AR13

CODE: 13CE4029 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular & Supplementary Examinations, October-2017

GROUND IMPROVEMENT TECHNIQUES

(Elective –2)

(Civil Engineering)

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

PART-A

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

1. a) What is meant by single well point system?
   b) What are the factors affecting mechanical stabilization?
   c) What are the two conditions that prevail in design of vertical drains?
   d) What are applications of grouting after foundations?
   e) Write any two admixtures in cement grouting?
   f) What are the hydraulic functions of geo-synthetics?
   g) How are composite reinforcements formed?
   h) What are the functions of stone-columns?
   i) What are the forms of reinforcements?
   j) What is meant by geo-textile?

PART-B

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

UNIT-I

2.	a	Explain the design steps for a dewatering system and discuss one dewatering techniques	**6 M**
	b	Explain the basic functions of grouting? Discuss the various types of grouts?	**6 M**
		(OR)	
3.	a	List various well point dewatering systems explain their suitability for different soils?	**6 M**
	b	Explain the injection methods of grouting technique by using different soils	**6 M**

UNIT-II

4.	a	Explain the formation of stone columns using vibro replacement method with neat sketch?	**6 M**
	b	What is sand drain? Explain the general principle of sand drain and method of installation?	**6 M**
		(OR)	
5.	a	What is densification? Discuss the equipments used for surface compaction and their applications?	**6 M**
	b	Discuss the thermal methods of densifying cohesive soils	**6 M**

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UNIT-III

6.	a	What are the various types of admixtures commonly used to stabilize soils?	**6 M**
	b	What are the advantages of earth reinforcements and give the applications of reinforcing earth materials.	**6 M**

(OR)

7.	a	What are the benefits of cement stabilisation, over other stabilization techniques?	**6 M**
	b	Describe in in-situ ground reinforcement methods of soil	**6 M**

UNIT-IV

8.	a	Explain the different types of geo membrane materials used in various civil engineering aspects	**6 M**
	b	Provide and explaining applications of geo-membranes and geo grid types of reinforcement	**6 M**

(OR)

9.	a	What are the various properties of geo-synthetics?	**6 M**
	b	Explain the different types of geo-textile materials used in various civil engineering aspects	**6 M**

UNIT-V

10.	a	What are the factors that are to be considered while selection of a ground improvement technique? Explain	**6 M**
	b	What are the ground improvement techniques used for avoiding swelling.	**6 M**

(OR)

11.	a	What are the foundation techniques used in expansive soils?	**6 M**
	b	Explain briefly about the application of under-reamed piles in swelling soils.	**6 M**

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Code: 13EC4019 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech I Semester Regular & Supplementary Examinations, October-2017
MICROPROCESSORS AND MICROCONTROLLERS
(Electrical and Electronics Engineering)

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

PART-A

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

1.	a)	What is importance of zero flag of 8086 flag register	1M
	b)	Define ALU	1M
	c)	Explain any two string manipulation instructions of 8086	1M
	d)	Define ISR	1M
	e)	Explain the importance of paging unit of 80386 processor	1M
	f)	List any two salient features of 80486 processor	1M
	g)	Explain the BSR mode of 8255 PIO	1M
	h)	What is importance of data buffer of 8279A	1M
	i)	List any two differences between microprocessor and microcontroller	1M
	j)	Explain the advantages of microcontroller	1M

PART-B

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

UNIT-I

2.	(a)	Draw and discuss the architecture of 8086 processor	6M
	(b)	Evaluate the register organisation of 8086	6M
		(OR)	
3.	(a)	Discuss the addressing modes of 8086	6M
	(b)	Comparison between procedure and macros	6M

UNIT-II

4.	(a)	Explain the Arithmetical instructions of 8086	6M
	(b)	Write a assembly language program for sorting of numbers in descending order	6M
		(OR)	
5.	(a)	What is interrupt vector table of 8086? Explain its structure	6M
	(b)	Explain the classification of Interrupts	6M

UNIT-III

6.	(a)	Enlist the salient features of 80386	4M
	(b)	Explain in detail different modes of operation of 80386.	8M
		(OR)	
7.	(a)	Describe the register organization of 80386	6M
	(b)	Compare architectural features of 8086 and 80386	6M

UNIT-IV

8.	(a)	Draw the block diagram of Programmable Interrupt Control (PIC) and Explain	6M
	(b)	Explain different modes of operation of Programmable Peripheral Interface (PPI)	6M
		(OR)	
9.	(a)	Articulate the organization of DMA controller of a 8086 Microprocessor	6M
	(b)	With neat sketches explain the operation of USART	6M

