AR13

CODE: 13CE3019 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July-2017

WATER RESOURCES ENGINEERING
(Civil Engineering)

PART-A

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

1. a) What is a rainfall hyetograph?
   b) Define Runoff.
   c) Define Unit Hydrograph.
   d) Define Aquifuge.
   e) Explain the term duty
   f) What is Radius of influence?
   g) Write short notes on mixed cropping
   h) Define consumptive use
   i) What is Flood routing?
   j) Write short notes on balancing depth

PART-B

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

UNIT-I

2. (a) Explain with the help of neat sketch, the hydrologic cycle in nature indicating its various phases 6M
   (b) What do you understand by the term infiltration? How can you measure it in the field? 6M

(OR)

3. (a) The annual rainfalls at seven rain gauge stations in a basin are 55, 95, 60, 45, 20, 80, and 65 cm respectively. How many additional gauges are required if it is desired to limit the error to only 10%? 8M
   (b) What factors you consider in selecting a site for a rain-gauge station? 4M

UNIT-II

4. (a) The ordinates of a 3-hr unit hydrograph are given below. Derive the flood hydrograph due to a 3-hr storm, producing a rainfall excess (net rain) of 4 cm. The base flow is estimated to be 4cumecs and may be assumed constant 8M

Time (hr)	0	3	6	9	12	15	18	21	24	27
3-hr UH ordinates (cumecs)	0	1.5	4.5	8.6	12	9.4	4.6	2.3	0.8	0

   (b) List out the assumptions involved in unit hydrograph 4M

(OR)

5. (a) The mean annual flood of a river is 600m^3/s and the standard deviation of the annual flood time series is 150m^3/s. What is the probability of a flood of magnitude 1000m^3/s occurring in the river. Use Gumbel's methodand assume the sample size to be very large. 6M
   (b) Describe the method of computing the ordinates of a unit-hydrograph from the data of a flood hydrograph 6M

UNIT-III

6. (a) Derive the expression for a discharge well fully penetrating an unconfined aquifer 6M
   (b) A 20-cm well penetrates 30 m below static water level (GWT). After a long period of pumping at a rate of 1800 lpm, the drawdown's in the observation wells at 12 m and 36 m from the pumped well are 1.2 m and 0.5 m, respectively. Determine: 6M
   (i) the transmissibility of the aquifer.
   (ii) the drawdown in the pumped well assuming R = 300 m.

(OR)

7. (a) Discuss the quality standards required for irrigation water. 6M
   (b) What are the different types of irrigation systems? Discuss each of these systems 6M

UNIT-IV

8. Define the Irrigation? Explain the following irrigation efficiencies: 12M
   i) Water conveyance efficiency ii) Water application efficiency
   iii) Water use efficiency iv) Water storage efficiency
   v) Water distribution efficiency

(OR)

9. (a) Derive an Expression for the relation between Duty, Delta and Base period? 6M
   (b) What are the factors affecting duty? How can duty be improved? 6M

UNIT-V

10. Design a irrigation channel in alluvial soil according to Lacey's silt theory , given the following data 12M
    Full supply discharge=15m3/s
    Lacey's silt factor=1.0
    Channel side slopes=1/2 :1

(OR)

11. What is a Canal lining? Write about the Different Types of Canal linings? 12M

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AR13

CODE: 13EE3019 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, July-2017

UNIX & SHELL PROGRAMMING

(ELECTIVE-I)

(Electrical and Electronics Engineering)

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

PART-A

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

1. a) What is the use of kernel in UNIX operating system?
   b) Write a short note on UNIX philosophy?
   c) What is file? Explain the different types of files in UNIX.
   d) What is the difference between the following commands : comm. and cmp
   e) What is the parent and child process?
   f) How the jobs can be run in background?
   g) What is Argument Validation in Korn shell programming?
   h) What is eval command?
   i) Explain command history?
   j) What are debugging scripts in C Shell programming

PART-B

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

UNIT-I

2.	a)	With a block diagram explain UNIX operating system organization and explain Kernel-Shell relationship.	8 M
	b)	Explain man, echo commands with examples	4 M
		(OR)	
3.	a)	Describe the salient features of UNIX Operating system	8 M
	b)	Explain about mkdir, pwd commands with suitable examples	4 M

