AR13

CODE:13CE3019 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July- 2018
WATER RESOURCE ENGINEERING
(Civil Engineering)

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

PART-A

ANSWER ALL QUESTIONS

1. a) What is base flow?
   b) What is impermeability factor?
   c) What is reservoir routing?
   d) Differentiate confined and unconfined aquifer?
   e) Define aquiclude?
   f) What is readily available moisture?
   g) Define duty?
   h) Define canal lining.
   i) Define Net Irrigation Requirement
   j) What is contour canal?

PART-B

Answer one question from each unit

UNIT-I

2. (a) Explain hydrologic cycle with help of diagram. (6m)
   (b) What are the methods of computation average rainfall over a basin? Explain any one method. (6m)

(OR)

3. (a) Describe the factors affecting infiltration? (6m)
   (b) Explain any two types of types of rain gauges? (6m)

UNIT-II

4. (a) What is S- Hydrograph? How is it constructed? (8m)
   (b) Explain method of determining run-off by rational formula (4m)

(OR)

5. (a) What do you understand by Unit Hydrograph? What are its applications. (6m)

   (b) Write a note on flood routing. (6m)

UNIT-III

6. (a) Compare surface irrigation with sub-surface irrigation. (6m)

   (b) Derive an expression for discharge from a well in confined aquifer. (6m)

(OR)

7. (a) Write a note on sprinkler method of irrigation. (6m)

   (b) Describe the methods of improving soil fertility? (6m)

UNIT-IV

8. (a) Explain the terms duty and delta. Derive a relationship between the two. (6m)

   (b) Describe vertical distribution of soil moisture. (6m)

(OR)

9. (a) What do you understand by evapo-transpiration? How is it determined? (6m)

   (b) Write a note on depth and frequency of irrigation? (6m)

UNIT-V

10. What are the different types of canal linings. Explain any five types of linings along with their merits and demerits. (12m)

(OR)

11. (a) Compare Kennedy's theory with Lacey's theory. (6m)

    (b) Design an irrigation channel to carry a discharge of 45 cumecs. Assume N = 0.0225 and m = 1.0. The channel has a bed slope of 0.16 metre / Kilo metre. (6m)

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AR13

CODE: 13EE3020 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July- 2018

H.V.D.C. TRANSMISSION
(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 positive features of DC Transmission when compare to AC transmission
   b) List out types of DC Transmission system
   c) What is meant by peak inverse voltage
   d) How a problem of harmonic instability can be over come
   e) What is extinction angle control
   f) What are the sources of reactive power
   g) What are the factors to be considered in designing a protection system
   h) Mention the types of AC filters
   i) What are the types of converter faults
   j) What are thecauses of over voltages in a converter station

PART-B

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

UNIT-I

2.	a)	Draw the schematic diagram of a HVDC Converter station and explain the major components	**6 M**
	b)	Explain briefly about HVDC System and mention the types of DC Links	**6 M**
		(OR)	
3.	a)	Analyze the graetz circuit at without overlap condition	**6 M**
	b)	Explain the converter bridge characteristics in rectifier mode	**6 M**

UNIT-II

4.	a)	Explain the Principles of a DC Link Control	**6M**
	b)	What are the higher level controllers in DC Link and Explain about Emergency control and Reactive power control	**6M**
		(OR)	
5.	a)	Explain the procedural steps to start up of DC Link	**6M**
	b)	Obtain the characteristics of converter controller	**6M**

UNIT-III

6.	a)	Explain about Conventional control strategies for reactive power requirement in steady state condition	**6M**
	b)	What are the source of reactive power explain them briefly	**6M**
		(OR)	
7.	a)	Explain about Alternate control strategies for reactive power requirement in steady state condition	**6M**
	b)	Write a short notes of Thyristor controlled reactor	**6M**

UNIT-IV

8.	a)	Classify the basic types of faults that can occur in converters and explain them	12M
		(OR)	
9.	a)	What are the reasons for over voltages in a converter station explain them	8M
	b)	Write a short notes on Surge arrester	4M

