AR13

CODE: 13CE4029 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, January-2019

GROUND IMPROVEMENT TECHNIQUES

(Elective-2)

(Civil Engineering)

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

PART – A

ANSWER ALL QUESTIONS

1X 10 = 10 M

a) What are the objectives of dewatering?
b) What is the principle of Grouting?
c) What are the advantages of sand wick drains over the sand drains?
d) Describe the method of densification by Blasting.
e) Discuss lime-soil reactions.
f) Mention variuos applications of reinforced earth.
g) What are the functions of Geotextiles?
h) What are various types of Geotextiles?
i) Define the terms 'Free Swell' and 'Differential Free Swell'.
j) State the parts or regions covered by Black Cotton soils in India.

PART – B

Answer one question from each unit

5 x 12=60 M

UNIT – I

2. (i) What is Electro-Osmosis? What are its advantages and disadvantages as compared to conventional drainage systems? [6M]
   (ii) Write short notes on foundation drains with neat sketches. [6M]

(OR)

3. Explain briefly various methods of grouting. [12M]

UNIT – II

4. (i) Write in detail about surface compaction with the vibratory rollers. [6M]
   (ii) Explain the vibro-floation method. [6M]

(OR)

5. Discuss the in-site Densification methods of cohesive soils. [12M]

UNIT – III

6. Explain briefly about different methods of soil stabilization? [12M]

(OR)

7. Design a reinforced earth wall for retaining a 6metre high cohesionless soil. The soil in the wall and backfill has density of 18kN/m^3 with angle of internal friction of 34 degrees. The allowable soil pressure is 180kN/m^2. Use galvanized strips as reinforcement? [12M]

UNIT – IV

8. Explain the functions and applications of Geosynthetics with the help of neat sketches. [12M]

(OR)

9. Explain briefly about different tests conducted on Geosynthetics to assess their properties.

UNIT – V

10. (i) Discuss the reasons for soils to become expansive soils. Distinguish between soft clays and expansive soils. [6M]
    (ii) Write a note on tests conducted for identification of expansive soils. [6M]

(OR)

11. (i) What are the measures to be taken to prevent the swelling of expansive soils? [6M]
    (ii) With a neat sketch, explain the under-reamed pile foundation. [6M]

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AR13

CODE: 13EC4019 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, January-2019

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 an instruction queue? Explain?
   b) What is REP prefix? How it functions for string instructions?
   c) Explain the instructions (i) LDS (ii) PUSHF (iii) TEST (iv) CLD
   d) What are the various interrupts in 8086? Explain.
   e) Explain the difference between a JMP and CALL instructions? Explain the working of a hand shake output port ?
   f) What is csart?
   g) Compare Procedure & Macro
   h) What are the features used mode 1 in 8255?
   i) Distinguish between the memories mapped I/O peripheral I/O?
   j) What is TXD?

PART-B

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

UNIT-I

2. Explain the function of all the pins of 8086 Processor. 12M

(OR)

3. a. Explain the function of various flags of 8086 microprocessor 6M
   b. Describe any five addressing modes of 8086 with suitable examples 6M

UNIT-II

4. a. Write a 8086 ALP to sort an array of ten bytes in ascending order. Add comments to your Program 8M
   b. Explain the function of unsigned multiplication and Division instructions in 8086 with suitable examples. 4M

(OR)

5. Write 8086 assembly language program to perform the following a. To move a string of words from offset 1000h to offset 6000h. The Length of the string is 0Ch. b. To add an array of bytes. The array contains 50bytes. 12M

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CODE: 13EC4019 **SET-2**

UNIT-III

6.		Explain the register set of 80386 processor.	12M
		(OR)	
7.	a.	Draw and discuss the flag register of 80386.	6M
	b.	Explain the mode of operations 80386.	6M

UNIT-IV

8		Explain the block diagram and the functions of each block of the 8251 USART (Programmable Communication Interface).	12M
		(OR)	
9.	a.	With a neat sketch explain the block diagram of 8259A?	6M
	b.	With a neat sketch explain the internal architecture of 8257?	6M