UNIT-II

4.	a)	What are the different types of files in an UNIX operating system? Explain briefly	8 M
	b)	What are different modes of vi editor? Explain.	4 M
		(OR)	
5.	a)	Explain the following file handling commands wc, split, comm and cmp each with an example.	7 M
	b)	Why does a machine need an operating system?	5 M

UNIT-III

6.	a)	What do you mean by "exporting shell variables"? Explain with examples.	8 M
	b)	Write a short note on system variables. Give examples.	4 M
		(OR)	
7.	a)	Explain with example different types of commands recognized by the shell .	6 M
	b)	Explain the shell treatment of the command line.	6 M

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CODE: 13EE3019 SET-1

UNIT-IV

8.	a)	Explain the main features of KORN shell. explain?	7 M
	b)	List and explain various special parameters used by shell scripts .	5 M
		(OR)	
9.		Give the syntax of selection and repetition statements in korn shell. Explain them with example.	12 M

UNIT-V

10.	a)	Explain about interactive C shell variables.	8 M
	b)	Write a short note on positional parameters in C shell	4 M
		(OR)	
11.		Write a shell script to accept a string as command line argument and reverse it.	12M

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CODE: 13EE3020 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July-2017
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) State the comparison of AC & DC transmission system?
   b) What is choice of converter configuration?
   c) Define firing angle control
   d) State any four important reasons why the current control is desirable in the Rectifier station under normal operating conditions?
   e) What are the various sources of reactive power?
   f) Define AC filter?
   g) What is radio interference?
   h) What is DC Breaker? How it is useful?
   i) List the causes of non-characteristics harmonics.
   j) Define – Characteristic Harmonics

PART-B

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

UNIT-I

2. a) What are the different applications of D.C. transmission system? Explain them in detail. 6M
   b) Explain the technological development of modern trends in dc transmission 6M

(OR)

3. For a 3 phase 6 pulse gratez's circuit draw the timing diagram considering overlap angle is less than 60 degree and without overlap for the following 12M
   a) Voltage across load
   b) Voltage across any two pair of conduction valves

UNIT-II

4. Describe the Individual phase control and equidistant pulse control schemes for firing angle control employed in a converter. 12M

(OR)

5. a) Explain in detail about equidistance firing angle scheme. Also list the draw backs of this scheme. **6M**
   b) Discuss in detail the effect of source inductance on hvdc system 6M

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CODE: 13EE3020 **SET-1**

UNIT-III

6.	a)	Explain in detail the concept of reactive power requirement in hvdc converters	6M
	b)	Write a short note on modelling of H.V. D.C links	6M
		(OR)	
7.	a)	Compare simultaneous and sequential methods of power flow analysis?	6M
	b)	Draw the flow chart for AC- Dc load flow	6M

UNIT-IV

8.		Write short notes on the following a) Protection against over voltages b) Commutation failure in inverter c) Arc through	**12M**
		(OR)	
9.	a)	What are the basic principles of over current protection?	**6M**
	b)	Discuss the various faults exists in converter station? Explain.	**6M**

UNIT-V

10.		Derive an equation for harmonic voltage and current for single tuned filter and discuss the influence of network admittance.	**12M**
		(OR)	
11.		Give a detailed account of design aspects of following filters (a) Single tuned filter (b)Double tuned filter	**12M**

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Code: 13ME3021 SET-2

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July-2017
OPERAIONS RESEARCH
(Mechanical Engineering)

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

PART –A

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

1. a) Write any one limitation of Operations Research
   b) Define Redundancy in constraint
   c) What is degeneracy in transportation problem?
   d) Define unbalanced assignment problem
   e) Define Elapsed time
   f) What is the distribution of arrival times in queuing systems?
   g) What is the time value of money?
   h) Define Saddle point
   i) Define total float
   j) Define crash time.