UNIT-V

10.	a)	List out the problems associated with the injection of harmonics	6M
	b)	Explain about characteristics and non characteristics harmonics in systems	6M
		(OR)	
11.	a)	What are the design criteria for AC filters and what is the objective of AC Filter	8M
	b)	Write a short notes on Harmonic Distortion	4M

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AR13

CODE: 13ME3021 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, July- 2018

OPERATIONS RESEARCH

(Mechanical Engineering)

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

PART-A

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

1. a) Define OR
   b) Importance of artificial variable
   c) Give two areas of assignment problem applications
   d) What is degeneracy in transportation problem?
   e) What is total elapsed time?
   f) Basic elements of queue
   g) When replacement problem does arise?
   h) Define saddle point
   i) Difference between CPM and PERT.
   j) State the network diagram errors.

PART-B

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

UNIT-I

2. Use simplex method to solve

$$\text{Maximize } Z = 3x_1 - x_2$$
$$\text{Subject to } 4x_1 + 3x_2 \le 12$$
$$4x_1 + x_2 \le 8$$
$$4x_1 - x_2 \le 8$$
$$x_1, x_2 \ge 0$$

(OR)

3. a) Discuss various phases in solving an OR problem.
   b) Give the historical background of OR.

UNIT-II

4. Find the optimal solution to the following transportation problem

	W_1	W_2	W_3	W_4	Capacity
F_1	19	30	50	10	7
F_2	70	30	40	60	9
F_3	40	8	70	20	18
Requirement	5	8	7	14	34

(OR)

5. A salesman has to visit five cities A, B, C, D & E. The intercity distances are given below:

From/To (in kms)

	A	B	C	D	E
A	-	4	7	3	4
B	4	-	6	3	4
C	7	6	-	7	5
D	3	3	7	-	7
E	4	4	5	7	-

What is the sequence of his visit so that the distance travelled is minimized?

UNIT-III

6. Find the sequence for the following eight jobs as shown in table below that will minimize the total elapsed time for the completion of all the jobs. Each job is processed in the order of C-A-B. Calculate the idle time.

	Job								
Machine		1	2	3	4	5	6	7	8
	A	4	6	3	4	5	3	6	2
	B	8	10	7	8	11	8	9	13
	C	5	6	2	3	4	9	15	11

(OR)

7. a) How do you classify the queuing models? Explain.
   b) In a supermarket, the average arrival rate of customer is 10 every 30 minutes following Poisson process. The average time taken by a cashier to list and calculate the customers purchase is 2.5 minutes following exponential distribution. What is the probability that the queue length exceeds 6? What is the expected time spent by a customer in the system?

UNIT-IV

8. A stamping machine currently valued at Rs.19,000 is expected to last 2 years and costs Rs.4000 per year to operate. Another machine which can be purchased for Rs.30,000 will last for 4 years and be operated at an annual cost of Rs 3000. If money carries the rate of interest at 10% per annum, determine which stamper machine should be purchased.

(OR)

9. a) Explain Minimax & Maximin Principle.
   b) Two players A & B, without showing each other, put on a table a coin, with head or tail-up. A wins Rs.8/-, when both the coins show head and Rs.1/- when both are tails. B wins Rs.3/-, when the coins do not match. Given the choice of being matching player (A) (or) Non-matching Player (B), which one would you choose and what would be your strategy?

UNIT-V

10. A small maintenance project consists of the following activities.

Activity	A	B	C	D	E	F	G	H
Immediate Predecessor	-	A	A	C	C	B,C	B,C	D,F
Duration (days)	3	2	3	3	2	7	5	6

(i) Draw the network diagram (ii) Calculate Earliest and latest time values of each activity iii) Calculate various floats for each activity.

(OR)

11. For the network whose details are given below. Determine the critical path and what is the probability that the project will be completed in 20 days?

Activity	1-2	2-3	2-4	3-4	3-5	4-5	3-6	5-6	4-6
t_o	2	1	0.5	0	1	6	1	4	3
t_m	2	1.5	2.5	0	2.5	7	2	6	4
t_p	8	11	7.5	0	7	8	3	8	11

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AR13

CODE: 13EC3022 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July- 2018

TV AND SATELLITE COMMUNICATIONS
(Electronics & Communication Engineering)

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

PART-A

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

1. a) List the Horizontal sync details.
   b) Define Interlaced scanning.
   c) List the types of camera tubes?
   d) Give vertical sync details.
   e) Draw diagram of sync separator?
   f) Give the percentage of colours in Luminance signal.
   g) Mention the various types of satellite orbits.
   h) Define the term 'station keeping' with reference to satellite communications.
   i) What are the features of LEO?
   j) Define the term Azimuth.