UNIT-V

10	a.	Explain the I/O port structure of 8051.	6M
	b.	Explain the different serial communication modes in 8051.	6M
		(OR)	
11.	a.	Explain the memory structure of 8051.	6M
	b.	Explain the addressing modes of 8051 with examples?	6M

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AR13

CODE: 13ME4029 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, January-2019

POWER PLANT ENGINEERING

(Mechanical Engineering)

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

PART-A

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

1. a) List the various non conventional energy sources
   b) Name the components of tidal power plant
   c) What are the essential requirements of steam power station design
   d) Enumerate the steps involved in handling of the coal
   e) State the application of diesel power plant
   f) State the limitation of gas turbine
   g) What are the functions of a spill way
   h) What do you mean by the Radioactivity
   i) List the various costs which go to form the total cost of a power system
   j) How can the power generation cost be reducd

PART-B

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

UNIT-I

2. a) Describe open cycle MHD system. 8m
   b) Explain fuel cell disadvantages and Applications 4m

(OR)

3. a) Describe with the help of a neat sketch ,the working of a Solar power plant, what are its salient features. 8m
   b) What are the advantages and limitation of tidal power generation 4m

UNIT-II

4. a) What are the various types of Draughts used in usual practice and explain. 8m
   b) What is the function of boiler chimney 4m

(OR)

5.	a)	What are the advantages and disadvantages of a steam power plant.	8m
	b)	What are the requirement of steam piping system	4m

UNIT-III

6.	a)	Explain briefly the following lubrication system. a) Wet sump b) Dry sump	8m
	b)	Discuss briefly the basic designs of C.I engine combustion	4m

(OR)

7.	a)	State the advantages and disadvantages of gas turbine power plants over diesel and thermal power plants.	6m
	b)	Enumerate and explain briefly the components of a gas turbine power plant	6m

UNIT-IV

8.	a)	Explain with a neat diagram of classification of dams	8m
	b)	What is the function of Hydrographs	4m

(OR)

9.	a)	Explain with the help of neat diagram the construction and working of a nuclear power plant	8m
	b)	What is nuclear fusion.How does it differ from uclear fission	4m

UNIT-V

10.		The yearly duration curve of a certain plant can be considered of a straight line from 150mw to 40mw power is supplied with one generating unit of 100mw capacity and 2 units of 50mw capacity each determine i) installed capacity ii) load factor iii) plant factor iv) maximum demand v) utilization factor	12m

(OR)

11.		A power plant has the following annual load factors. Load factor -70% ,capacity factor-50%,use factor-60% and maximum demand -20mw .Find out i) Annual energy production ii) reserve capacity over and above peak load iii) hours during which the plant is not in service/year	12m

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AR13

CODE: 13EC4030 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech I Semester Supplementary Examinations, January-2019

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) Draw the block diagram of simplex telephone circuit
   b) Define Inlet
   c) Given that MTBF=2000 hours and MTTR=4 hours, calculate the unavailability for dual processor system.
   d) What is the difference between time division space switching and time division time switching?
   e) Define subscriber loop system.
   f) Define grade of service.
   g) What is the function of a Router?
   h) Define Internet.
   i) Define ISDN
   j) Define SONET

PART-B

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

UNIT-I

2. How are switching systems classified? Explain. 12 M

(OR)

3. Explain elements of a switching system along with block diagram. 12 M

UNIT-II

4. a) Explain Synchronous duplex operation. 6 M
   b) Explain load sharing configuration. 6 M

(OR)

5. a) Illustrate process switching. 6 M
   b) Explain about basic time division space switching. 6 M

UNIT-III

6. a) An exchange serves 2000 subscribers. If the average BHCA is 10000 and the CCR is 60%, Calculate the busy hour calling rate. 6 M
   b) In a group of 10 servers, each is occupied for 30 minutes in an observation interval of 2 hours, Calculate the traffic carried by the group. 6 M

(OR)

7. a) Describe the protocol architecture of SS7. 6 M
   b) Compare Inchannel signalling and common channel signalling 6 M

UNIT-IV

8. Describe OSI reference model. 12 M

(OR)

9. Describe LAN, WAN and MAN 12 M

UNIT-V

10. a) Describe ISDN architecture. 6 M
    b) Explain functional grouping and ISDN reference points. 6 M