PART –B

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

UNIT I

2. a) What is a 'model'?, Explain different types of models used in operations research. 6M

   b) Solve Graphically 6M

   Max $Z = 40\ x_1 + 35\ x_2$
   Sub.to
   $2x1 + 3x_2 \leq 60$
   $4\ x_1 + 3x_2 \leq 96$
   $x_1, x_2 \geq 0$

OR

3. Solve 12M

   Max $Z = x_1 + x_2 + x_3$
   Sub. to
   $x_1 - x_2 + x_3 \geq 4$
   $x_1 + x_2 + 2x_3 \leq 8$
   $x_1 - x_3 \geq 2$
   $x_1\ x_2\ x_3 \geq 0$

UNIT II

4. Find the optimal solution for the transportation problem. 12M

	D1	D2	D3	D4	D5	Availability
S1	4	2	3	2	6	8
S2	5	4	5	2	1	12
S3	6	5	4	7	3	14
Demand	4	4	6	8	8	

OR

5. Solve the Assignment problem 12M

10	3	3	2	8
9	7	8	2	7
7	5	6	2	4
3	5	8	2	4
9	10	9	6	10

UNIT III

6. Determine the total elapsed time for the7 jobs with two machines the order of performing the jobs are I, II. 12M

Job	A	B	C	D	E	F	G
I	3	10	7	4	9	8	2
II	4	3	2	5	1	4	3

OR

7. a) Discuss in brief about the characteristics of queuing system. 6M

b) At Bharat petrol pump, customers arrive according to a poisson process with an average time of 5 minutes between arrivals. The service time is exponentially distributed with mean time equal to 2 minutes. On the basis of this information. Determine 6M

i. What would be the average queue length from time to time?
ii. What would be the Probability that queue size being greater than six?
iii. What is the average time spent by a car in the petrol pump?
iv. What is the average waiting time of a car before receiving petrol?

UNIT IV

8. A firm has a machine whose purchase price is Rs.20,000/-. Its maintenance cost and resale price at the end of different years are as given here: 12M

Year	1	2	3	4	5	6
Maintenance cost (Rs.)	1500	1700	2000	2500	3500	5500
Salvage Value (Rs.)	17000	15300	14000	12000	8000	3000

(a) Obtain the economic life of the machine and the minimum average cost.

(b) The firm has obtained a contract to supply the goods produced by the machine, for a period of 5 years from now. After this time period, the firm does not intend to use the machine. If the firm has a machine of this type that is one year old, what replacement policy should it adopt if it intends to replace the machine not more than once?

OR

9. Solve the following Game using graphical method. 12M

B's Strategy

A's Strategy	b1	b2
a1	-7	6
a2	7	-4
a3	-4	-2
a4	8	-6

UNIT V

10. A project Schedule has the following characteristics. Find Critical Path and Project duration and also tabulate all the float values. 12M

Activity	1-2	1-4	1-5	2-3	2-5	2-6	3-6	4-6	4-7	5-6	5-7	6-7
Duration	10	1	5	9	8	10	4	5	4	7	3	8

OR

11. The data related to a small project consisting of different activities are given below: 12M

Activity	Normal Duration	Normal cost	Crash Duration	Crash cost
(1,2)	8	100	6	200
(1,3)	4	150	2	350
(2,4)	2	50	1	90
(2,5)	10	100	5	400
(3,4)	5	100	1	200
(4,5)	3	80	1	100

For the above given data draw the network and find the optimum duration and cost.

AR13

CODE: 13EC3022 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July-2017

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) What are the field frequency of 625 and 525 line systems?
   b) What is luminance signal?
   c) What is negative modulation?
   d) What is flicker?
   e) What are the demerits of SECAM systems?
   f) What are different TV camera tubes?
   g) What is Geo- stationary satellite.
   h) What is meant by solar eclipse?
   i) What are the different types of antennas used on satellites?
   j) What are the orbital elements?

PART-B

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

UNIT-I

2. a) What is the main difference between a monochrome and colour transmitter. Draw a simplified block diagram of a monochrome TV transmitter and label all the blocks. 6M
   b) Sketch the complete pulse train that follow at the end of both odd and even fields. Explain how the half- line discrepancy is removed by insertion of pre-equalizing pulses. 6M

(OR)

3. a) Justify the choice of 625 lines for TV transmission. Why is the total number of lines kept odd in all television systems. 6M
   b) Show that a total channel bandwidth of 11.25 MHz would be necessary if both sidebands of the modulated picture signal are fully transmitted. Explain how the channel width is reduced to 7 MHz by allowing vestigial sideband transmission. 6M

UNIT-II

4. a) Sketch and explain the functional blocks of a monochrome TV camera tubes 6M
   b) Explain how the chrominance signal is formed by quadrature modulation of (B-Y) and (R-Y) signals. Describe value of colour subcarrier the 'C' signal is frequency interleaved with the Y signal. 6M

