M

**(OR)**

7. a) What are Bayesian Belief networks? Can it solve all types of problems? 6M
   b) Explain about maximum likelihood and least squared error hypothesis. 6M

## UNIT-IV

8. Enumerate the steps in the K-Nearest- Neighbor algorithm. 12M

**(OR)**

9. a) Discuss about sample complexity for infinite hypothesis spaces. 6M
   b) Describe Case-based learning. 6M

## UNIT-V

10. Explain in detail about Learning Sets of First Order Rules in FOIL. 12M

**(OR)**

11. a) Discuss about Sequential Covering Algorithms. 8M
    b) Write short note on learning recursive rules. 4M



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