AR 13

CODE: 13CE4037 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech II Semester Supplementary Examinations, June-2017

PAVEMENT ANALYSIS AND DESIGN
(Elective-IV)
(Civil Engineering)

Maximum Marks:70

Time : 3 Hours

PART-A

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

1. a) Define Slab action of Rigid Pavement.
   b) Differentiate between tyre pressure and contact pressure.
   c) Define displacement factor.
   d) Write the expression for equivalent radius of resisting section.
   e) Differentiate between contraction joint and construction joint in rigid pavement.
   f) What is Internal Rate of Return?
   g) What type of soils are suitable for highway construction and why?
   h) What are the desirable properties of bituminous mix?
   i) What are reasons for damages in flexible pavements?
   j) Define an Overlay.

PART- B

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

UNIT -I

2 a) List out various traffic factors affecting the pavement design. Explain in detail with the help of neat sketches. (6m)
b) Define ESWL. Explain how it is calculated with the help of neat sketch. (6m)

(OR)

3 a) What are various environmental factors affecting pavement design? Explain in detail. (6m)
b) Clearly distinguish between Rigid and Flexible pavement (6m)

UNIT -II

4 a) Using Boussinesq's theory, calculate the intensity of vertical pressure due to a point load of 4200 kg at a depth of 4m from the surface and a distance of 2m from the axis of loading. (6m)
b)What are the assumptions in Burmister's theory of pavement design ?write the displacement equations given by Burmister for a two layered system. (6m)

(OR)

5 A 40 KN wheel loading is applied on a slab of 240mm thickness. The radius of the wheel contact area is 150mm and the radius of relative stiffness value is 0.96m. Determine the Corner, edge and interior load stresses using Westergaard's stress equations. (12m)

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UNIT -III

6 a) Write the design procedure of flexible pavement design using AASHTO method. (6m)

b) Design the thickness of a flexible pavement for a dual single carriage way with the following data: (6m)

Traffic Expected = 440 CV/day in both directions

Design Life = 15 years

Design CBR value of soil sub Grade= 5%

Vehicle Damage Factor = 3.1

Traffic Growth Rate= 7.3%

(OR)

7 a) What are the salient features of design of Cement Concrete slab for pavement according to IRC :58-2002. (6m)

b) Differentiate between AASHTO and IRC methods of flexible pavement design.(6m)

UNIT -IV

8 a) What are the desirable properties of soil subgrade? (6m)

b) Explain the test procedure of Aggregate Impact value test (6m)

(OR)

9 a) Write the construction steps in WBM roads. (6m)

b) Explain the importance of soil stabilization (6m)

UNIT -V

10 With the help of neat sketches explain the typical flexible pavement failures. (12m)

(OR)

11 Write the overlay design procedure using Benkelman Beam Deflection method with the help of neat sketches. (12m)

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CODE: 13EE4037 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech II Semester Supplementary Examinations, June-2017
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) What are the causes of voltage sag?
   c) Give the characteristics of transients
   d) What is the use of isolation transformer?
   e) What is the difference between transients and harmonics
   f) Define a voltage sag
   g) Give any one sag mitigation device
   h) Define Total Harmonic Distortion
   i) How do you neutralize harmonics in non linear loads
   j) What is use of True RMS meter

PART-B

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

UNIT-I

2. What are power quality issues and explain them with their specifications? **12M**

(OR)

3. Describe the characterization of electrical power quality in detail? **12M**

UNIT-II

4. What are power frequency disturbances explain any three of them? **12M**

(OR)

5. What is the role of voltage regulator and UPS to solve voltage quality problems. **12M**

UNIT-III

6. a) What are the different sources of transient over voltages? **6M**
   b) How do you manage the Ferro-resonance in lines? **6M**

(OR)

7. Explain how to mitigate Capacitor Bank Switching transients and Motor Start Transients **12M**

AR13

CODE: 13EE4037 **SET-1**

UNIT-IV

8.	How will you find the harmonic sources from point of common coupling? Give the identification procedure on the basis of voltage indices	**12M**
	(OR)	
9.	Describe the characteristics of harmonics generated by different types of industrial loads	**12M**