(OR)

5. a) Describe essential features of a Trintron colour picture tube, delta-gun and P.I.L. picture tubes. 6M
   b) Explain how the luminance and colour difference signals are developed from camera outputs. Why is it necessary to set Y= 0.3R+0.59G+0.11B? 6M

AR13

CODE: 13EC3022 **SET-2**

UNIT-III

6. a) Draw block diagram of a an RF tuner and explain how incoming signals from different stations are translated to common picture IF and sound IF frequencies. 6M
   b) Describe briefly the factors that influenced the choice of picture IF=38.9 MHz in the CCIR-B television system . 6M

(OR)

7. Draw block diagram of PAL-D decoder. Explain briefly the functions of various blocks of decoder. 12M

UNIT-IV

8. What are the orbital perturbations? Explain the longitudinal changes effects of the earth's Oblateness, effects of the Sun and Moon inclination changes of Geo synchronous satellite. 12M

(OR)

9. Explain any two basic methods of launching satellites into geostationary orbit. 12M

UNIT-V

10. What are the subsystems in a satellite. Explain their functionality. 12M

(OR)

11. What is transponder? Explain double conversion transponder with block diagram. Discuss about the frequencies used in single conversion and double conversion transponders. 12M

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AR13

SUB CODE:13EC3026 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, July-2017
OOPS THROUGH JAVA
(Electronics & Communication Engineering)

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

PART-A

ANSWER ALL QUESTIONS [1 x 10 = 10 M]

1. a) Define an inner class
   b) How threads can be declared as daemon threads.
   c) Explain the need for finally block with an example.
   d) Define garbage collection in java
   e) Can an interface extend more than one interface? Give the syntax.
   f) Explain dynamic method dispatch
   g) How do you re throw an exception in java?
   h) What is an event
   i) How do you create a password field in java?
   j) What is the purpose of finalize() method in java.

PART-B

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

UNIT-I

2. a) Explain the characteristics of java with the help of its buzz words 6M
   b) Write about the data types in Java. Explain about type conversions and type promotions in java. 6M

(OR)

3. a) Explain Object Oriented Programming concepts. 6M
   b) Write about the control statements in java and write a program to find whether a given number is a palindrome or not 6M

UNIT-II

4. a) Define a constructor. What are the types of constructors? Explain constructor overloading with an example program 6M
   b) What is the purpose of the keyword static? Explain with an example program 6M

(OR)

5. a) Explain the usage of keyword 'this' with an example program. Differentiate instance variables and static variables. 6M
   b) What are the different parameter passing techniques in java? Write a program to demonstrate parameter passing techniques in java. 6M

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SUB CODE:13EC3026 **SET-1**

UNIT-III

6.	a)	Differentiate method overloading and method overriding with suitable examples	6M
	b)	Define Multiple Inheritance? Can a class extend two or more classes simultaneously in java? Write a program to demonstrate multiple inheritance in java	6M
		(OR)	
7.	a)	Define Polymorphism? What are the types of polymorphisms? Explain how run time polymorphism is achieved in Java.	6M
	b)	Define package? Explain about access protection in packages with suitable examples	6M

UNIT-IV

8.	a)	What are various types of exceptions? Explain custom exception with the help of a program.	6M
	b)	Explain Inter Thread Communication with a suitable program.	6M
		(OR)	
9.	a)	Differentiate a process and a Thread? Write a program for Thread Synchronization.	6M
	b)	Explain the keywords of Exception handling mechanism with a program.	6M

UNIT-V

10.	a)	What is Delegation Event Model? Explain how Key events are handled with a suitable program.	6M
	b)	Differentiate swing and awt? Explain jpanel, Jcombox with the help of program.	6M
		(OR)	
11.	a)	Explain life cycle of Applet and demonstrate parameter passing in applets with a suitable example.	6M
	b)	Explain graphics and color class with a program.	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-2017
UNIX PROGRAMMING
(Computer Science and Engineering)

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

PART-A

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

1. a) What do the following UNIX system variables signify?
   i) $HOME ii) $PATH
   b) How to Display numbers in ascending order in front of each line.
   c) List different types of shells available in UNIX.
   d) What is the purpose of output redirection?
   e) Write syntax of open() system call.
   f) What are stream errors?
   g) What are various types of process terminations?
   h) When do we call a process as orphan process?
   i) List the applications of IPC.
   j) Give the example of remove a message queue.

