AR13

CODE: 13CE4029 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

GROUND IMPROVEMENT TECHNIQUES
(Civil Engineering)

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

PART-A

Answer all questions **[1 x 10 = 10 M]**

1 a) Define the term Electro-osmosis.
b) Name any two Grouting methods.
c) Define the term Stone Column.
d) What is meant by Blasting?
e) Define Lime Stabilization?
f) What is meant by Reinforced Earth?
g) What is meant by Geogrid?
h) Define the term Unconformity.
i) What is meant by clogging resistance?
j) What is meant by under reamed pile?

PART-B

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

UNIT-I

2. (a) Write a note upon Open Sumps and Interceptor Ditches? **[12M]**
(b) Explain briefly about any two Suspension Grouts.

(OR)

3. (a). Discuss the working principle behind Electro-osmosis. **[12M]**
(b). Explain about the more commonly used Solution grouts.

UNIT-II

4 (a) Discuss about the impact of Vibration at the Ground Surface. **[12M]**
(b) Write a note on Sand wick Geodrains.

(OR)

5 (a). Write a note on any two Vibro-Compaction methods. **[12M]**
(b). Discuss about any two case histories of Stone Column applications.

UNIT-III

6. (a). Briefly discuss the factors affecting Bituminous stabilization.
(b). Write a note on the factors governing design of reinforced Earth walls. **[12M]**

(OR)

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7. (a) Briefly discuss about the various operations involved in the construction of Soil Cement. **[12M]**
   (b) Write a note on the various design principles pertaining to Reinforced Earth walls.

UNIT-IV

8. (a) Briefly discuss about the functions of Geosynthetics in Civil Engineering. **[12M]**
   (b) Write a note on the techniques used in the manufacture of Thermo plastic Geomembranes.

(OR)

9. (a) Write a note upon the raw materials used in the application of Geosynthetics.
   (b) Briefly discuss the Geotextile Stabilization in an unpaved road with a neat sketch. **[12M]**

UNIT-V

10. (a) Briefly discuss about the determination of swell pressure in Expansive soils.
    (b) Write a note on the foundation techniques pertaining to Expansive soils. **[12M]**

(OR)

11. (a) Discuss in brief about Under reamed piles.
    (b) Discuss the ground improvement techniques in case of Soft Clays and Loose Silts. **[12M]**

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CODE: 13EC4019 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

MICROPROCESSOR AND MICROCONTROLLERS

(Elective-II)

(Electrical & Electronics Engineering)

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

PART-A

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

1. a) What is the size of ALU of 8086
   b) How much maximum memory can accessed by 8086 Microprocessor
   c) Explain DAA instruction of 8051
   d) Define an Interrupt
   e) How many T-States are required by the 8086 to acces the data from memory
   f) What is the purpose of DT assembler directive
   g) Explain HOLD signal of 8086
   h) Compare maskable and Non masakable Interrupt
   i) In which mode intel 8255 port A can be operated in bidirectional mode
   j) Give one of the feature of PIC controller

PART-B

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

UNIT-I

2. a Explain BIU and EU units of 8086
   b Explain the addressing modes of 8086 with example

(OR)

3. a What is the significance of Timing diagram Draw and explain memory write cycle with wait states
   b Explain maximum mode signals of 8086

UNIT-II

4. a Explain the assembly language format
   b Explain Arithmetic instructions of 8086 with suitable example

(OR)

5. a Explain Interrupt Vector Table
   b Write an ALP in 8086 to determine the square of the given N-Numbers

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UNIT-III

6. a Briefly explain the register organization of 80386
   b Explain the concept of paging mechanism of 80386

(OR)

7. a Explain the physical address calculation of 80386 under virtual mode
   b Write the comparison between 80386 and 80486

UNIT-IV

8. a Draw and explain the DMA Controller 8257
   b Give the features of Intel 8251

(OR)

9. a Write and explain the control words of intel 8255
   b Explain the PORT structure of intel 8255

UNIT-V

10. a Explain the instructions of Arithmetic Instructions of 8051 microcontroller
    b Write an ALP in 8051 to determine number of 55H elements in a given array

(OR)

11. a List the assembler directives of 8051 and explain
    b Write an ALP in 8051 to determine the sum of N-numbers

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CODE: 13ME4029 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

POWER PLANT ENGINEERING

(Mechanical Engineering)

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

PART-A

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

1. a) What is surge tank?
   b) List various types of Solar Collectors.
   c) Name various circuits in a thermal power plant.
   d) What is proximate analysis of coal?
   e) What precautions should be taken to ensure that cooling is satisfactory?
   f) Why is supercharging is necessary in diesel power plant?
   g) What is catchment area?
   h) What is dam? What are its various types?
   i) Define plant use factor.
   j) What is the significance of load curves?

PART-B

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

UNIT-I

2. a) What is the principle of MHD Power Plant? Explain the working of any one type of MHD Plants. [6M]
   b) How do you classify tidal power plants? Describe single basin one way and double basin one way? [6M]

(OR)

3. a) Explain with a real diagram a wind electric generating power plant. [6M]
   b) Explain with a neat diagram the working of Thermoelectric generator. [6M]

UNIT-II

4. a) With a neat sketch, explain the working of Coal Handling System. [6M]
   b) Give the general layout of ash handling and dust collection system. [6M]

(OR)

5. a) What are the different types of coal conveyors? Describe the construction and working of belt conveyor and screw conveyors? [6M]
   b) Give the layout of a modern steam power plant and explain it briefly. [6M]

UNIT-III

6. a) What are the advantages of gas turbine power plant over diesel and steam power plants of the same capacity? [6M]
   b) Explain briefly the following lubrication systems: [6M]
   (i) Wet sump lubrication system (ii) Dry sump lubrication system

