AR13

CODE: 13CE4029 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular & Supplementary Examinations, November, 2018

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 are the different methods of dewatering?
   b) What is intrusion grouting?
   c) What do you understand by dynamic compaction?
   d) What is Preloading soil?
   e) What is soil cement?
   f) What is meant by Reinforced Earth?
   g) What are Geo textiles?
   h) What are the main functions of Geo membrane?
   i) What are the Expansive soils?
   j) Define Swelling Pressure.

PART-B

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

UNIT-I

2. Explain in brief about the Well point systems? 12

(OR)

3. a) What are the Objectives of Grouting? 4
   b) Explain in detail about the Hydraulic Fracturing. 8

UNIT-II

4. What is Vibrofloatation? Explain in detail with a neat sketch 12

(OR)

5. Explain briefly about the Preloading Technique of Compacting the Cohesive soil layer with neat sketch 12

UNIT-III

6. What is bituminous stabilisation? What are the factors that are affected by bituminous stabilisation? Explain along with the construction procedure. 12

(OR)

7. a) Explain the Calcium Chloride Stabilisation? 6
   b) What are the design principles of Reinforced earth? 6

UNIT-IV

8. What are Geo grids? Explain in detail about the functions and application of Geo grids. 12

(OR)

9. a) What are Geo textiles? Explain different types of Geo textiles. 6
   b) What are Geo membranes? Explain the applications of Geo membrane 6

UNIT-V

10. What are the different parameters available to identify expansive soils? Explain in brief 12

(OR)

11. What is an under reamed pile? Explain how the under reamed pile suitable for the expansive soils as foundation. 12

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AR13

Code: 13EC4019 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
IV B.Tech I Semester Regular & Supplementary Examinations, November, 2018

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 are the advantages of segment memory scheme?
   b) List the conditional flags in 8086.
   c) Explain the instruction DAA.
   d) Define ASSUME & END directives?
   e) Enlist any two features of 80486 Processor.
   f) Draw the flag register of 80386 Processor.
   g) What is the priority resolver in 8259A?
   h) Draw the BSR mode control word register format in 8255.
   i) List out the interrupts in 8051 micro controller.
   j) Write are the special function registers in 8051?

PART-B

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

UNIT-I

2. a) Write short notes on i) Segmentation ii) Flag register in 8086. **8M**
   b) Explain the differences between procedures and assembler macros. **4M**

(OR)

3. a) Explain the architecture of 8086 microprocessor with a neat sketch. **7M**
   b) List the different addressing modes in 8086 microprocessor & explain it. **5M**

UNIT-II

4. a) Write an ALP to find out the no. of even and odd numbers from a given series of 16-bit hexadecimal numbers. **6M**
   b) Define interrupt? Explain the interrupt response sequence of 8086 with a neat sketch **6M**

(OR)

5. a) What is the function of data copy/transfer instructions & explain each with an example. **6M**
   b) Illustrate stack operation using PUSH and POP instructions with example. **6M**

UNIT-III

6. a) Explain the paging operation of 80386 Microprocessor. **8M**
   b) List out the features of 80386 Microprocessor. **4M**

(OR)

7. a) Differentiate 80386 and 80486 Microprocessors. **4M**
   b) Explain protected mode of 80386 Microprocessor with neat sketch. **8M**

UNIT-IV

8. a) Draw the architecture of 8255 and explain each block in detail. **7M**
   b) Explain the asynchronous mode data transfer in 8251A. **5M**

(OR)

9. a) Elaborate the initialization sequence of 8259A. **6M**
   b) List out the features of DMA controller 8257. **6M**

UNIT-V

10. a) Elaborate the architecture of 8051 microcontroller with neat sketch. **10M**
    b) List the types of interrupts in 8051? **2M**

(OR)

11. a) Explain the following registers in 8051. **6M**
    i) TMOD ii) Accumulator iii) PSW
    b) Explain the functions of various ports of 8051 microcontroller. **6M**

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AR13

CODE: 13ME4029 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

IV B.Tech I Semester Regular & Supplementary Examinations, November, 2018

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 the principle of working of MHD generator?
   b) What is Tidal energy?
   c) What are different types of coals?
   d) What are spreader stokers?
   e) What is the difference between induced and forced draught?
   f) What is the principle of working of open cycle gas turbines?
   g) What are hydrographs?
   h) Write short on nuclear fuel?
   i) Define load factor?
   j) Define demand factor?

PART-B

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

UNIT-I

2. a Explain about different types of solar collectors
   b Explain about horizontal axis wind turbine

(OR)

3. a Explain different methods of energy conversion?
   b Explain about vertical axis wind turbine.

UNIT-II

4. a Why it is essential to quench the ash before handling?
   b Name the different types of coal-pulverizing mills. Describe Ball-Mill

(OR)

5. a Explain about overfeed and underfeed fuel beds with a neat diagram.
   b Explain about Wet type, dry type and electrical dust collectors.

AR13

CODE: 13ME4029 **SET-2**

UNIT-III

6. a With a neat sketch explain about diesel power plant with different circuits
   b Explain how "reheating" improves the thermal efficiency of a simple open cycle gas turbine plant?

(OR)

7. a Explain about different types of fuel injection system.
   b Discuss about combined steam and gas turbine power plants.

UNIT-IV

8. a Explain catchment area, Reservoir, spillway, surge tanks, draft tube and prime mover
   b What are different types of reactors commonly used in nuclear power stations? Describe the fast breeder reactor?

(OR)

9. a What is pumped storage plant? Explain. Where pumped storage plants can be installed and why?
   b Discuss the various factors to be considered while selecting the site for nuclear power station. Discuss its advantages and disadvantages.

UNIT-V

10. a What is 'diversity factor'? List its advantages in a power system.
    b An undertaking consumes 12106KWh/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.