PART-B

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

UNIT-I

2. Draw and explain the purpose of Horizontal and vertical sync pulses in TV? 12M

(OR)

3. a) Write the differences between +ve and –ve modulation techniques. **6M**
   b) Draw and explain channel bandwidth of TV? **6M**

UNIT-II

4. Draw and explain the operation of PAL encoder in detail. **12M**

(OR)

5. Draw and explain in detail the operation of monochrome picture tube. **12M**

UNIT-III

6. a) Explain the operation of video amplifier in TV receiver? **6M**
   b) Explain the operation of sound section in TV receiver? **6M**

(OR)

7. Draw and explain the operation of monochrome TV receiver? **12M**

UNIT-IV

8. a) List and explain the various frequency band allocations used for satellite services. **6M**
   b) List and explain the different orbital effects in satellite communication system performance. **6M**

(OR)

9. a) Write about the future trends of Satellite Communications **6 M**
   b) Define Look angle and explain Look angle determination in detail **6 M**

UNIT-V

10. a) Explain the Tracking, telemetry and Command sub system of a spacecraft. **6 M**
    b) Compare LEO and GEO Satellites. **6 M**

(OR)

11. a) Write notes on Delay & Throughput considerations for a geo stationary satellite. **6M**
    b) What are the various types of low earth orbit satellites? Explain. **6M**

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AR13

CODE: 13EC3026 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, July- 2018

OOPS THROUGH JAVA

(Electronics & Communication Engineering)

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

PART-A

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

1. a) List Primitive data types available in java?
   b) Define Encapsulation?
   c) Does java supports automatic garbage collection or not?
   d) Define a constructor?
   e) Define method overriding?
   f) List various access specifiers available in java?
   g) Define a thread?
   h) List the keywords available in java to handle exceptions?
   i) Define Event?
   j) Define Applet?

PART-B

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

UNIT-I

2. a) Explain about Java Buzz words? 6M
   b) Explain about type conversion and casting with examples? 6M

(OR)

3. a) Explain about loop statements in java? 6M
   b) Write about arrays with suitable examples? 6M

UNIT-II

4. a) Explain this keyword with the help of an example program? 6M
   b) Explain about the creation of a class and object with the help of an example program? 6M

(OR)

5. a) Define method overloading and explain it with an example? 6M
   b) Explain static methods with an example program? 6M

UNIT-III

6. a) Explain about defining a subclass from a super class with the help of a program? 6M
   b) Write about creating and accessing a package with an example? 6M

(OR)

7. a) Explain about dynamic method dispatch with an example program? 6M
   b) Write about defining and implementing interfaces with an example program? 6M

UNIT-IV

8. a) Explain about using try and catch statements to handle exceptions using an example? 6M
   b) Write about creating threads by using Thread class with an example? 6M

(OR)

9. a) Write a java program to handle divide by zero exception by using try and catch statements? 6M
   b) Explain about Synchronizing threads by using Synchronized keyword? 6M

UNIT-V

10. a) Explain life cycle of an applet? 6M
    b) Write a java program to handle keyboard events? 6M

(OR)

11. a) Write about JButton with an example? 6M
    b) Explain TextField control with an example? 6M

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AR13

CODE: 13CS3019 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July- 2018

UNIX PROGRAMMING
(Computer Science & Engineering)

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

PART-A

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

1. a) List out networking commands in Unix.
   b) What are the shell responsibilities?
   c) Mention the disadvantages of vi editor
   d) What are the file permissions in Unix?
   e) What does /etc/passwd contains?
   f) What are the process states in Unix?
   g) How can you identify the invisible characters in a file
   h) What is unreliable signal?
   i) Explain about sleep function
   j) Explain pipe

PART-B

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

UNIT-I

2. a) Explain the features of Unix 5
   b) Explain the following commands 7
   i) password ii) more iii) grep