(OR)

7. a) Explain with the help of neat sketch the working of a thermostatically controlled cooling system [6M]
   b) Draw a neat diagram of regenerative gas turbine plant having intercooling and reheater. Explain the working on p-v diagram. [6M]

UNIT-IV

8. a) Enumerate and explain essential components of a nuclear reactor. [6M]
   b) Enumerate and explain briefly the factors which should be considered while selecting the site for hydro-electric power plant. [6M]

(OR)

9. a) Give the construction and working of a gas cooled reactor. What are its advantages and disadvantages [6M]
   b) What is spillway? Explain any two types of spillways. [6M]

UNIT-V

10. a) What is meant by tariff? Explain any three methods of calculating tariff. [6M]
    b) A power station supplies the following loads to the consumers. [6M]

Time in hours	0-6	6-10	10-12	12-16	16-20	20-22	22-24
Load in MW	20	50	60	40	80	70	40

Draw load curve, find i) load factor of the plant ii) what is the load factor of a standby equipment of 20MW capacity if it takes up all loads above 60MW.

(OR)

11. a) What is meant by power plant economics? Explain briefly fixed and operating costs. [5M]
    b) A two tariff is quoted below: [7M]

Demand rate per month: First 5 kW of maximum demand at Rs.50/kW. Next 5 kW of maximum demand at Rs.40/kW Excess over 10 kW maximum demand at Rs.25/kW.

Energy: First 100 units at 25 paise per kWh. Next 100 units at 20 paise per kWh. Next 300 units at 15 paise per kWh. Excess over 500 units at 10 paise per kWh.

Calculate the tariff for the following cases:

(i) Maximum demand 7 kW & energy consumed 175 kWh,
(ii) Maximum demand 15 kW and energy consumed 600 kWh.

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CODE: 13EC4030 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MARCH-2017

TELECOMMUNICATION SWITCHING SYSTEMS AND NETWORKS

(Electronics & Communication Engineering)

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

PART-A

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

1. a) What is signalling in telephone networks
   b) Define distributed SPC
   c) List types of centralized SPC
   d) What is stored program control
   e) Differentiate DTMF and rotary dialling
   f) What is common channel signalling
   g) Define OSI reference model
   h) What is Repeater
   i) What is BISDN?
   j) Define DSL technology

PART-B

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

UNIT-I

2. (a) Explain principle of cross bar exchange with diagram [6 M]
   (b) Explain various switching network configurations [6 M]

(OR)

3. (a) Draw Trunking diagram of a 10,000 line step by step exchange and explain its operation. [6 M]
   (b) What are the functions of switching systems? Explain. [6 M]

UNIT-II

4. (a) Describe time division time switching with diagrams [6 M]
   (b) Describe two level distributed SPC architecture [6 M]

(OR)

5. (a) Describe n-stage distributed SPC architecture in detail [6 M]
   (b) Design a three stage network for connecting 100 incoming trunks to 100 outgoing trunks. [6 M]

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UNIT-III

6. (a) Explain network traffic load and parameters [6 M]
   (b) Explain numbering plan in telephone system [6 M]

(OR)

7. (a) Explain subscriber loop system in telephone networks [6 M]
   (b) What is grade of service? Obtain grade of service for three stage network. [6 M]

UNIT-IV

8. (a) Explain the concept of virtual circuit switching and how it is differ from circuit switching [5 M]
   (b) Describe OSI reference model. [7 M]

(OR)

9. Write short notes on [12 M]
   i) Bridges
   ii) Protocols
   iii) Bus network

UNIT-V

10. Write short notes on [12M]
    i) SONET
    ii) ISDN interfaces
    iii) ADSL

(OR)

11. Write short notes on [12 M]
    i) HFC Networks
    ii) DSL Technology
    iii) Cable Modem

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Code No: 13CS4031 **SET-1**

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

IMAGE PROCESSING
(ELECTIVE –II)
(Computer Science& Engineering)

Time: 3 hours **Max.Marks:70**

PART A

Answer all Questions **[1 x 10 = 10M]**

1. a) What is meant by spatial resolution?
   b) List the applications of Digital Image Processing?
   c) Define Histogram equalization?
   d) What is a mask?
   e) What is redundancy?
   f) What is the role of source encoder in image compression model?
   g) Define Pruning?
   h) What is Hit or Miss Transformation?
   i) What is point detection?
   j) Define Boundary in an image?

PART B

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

UNIT- 1

2. a. Explain the components of Image Processing System? [6M+6M]
   b. Explain the fundamental steps involved in digital image processing.

(OR)

3. a. Explain Image Sampling and quantization. [6M+6M]
   b.Discuss about the basic relationships between the pixels with diagram.

UNIT-II

4. Explain about the basic Gray Level Transformation? [12M]

(OR)

5. What is histogram of an image? Explain Histogram Equalization with all mathematical derivations and example. [12M]

UNIT-III

6. What is Image Compression? Explain about basic Image Compression Model with diagram. [12M]

(OR)

7. Explain
   i) Variable Length Coding [12M]
   ii) Bit Plane Coding

UNIT -IV

8. What is Morphological Operation? Discuss various Morphological Operations with suitable diagrams. [12M]

(OR)

9. Explain about the basic morphological algorithms [12M]

   i) Boundary Extraction
   ii) Region Filling
   iii) Extraction of Connected Components

UNIT -V

10. Explain about Region based Image Segmentation. [12M]

(OR)

11. Explain [12M]
   i) Edge Detection
   ii) Graph Theoretic Techniques