PART-B

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

UNIT-I

2. a) Explain about the following commands:
   i) ulimit, ii) ps, iii) finger iv) uniq v) grep vi) tar. 6M
   b) Explain in detail about disk utilities and text processing utilities. 6M

(OR)

3. a) Explain in detail about file permissions and process utilities. 6M
   b) Explain about the following UNIX utilities:
   i) mv ii) rmdir iii) rlogin iv)cmp. 6M

UNIT-II

4. a) Explain in detail about pipes and input Redirection. 6M
   b) Write a shell script to find out whether a given number is prime number or not. 6M

(OR)

5. a) Define Shell. Explain in detail about shell responsibilities. 6M
   b) Write a shell program to arrange three numbers in ascending order. 6M

UNIT-III

6. a) What is the importance of dup() system call in unix. Explain different types of dup() with suitable example. 6M
   b) Distinguish between fseek() & lseek() and fgets() and gets() system calls. 6M

(OR)

7. a) Define System call. Explain in detail about Directory handling System calls. 6M
   b) Explain the role of unlink(), link() and symlink() system calls in unix. 6M

AR13

CODE:13CS3019 SET 1

UNIT-IV

8. a) What is a zombie process? Explain it in detail 6M
   b) Explain the exit() system call. 6M

(OR)

9. a) Differentiate between fork( ) and vfork( ) system calls 6M
   b) Explain in detail about alarm and pause functions. 6M

UNIT-V

10. a) List and explain the different system calls present in pipe. 6M
    b) Discuss in detail about the semaphores. 6M

(OR)

11. Explain in detail about the importance of shared memory in interprocess communication. 12M

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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-2017

DESIGN AND ANALYSIS OF ALGORITHMS
(Information Technology)

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

PART-A

1. a) What is performance analysis of an algorithm?
   b) What are the applications of disjoint sets?
   c) What is the total number of external nodes in binary search tree if it has n internal nodes?
   d) Define optimal solution.
   e) State the optimality principle.
   f) Specify the dominance rule in 0/1 knapsack problem.
   g) List the advantages of backtracking over brute force technique.
   h) What is the chromatic number of a graph?
   i) What factor distinguishes between LIFOBB, FIFOBB and LCBB?
   j) Write the difference between deterministic and non-deterministic algorithms.

PART-B

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

UNIT-I

2. a) Define algorithm. What are the different criteria that specify the algorithm? 6M
   b) Explain the different looping statements used in pseudo code conventions. 6M

(OR)

3. a) Write an algorithm to find bi-connected components of a graph. Explain with an example. 6M
   b) Write Kruskal's algorithm to find the minimum cost spanning tree. 6M

UNIT-II

4. a) Write a non-recursive algorithm for Binary Search. Analyse its time complexity. 6M
   b) Write the tree calls of Merge Sort and Merge procedures for the set with the following elements. 6M
   67,23,90,56,78,25,77,11,34,53,89,32,49

(OR)

5. a) Give algorithm for greedyknapsack and analyse its performance. 6M
   b) Write and explain the algorithm for single source shortest path with an example. 6M

UNIT-III

6. a) Illustrate matrix chain multiplication algorithm. 6M
   b) Explain the procedure of constructing the optimal binary search tree. 6M

(OR)

7. a) Solve the following 0/1 Knapsack problem using dynamic programming 6M
   (p1, p2,p3) =(1,2,5), (w1, w2,w3) =(2,3,4), m=6, n=3.
   b) Discuss the dynamic programming solution to the Reliability Design problem. 6M

AR13

CODE: 13IT3004 SET-I

UNIT-IV

8.	a)	Describe the 4-queens problem using backtracking.	6M
	b)	Write a recursive backtracking algorithm for sum of subsets problem.	6M
		(OR)	
9.	a)	Write an algorithm to generate next color in M coloring problem.	6M
	b)	Explain how the Hamiltonian cycle problem is solved using backtracking	6M

UNIT-V

10.	a)	Explain the principles of LIFO Branch and Bound.	6M
	b)	Describe the Travelling Sales Person problem in Branch and Bound.	6M
		(OR)	
11.	a)	Explain the classes of P and NP.	6M
	b)	Explain the Satisfiability problem.	6M

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