(OR)

11. Explain signalling in ISDN 12 M

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AR13

CODE: 13CS4031 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, January-2019

IMAGE PROCESSING

(ELECTIVE – II)

(Computer Science & Engineering)

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

PART-A

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

1. a) Define Digital Image
   b) Define Sample and Quantization
   c) Distinguish between m- connectivity and 8 connectivity
   d) Discuss restoration in the presence of noise in few sentences
   e) Define lossy compression
   f) What is segmentation
   g) What is meant by Morphology
   h) What is compression
   i) What is meant by adaptive Thresholding
   j) Define edge.

PART-B

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

UNIT-I

2. a Mention fields that uses Digital Image Processing 6M
   b Explain the basic relationships between pixels 6M

(OR)

3. a Explain the Fundamental steps in Digital Image Processing 6M
   b Explain about pseudo color model. 6M

UNIT-II

4. a What is meant by Histogram of an image? and explain about histogram specification 6M
   b Explain the Sharpening filters in spatial domain 6M

(OR)

5.	a	How do you perform image enhancement using spatial domain transformations?	6M
	b	Explain the enhancement using arithmetic and logical operation	6M

UNIT-III

6.	a	Explain the LZW Coding using suitable example	6M
	b	Explain about source and channel compression models.	6M

(OR)

7.	a	Explain about variable length coding technique.	6M
	b	Explain about inter pixel redundancy and psycho visual redundancy	6M

UNIT-IV

8.	a	List fundamental operations of morphological process	5M
	b	Define the Opening and Closing. List the properties of Opening and Closing operations	7M

(OR)

9.	a	Explain Boundary Extraction Algorithm	5M
	b	Explain how HIT-or-MISS transformation is used for finding local pattern pixels	7M

UNIT-V

10.	a	Explain about Detection of discontinuities	6M
	b	Explain the various techniques of Thresholding	6M

(OR)

11.	a	Describe the global processing via graph – theoretic technique.	6M
	b	Distinguish between Edge based segmentation and Region based segmentation	6M

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AR13

CODE: 13IT4014 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Supplementary Examinations, January-2019

ADVANCED COMPUTER NETWORKS

(Information Technology)

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

PART-A

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

1.	a)	Differentiate between connection –oriented versus connectionless service.	**1M**
	b)	Define ARPANET.	**1M**
	c)	Write two functions of router.	**1M**
	d)	What is congestion in a network?	**1M**
	e)	Write the functions of switch.	**1M**
	f)	Define spanning tree protocol.	**1M**
	g)	What is wide area network?	**1M**
	h)	Write any two types of WAN connections.	**1M**
	i)	What are the limitations of mobile computer?	**1M**
	j)	What are the effects of mobility on the protocol stack?	**1M**

PART-B

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

UNIT-I

2.	a)	Discuss the function of various layers in TCP/IP reference model.	**6M**
	b)	What is the use of computer networks? Classify computer network according to their Geography.	**6M**
		(OR)	
3.	a)	Discuss in detail the architecture of OSI reference model.	**6M**
	b)	Explain the different network architectures by considering the central ideas common to all network architectures.	**6M**

UNIT-II

4.	a)	Discuss the Link state routing algorithm in detail taking an example.	**6M**
	b)	What is routing? Explain routing in Ad-Hoc networks.	**6M**
		(OR)	
5.	a)	Differentiate between virtual circuit and datagram connection.	**6M**
	b)	How is congestion prevented in different layers?	**6M**

UNIT-III

6.	Draw the structure of Packet switch. Define each component briefly	**12M**
	(OR)	
7.	What is frequency division multiplexing? Explain frequency division multiplexing and demultiplexing process with an example.	**12M**

UNIT-IV

8.	Discuss the format of a point to point protocol frame. How the point to point protocol frames are encapsulated?	**12M**
	(OR)	
9.	What is NAT? Explain how it works.	**12M**

UNIT-V

10.	Discuss properties of MANET. How security is achieved in MANET?	**12M**
	(OR)	
11.	Explain MAC congestion control and MAC collision avoidance scheme in MANET.	**12M**

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