(OR)

11. a What is meant by load curve? Explain its importance in power generation. How 'load duration curve' is obtained from 'load' curve?
    b List any three objectives and requirements of Tariff

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CODE: 13EC4030 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

IV B.Tech I Semester Regular & Supplementary Examinations, November, 2018

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) Calculate the number of links in a fully connected network with 5 nodes.
   b) Define Outlet
   c) Given that MTBF=2000 hours and MTTR=4 hours, calculate the unavailability for single processor system.
   d) What is combination switching?
   e) What is the difference between echo and singing?
   f) Define traffic intensity
   g) What are the functions provided by the network layer in OSI model?
   h) What is the function of a Bridge?
   i) Mention ISDN interfaces.
   j) What is DSL technology?

PART-B

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

UNIT-I

2. Explain Switching network configurations. 12 M

(OR)

3. a) Explain the operation of 3×3 crossbar switching. 8 M
   b) Draw 6×6 crossbar matrix 4 M

UNIT-II

4. a) Explain Interrupt processing. 6 M
   b) Compare microprogrammed control and hard-wired control. 6 M

(OR)

5. a) Describe the operation Time-Space-Time switch 6 M
   b) Calculate the access time of the memory modules in parallel-in/serial-out time switch using 64 input and 64 output stream with each stream multiplexing 32 channels. 6 M

UNIT-III

6. a) A subscriber makes 3 phone calls of 3 minutes, 4 minutes and 2 minutes duration in a one-hour period. Calculate the subscriber traffic in erlangs, CCS and CM. 6 M
   b) What are the types of busy hours defined by CCITT? Explain. 6 M

(OR)

7. a) Briefly explain about subscriber loop systems. 6 M
   b) Explain the concept of common channel signalling in signalling techniques. 6 M

UNIT-IV

8. a) Distinguish between Connection-oriented and Connectionless protocols 6 M
   b) Explain the layered network architecture 6 M

(OR)

9. a) Describe PSDN 6 M
   b) Compare circuit switching and packet switching techniques. 6 M

UNIT-V

10. Explain numbering and addressing in ISDN. 12 M

(OR)

11. a) Explain HFC networks. 6 M
    b) Explain CM and CMTS 6 M

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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, November, 2018

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) What are the fundamental steps in Digital Image Processing?
   b) List various Color Models?
   c) Write any four applications of DIP.
   d) What is a Median filter
   e) What is enhancement
   f) Write general form of log transformation?
   g) What are two main types of Data compression
   h) Define compression ratio
   i) What is segmentation?
   j) What are the three types of discontinuity in digital image?

PART-B

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

UNIT-I

2. a) Explain the concept of image sampling and quantization. Explain how images are digitally represented. 8M
   b) Explain the types of adjacency between pixels in an image with suitable example 4M

(OR)

3. a) Explain about the fundamental steps in digital image processing. 6M
   b) Write about HSI color model 6M

UNIT-II

4.	a)	What is histogram? Explain the concepts of histogram processing in detail.	7M
	b)	Explain in detail about various smoothing filters in spatial domain.	5M
		(OR)	
5.	a)	Describe about the basic gray level transformations, giving suitable examples.	8M
	b)	Discuss sharpening spatial filters in detail.	4M

UNIT-III

6.	a)	Explain about the compression of LZW coding with example.	8M
	b)	Discuss any two techniques of compressing binary images.	4M
		(OR)	
7.	a)	With the help of block diagram explain JPEG Encoder	8M
	b)	Explain about lossless predictive coding approach for image compression	4M

UNIT-IV

8.		Explain the following terms: i. Boundary extraction ii. Region filling iii. Thinning	12M
		(OR)	
9.	a)	Discuss the hit-or-miss transformation in detail	6M
	b)	Explain about convex-hull	6M

UNIT-V

10.		Explain in detail about region based segmentation	12M
		(OR)	
11.		Discuss in detail how line detection and point detection algorithm works with respect to image segmentation.	12M

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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, November, 2018

ADVANCED COMPUTER NETWORKS
(Information Technology)

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

PART-A

ANSWER ALL QUESTIONS [1 x 10 = 10 M]

1. a) What are the three fundamental characteristics determine the effectiveness of the data communication system?
   b) Assume 6 devices are arranged in a mesh topology. How many cables are needed? How many ports are needed for each device?
   c) What is the purpose of hamming code?
   d) Define IP address.
   e) What is meant by congestion?
   f) How Infra Structure-less Networks is useful?
   g) What is meant by router?
   h) What is MANNET?
   i) Define an internetwork
   j) Why are protocols needed?

PART-B

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

UNIT-I

2. What is TCP/IP Model? Explain the functions and protocols and services of each layer? Compare it with OSI Model. 12 M

(OR)

3. a) Write a brief History of Computer Networking and the Internet 6 M
   b) Explain the below networking Devices : 6 M
   i) Repeater ii) Bridge iii) Hub iv)Gateway

UNIT-II

4.		What is Congestion Control? Explain the type's congestion control methods in detail.	12 M
		(OR)	
5.		What is Routing? Explain Distance Vector Routing Protocol.	12 M

UNIT-III

6.	a)	Define a switch? Explain the structure of a switch in detail.	6 M
	b)	Why do we need inter VLAN routing?	6 M
		(OR)	
7.	a)	What is VLANs? Explain VLAN Trunking Protocol.	5 M
	b)	What is switch? Explain any 3 different types of switches.	7 M

UNIT-IV

8.		How does PPP protocol work?	12 M
		(OR)	
9.		Explain IPV6 in detail.	12 M

UNIT-V

10.		Explain the applications and the mechanism of Wireless Sensor networks	12 M
		(OR)	
11.		Explain the properties of MANETs.	12 M

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