UNIT-V

10.	(a)	Compare the architectural features of Microprocessors & Microcontrollers	8M
	(b)	Write Short notes on PIC Microcontrollers	4M
		(OR)	
11.	(a)	Explain in detail about the Pin description of 8051 Microcontroller	8M
	(b)	Write short notes on Registers of 8051 Microcontroller	4M

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CODE: 13ME4029 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular & Supplementary Examinations, October-2017

POWER PLANT ENGINEERING

(Mechanical Engineering)

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

PART-A

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

1.	a)	Outline various factors effecting runoff.	1M
	b)	List the advantages of Diesel plant.	1M
	c)	Name two thermal plants in Andhra Pradesh.	1M
	d)	"The pump is used to heat the feed water." Choose True or False and give reason for your selection.	1M
	e)	Explain the function of control rods in nuclear reactor.	1M
	f)	Explain the significance of diversity factor.	1M
	g)	"High load factor indicates that total plant capacity is utilised for most of the time." Choose True or False and give reason for your selection.	1M
	h)	List the various non-conventional energy sources.	1M
	i)	Explain the effect of wind velocity on power generation	1M
	j)	What are the effects of SO_2 on human beings and materials.	1M

PART-B

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

UNIT-I

2.	a)	Write notes on (i) Flat Plate solar collector (ii) CPC	6M
	b)	Explain the Principle of operation and constructional details of Savonius rotor with neat sketch	6M

(OR)

3.	a)	List the advantages of solar power plant.	6M
	b)	Explain the working of fuel cell with a neat sketch.	6M

UNIT-II

4.	a)	Explain with neat layout the working of cooling system in thermal power plant.	6M
	b)	Identify various steps in designing thermal power plant.	6M

(OR)

5.	a)	Explain various types coal available and their main characteristics.	4M
	b)	Sketch and explain of any two types of stokers used in thermal power plant.	8M

UNIT-III

6. a) Explain about the method of starting and stopping the Diesel Engine 4M

   b) Discuss the working of open cycle gas turbines in detail. 8M

(OR)

7. a) Explain with a neat layout the Engine Cooling system of Diesel power plant. 4M

   b) Describe about the Classification, Construction and Layout of Gas Turbine Plant. 8M

UNIT-IV

8. a) Discuss the factors considered in selecting a prime mover for a hydro-electric plant. 4M

   b) The runoff data of a river at a particular site is tabulated below:

Draw the (i) Hydrograph and (ii) flow duration curve 8M

Month	Mean Discharge per month(millions of cu.m)	Month	Mean Discharge per month(millions of cu.m)
Jan	40	July	75
Feb	25	Aug	100
Mar	20	Sept	110
Apr	10	Oct	60
May	0	Nov	50
June	50	Dec	40

(OR)

9. a) Explain the working of CANDU type reactor with a neat sketch. What is method used to control the reaction. 8M

   b) Explain the various methods for disposal of radioactive waste material. 4M

UNIT-V

10. a) An undertaking consumes 12*106KWh/year and its maximum demand is 4000KW. It is offered 2 tariffs i) Rs.100 per KW of maximum demand + 10paise per KWh. ii) A flat rate of 20paise per KWh. Calculate annual cost of energy. 8M

    b) Explain various costs of the total cost of power station. 4M

(OR)

11. a) A central power station has annual factors as follows: Load factor = 60% Capacity factor = 40% Use factor = 45% Power station has a maximum demand of 5,000kW.Determine; Annual energy production, Reserve capacity over and above peak load, Hours per year not in service? 8M

    b) List any three objectives and requirements of Tariff 4M

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CODE: 13EC4030 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular & Supplementary Examinations, October-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) Name the services provided by telecommunication network
   b) Draw the circuit diagram of a simplex telephone circuit.
   c) What is a combination switch?
   d) Define time division space switching
   e) Define MDF
   f) Why numbering plan is used?
   g) What are interfaces supported by ISDN
   h) What is packet switching networks
   i) What is use of DSL modem
   j) Define DSL technology

PART-B

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

UNIT-I

2. a) Explain the basic telecommunication network. 6M
   b) Explain the principle of crossbar switching with neat diagrams 6M

(OR)

3. a) Explain the elements of switching system with neat diagram 6M
   b) Explain 6×6 crossbar switching 6M

UNIT-II

4. a) Explain synchronous duplex mode operation. 6M
   b) Describe level-2 distributed SPC 6M

(OR)

5. a) Explain time division time switching. 6M
   b) Explain time division space switch using space array 6M

UNIT-III

6. a) Briefly explain in detail about charging plan 6M
   b) Explain echo suppressor operation with neat diagram 6M

(OR)

7. a) Explain about the traffic load and grade of service 6M
   b) Briefly explain about Outband signalling scheme with E and M control. 6M

