AR13

CODE: 13CE4037 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, June-2019

PAVEMENT ANALYSIS AND DESIGN

(Civil Engineering)

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

PART-A

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

1. a) Define rigidity factor.
   b) What is the radius of relative stiffness?
   c) Define modulus of sub grade reaction.
   d) What is the function of tie bars and dowel bars in pavement joints.
   e) Define softening point.
   f) Mention any five distresses in flexible pavements.
   g) Write the formula for calculating number of cumulative standard axles.
   h) What is the difference between abrasion and attrition?
   i) Write the uses of soil cement stabilization.
   j) What is the need for highway maintenance.

PART-B

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

UNIT-I

2. a) What are the types of pavements. Write the functions of each layer of pavement. 6M
   b) Differentiate between the flexible pavement and rigid pavement. 6M

(OR)

3. a) Define ESWL. Explain ESWL concept with neat sketch. 6M
   b) Briefly explain factors considered for design of pavements. 6M

UNIT-II

4. a) Briefly explain the one layer and two layered system. 8M
   b) Explain the radius of relative stiffness and equivalent radius of resisting section. 4M

(OR)

5. a) Calculate the stresses at interior, edge and corner regions, of a concrete pavement using Westergaards stress equation for the following data: Wheel load=4100 kg, Modulus of elasticity of concrete=3.3*105 kg/cm2 Pavement thickness=18cm, Modulus of subgrade reaction=2.5kg/cm3 Diameter of loaded area =25cm, Poisson's ratio of concrete= 0.15 — 6M

   b) Write a short note on — 6M

      i) Warping stresses ii)Frictional stresses

UNIT-III

6. a) Write the procedure for design of a flexible pavement by IRC method. — 7M

   b) Distinguish between dowel bar and tie bar. — 5M

(OR)

7. a) Explain IRC method of Rigid pavement design. — 7M

   b) Explain the importance of joints in pavements. — 5M

UNIT-IV

8. a) What are the tests conducted on bitumen. Explain any three tests briefly. — 8M

   b) Write a short note on soil-lime stabilisation. — 4M

(OR)

9. a) What are the tests conducted on road aggregates. Explain any three tests briefly. — 6M

   b) Explain the construction procedure for Bituminous Concrete. — 6M

UNIT-V

10. a) What are various types of distresses in flexible pavement? Explain in detail. — 7M

    b) Explain the significance of overlay design of flexible pavements. — 5M

(OR)

11. a) Write about methods of pavement evaluation. — 6M

    b) Briefly explain the need for highway maintenance. — 6M

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CODE: 13ME4040 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech II Semester Supplementary Examinations, June-2019
UNCONVENTIONAL MACHINING PROCESSES
(ELECTIVE-IV)
(Mechanical Engineering)

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

PART-A

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

1. a) Enlist the requirements that demand the use unconventional machining process
   b) Explain the function of transducers used in USM machine
   c) What is the function of horn in USM?
   d) What material used for nozzle in AJM process?
   e) Why polymers are added in WJC process?
   f) What are the chemicals used in CHM Process?
   g) What is spark gap in EDM?
   h) What is dielectric in WEDM?
   i) What is the full form of HAZ and LASER?
   j) What is standoff distance in PAM?

PART-B

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

UNIT-I

2. a) What are the considerations in process selection and applications? 6M
   b) Write the differences between WJM, AJM and AWJM process? 6M

(OR)

3. Discuss principle involved in material removal using USM. Write the merits and applications of the process 12M

UNIT-II

4. a) Draw a schematic diagram of AJM and write the functions of each part ? 6M
   b) Write the reasons for inaccuracies in AJM Process 6M

(OR)

5. Write the principle of AWJM process and write the merits and limitations of the process 12M

UNIT-III

6. What are the process characteristics and applications of Electro Chemical machining? 12M

(OR)

7. a) Write the suitable etchants for different materials in CHM? 6M
   b) Discuss the masking techniques for different production level in CHM 6M

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CODE: 13ME4040 **SET-1**

UNIT-IV

8.	What are the types of pulse generators used in EDM machines? Discuss the merits and demerits of each one.	12M
	(OR)	
9.	Explain the principle of Electric discharge grinding and its applications	12M

UNIT-V

10.	Explain the principle of LASER beam machining and its applications	12M
	(OR)	
11.	Explain the PAM process with neat sketch and also write the limitations of the process	12M

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CODE: 13EC4044 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech II Semester Supplementary Examinations, June-2019

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) What is the function of Logic Synthesis Tool?
   b) Differentiate Full Custom and Semi-Custom IC technology
   c) List out different operations defined by concurrent process model on Processes
   d) What is busy waiting in Synchronization?
   e) What is need for Communication Interface?
   f) List out different Specifications of Bluetooth system.
   g) Define Interrupt Latency
   h) Differentiate binary Semaphore and Counting Semaphore
   i) List out various Embedded Operating Systems.
   j) Write any two features of Embedded Linux

PART-B

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

UNIT-I

2. a) What are the different Combinational components used to reduce design complexity in embedded design. 6M
   b) Explain different addressing modes with example. 6M

(OR)

3. a) Explain about various common characteristics of embedded systems. 5M
   b) Explain how a single purpose processor can be optimized with an example. 7M

UNIT-II

4. a) Differentiate Computation Models and Languages 5M
   b) How a system is designed in FSMD model? Explain with an example. 7M

(OR)

5. a) How a system is designed in FSM model? Explain with an example. 6M
   b) Explain different methods for Communication among processes. 6M

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CODE: 13EC4044 **SET-2**

UNIT-III

6.	a)	Explain about USB Communication Interface	6M
	b)	Discuss about IEEE 1394 Firewire.	6M
		(OR)	
7.	a)	Explain about RS232 Communication Interface.	6M
	b)	Explain about Bluetooth protocol Architecture.	6M

UNIT-IV

8.	a)	Draw and explain Architecture of a Kernel	6M
	b)	Discuss about Mutex	6M
		(OR)	
9.	a)	Explain different Scheduling Algorithms	8M
	b)	Discuss about Event Registers.	4M

UNIT-V

10.	a)	Explain about different handheld Operating Systems	6M
	b)	Discuss about Priority Inheritance	6M
		(OR)	
11.	a)	Explain about Memory management and Timers in RTOS.	6M
	b)	Discuss about Windows CE Operating System.	6M

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