UNIT-V

10.	Explain in detail any three power quality measuring instruments?	**12M**
	(OR)	
11.	What are Power Quality Measurements, what are the uses of Harmonic Analyzers in measuring the power quality.	**12M**

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CODE: 13ME4040 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech II Semester Supplementary Examinations, June-2017
UN-CONVENTIONAL MACHINING PROCESSES
(ELECTIVE-IV)
(Mechanical Engineering)

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

PART-A

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

1. a) Enumerate applications of Unconventional machining process
   b) What are the applications of USM?
   c) What gases are used as carrier gas in AJM?
   d) Write the merits of AWJC process?
   e) What is metal removal rate?
   f) What is Heat affected zone?
   g) What is duty factor in EDM?
   h) What is chemical milling ?
   i) What is plasma?
   j) Define EBM and its characteristics

PART-B

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

UNIT-I

2. What are the basic disadvantages of conventional machining process? Justify the need of unconventional machining process in today's industries 12M

(OR)

3. Explain the principle, merits and demerits of USM 12M

UNIT-II

4. Write important variables of AJM process. Draw a sketch showing the effect of these variables on MRR 12M

(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 Grinding process? 12M

(OR)

7. a) Discuss the masking techniques for different production level in CHM 6M
   b) What are advantages and applications of CHM? 6M

UNIT-IV

8.	a)	Discuss the mechanism of material removal in EDM process	6M
	b)	What are the properties required for EDM Electrode material	6M
		(OR)	
9.	a)	Explain the working principle of WEDM	6M
	b)	What are the limitations of WEDM and applications	6M

UNIT-V

10.	Discuss in detail about the thermal features of EBM and explain the construction and working of EBM.	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-2017
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) Give any two examples of embedded systems.
   b) List three main approaches for improving the design process for increasing productivity.
   c) Define synchronous data flow.
   d) Explain the importance of shared data technique in concurrent process.
   e) What is USB? Where is it used?
   f) Write any two features of Bluetooth.
   g) List the different types of RTOSes?
   h) Mention some I/O standard interfaces.
   i) What are the task service functions supported by VxWorks?
   j) What are the basic functions of VxWorks?

PART-B

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

UNIT-I

2. a) What are the design challenges of Embedded System? Explain briefly. **6M**
   b) Explain general purpose processors with neat sketches. **6M**

(OR)

3. a) What are the typical characteristics of an embedded system? **4M**
   b) Explain digital signal processing in embedded system continued digitization of signals increasing the role of DSP in ES. **8M**

UNIT-II

4. a) Describe a state machine model in a sequential programming language **6M**
   b) Explain about program state machines. **6M**

(OR)

5. a) Explain, i) Processes and Threads, ii) Communication **6M**
   b) Describe the elevator controller behaviour using concurrency in an in an HCFSM. **6M**

UNIT-III

6. a) Write the limitations of RS232. **4M**
   b) Write short notes on **8M**
      i) Ethernet, ii) IEEE 802.11

(OR)

7. a) List the features of USB. **5M**
   b) Which are Bluetooth devices? Explain how they can be used to setup Personal Area Networks? **7M**

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CODE: 13EC4044 **SET-2**

UNIT-IV

8.	a)	Define task and explain with diagram all the five states of a task.	**7M**
	b)	Differentiate process and thread.	**5M**
		(OR)	
9.	a)	Explain about encapsulating semaphores and queues in details	**7M**
	b)	What is meant by a pipe? How does a pipe differ from a queue?	**5M**

UNIT-V

10.	a)	Draw the action plan for designing a pure embedded system in its development process.	**6M**
	b)	Write notes on embedded LINUX.	**6M**
		(OR)	
11.	a)	Explain how to achieve communication between a process running in Linux and a process running in RTLinux.	**6M**
	b)	Describe the features of Windows CE. Why does the Windows CE have low interrupt latencies?	**6M**

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