UNIT-IV

8. a) Write short notes on i) Repeaters ii) Routers 6M
   b) Explain in detail about WAN 6M

(OR)

9. Explain about Circuit switching 12M

UNIT-V

10. a) Explain ISDN architecture 6M
    b) Briefly explain about reference points in ISDN 6M

(OR)

11. Write short notes on i) CM & CMTS ii) SONET 6M+6M

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AR13

CODE: 13CS4031 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular & Supplementary Examinations, October-2017

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 image.	1M
	b)	List various image color models.	1M
	c)	Define image negative.	1M
	d)	Distinguish between point processing and spatial filtering methods of enhancement.	1M
	e)	Relate redundancy and compression ratio.	1M
	f)	What is meant by lossless image compression?	1M
	g)	List various basic morphological operations.	1M
	h)	Distinguish between morphological opening and closing.	1M
	i)	Define image segmentation.	1M
	j)	Explain Edge localization.	1M

PART-B

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

UNIT-I

2.	a	Explain the basic concepts of sampling and quantization with neat sketch.	5M
	b	With neat sketch, explain the components of image processing system.	7M
		(OR)	
3.	a	What is colour image processing? Explain in detail the concept of pseudo colour image processing?	5M
	b	Explain various applications of image processing.	7M

UNIT-II

4.	a	Explain image enhancement by smoothening.	5M
	b	Perform Histogram equalization for the 8x8 image shown below:	7M

Gray level	0	1	2	3	4	5	6	7
Number of pixels	8	10	10	2	12	16	4	2

5.	a	Explain about gray-level slicing and bit-plane slicing.	6M
	b	Explain arithmetic operations performed on images.	6M

UNIT-III

6.	a	Explain various redundancies present in an image.	6M
	b	Obtain the Huffman code for the word 'COMMITTEE'	6M
		(OR)	
7.	a	Explain about JPEG image compression standard	6M
	b	Explain the need of image compression with examples.	6M

UNIT-IV

8.	a	Explain Convex hull morphological algorithm with an example.	6M
	b	Explain the concepts of image dilation and erosion along with their properties.	6M
		(OR)	
9.	a	Explain about morphological image thinning and thickening operations.	6M
	b	Explain the concept of extraction of connected components.	6M

UNIT-V

10.	a	List various gray level discontinuities in an image and explain about point, line detection methods.	8M
	b	Explain about various edge detection operators.	4M
		(OR)	
11.	a	Explain the concept of region growing procedure with suitable example.	5M
	b	Explain about image segmentation using thresholding.	7M

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AR13

CODE: 13IT4014 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular & Supplementary Examinations, October-2017

ADVANCED COMPUTER NETWORKS

(Information Technology)

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

PART-A

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

1.	a)	What is the role of Internet Service Provider?	**1M**
	b)	Define cellular network.	**1M**
	c)	Differentiate between static and dynamic routing.	**1M**
	d)	What is the function of Gateway?	**1M**
	e)	Define VLAN trunking protocol.	**1M**
	f)	What is TDM bus?	**1M**
	g)	Write the abbreviation for ISDN.	**1M**
	h)	Define network address translation.	**1M**
	i)	Write any four applications of MANET.	**1M**
	j)	Define IPv6.	**1M**

PART-B

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

UNIT-I

2.	a)	Explain how networks are constructed from two classes of hardware building blocks.	**6M**
	b)	Discuss the function of various layers in OSI reference model.	**6M**
		(OR)	
3.	a)	Describe the different network architectures by considering the central ideas common to all network architectures.	**6M**
	b)	State features of Star and Mesh Topologies with respect to: i) diagrammatic configuration ii) Operation iii) Complexity iv) Ease of installation.	**6M**

UNIT-II

4.	a)	Discuss in detail IP datagram.	**6M**
	b)	What is congestion? Explain the token bucket congestion control algorithm.	**6M**
		(OR)	
5.	a)	Discuss shortest path routing and flooding with a suitable example.	**6M**
	b)	Discuss distance vector routing algorithm taking a suitable example.	**6M**

UNIT-III

6.	Explain Multilevel Multiplexing.	**12M**
	(OR)	
7.	Discuss about circuit switching.	**12M**

UNIT-IV

8.	What is point to point protocol in network? Discuss about the link control protocol options that a point to point protocol includes.	**12M**
	(OR)	
9.	Discuss the use of DHCP. Explain how it works.	**12M**

UNIT-V

10.	What is MANNET? Explain various routing algorithms in MANET with suitable example.	**12M**
	(OR)	
11.	Define collision in MANET. Explain multiple access with collision avoidance in MANET.	**12M**

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