(OR)

3. a) Illustrate about Unix file system in detail. 5
   b) Explain about the features of AWK utility. 7

UNIT-II

4. a) What is a Shell and give various types of shells with examples? 6
   b) Write a Shell Program to print sum of n integer numbers 6

(OR)

5. a) Explain about shell meta characters, shell variables 6
   b) Discuss about control structures with examples 6

UNIT-III

6. a) Explain the file and directory maintenance commands with example 5
   b) Illustrate about formatted I/O in detail 7

(OR)

7. a) Discuss about fgetc, getc, getchar, fputc, putc, putchar, fgets, gets in brief 7
   b) Explain the following commands. 5
   i) chmod ii) chown iii)umask

UNIT-IV

8. a) Explain the following functions 6
   i) kill ii) raise iii) alarm
   b) How to classify a signal is a reliable or unreliable? 6

(OR)

9. a) Write short notes on 6
   i) Parent and Child Processes
   ii) Zombie and Orphan Processes
   b) Write about fork and Vfork with example. 6

UNIT-V

10. Briefly explain on IPC mechanisms? 12

(OR)

11. a) What is Semaphore? Explain how you would use semaphore system calls to solve critical section problems. 6
    b) Discuss about applications of IPC. 6

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AR13

CODE: 13IT3004 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July- 2018

DESIGN AND ANALYSIS OF ALGORITHMS
(Information Technology)

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

PART-A

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

1. a) Give the notion of algorithm.
   b) List the applications of depth first search algorithm.
   c) What is Amortized analysis?
   d) Define minimum cost spanning tree.
   e) Identify the worst Time complexity of Quick sort?
   f) Discuss about divide-and-conquer method.
   g) What is the difference between feasible solution and optimal solution?
   h) Write are the characteristics of greedy approach.
   i) Define branch-and bound technique.
   j) Explain back tracking technique.

PART-B

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

UNIT-I

2. a) Define and explain the terms "Time complexity" and "Space complexity" of algorithms. 6M
   b) How can we use the Big oh and omega notations to measure the efficiency of an algorithm. 6M

(OR)

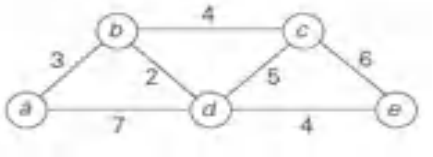
3. Explain the following operations on disjoint sets. 12M
   a) UNION b) FIND c) Weighting UNION d) Collapsing FIND.

UNIT-II

4. a) Apply merge sort to sort the list E, X, A, M, P, L, E in alphabetical order. 6M
   b) Describe the Strassen's matrix multiplication concept. Derive it's time complexity. 6M

(OR)

5. a) Write and explain the Prim's algorithm. 6M
   b) Solve the following instances of the single-source shortest-paths problem with vertex a as the source. 6M



AR13

CODE: 13IT3004 **SET-1**

UNIT-III

6.		Use function OBST to compute w(i, j),r(i, j) and c(i,j), 0<=I<j<=4, for the identifier set (a1, a2, a3, a4)=(end, goto, print, stop) with p(1)=1/20, p(2)=1/5, p(3)=1/10, p(4)=1/20 , q(0)=1/5, q(1)=1/10, q(2)=1/5, q(3)=1/20, and q(4)=1/20. Using the r(i, j)'s, construct the Optimal Binary Search Tree.	12M
		(OR)	
7.	a)	Write an Algorithm for All pairs shortest path problem.	6M
	b)	Discuss the dynamic programming solution for the problem of reliability design.	6M

UNIT-IV

8.	a)	Briefly explain Hamiltonian cycles using backtracking.	6M
	b)	Describe the Backtracking technique to m-coloring graph. Explain with an example.	6M
		(OR)	
9**.**		Briefly explain 8-queen problem using backtracking.	12M

UNIT-V

10.	a)	Explain FIFO Branch and Bound solution.	6M
	b)	Explain 0/1 Knapsack problem with respect to branch and bound method.	6M
		(OR)	
11**.**		Explain the P, NP, NP-Hard and NP- complete classes. Give the relation between them.	12M

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