Code No.: **50506**

MR15-2015-16 & 2016-17 Batch

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)

Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, JUNE-2018

Subject: **Algorithm Design**

Branch: **CSE**

Time: 3 hours **Max. Marks: 60**

PART – A

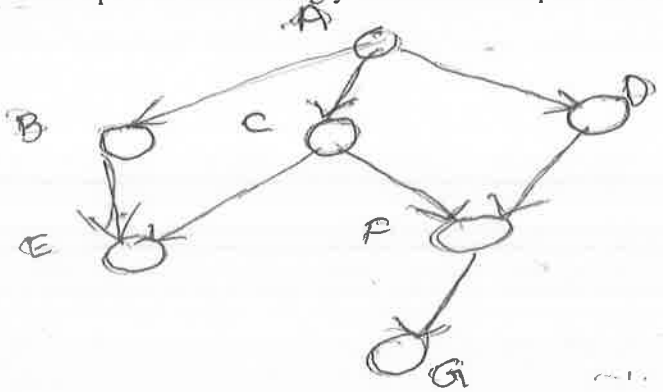
Answer ALL questions of the following **5x2Mark=10 Marks**

1. Define spanning tree?
2. Differentiate between Greedy method and Dynamic programming.
3. What is Matrix chain multiplication?
4. Define sum of subsets problem?
5. Define properties of LC-Search.

PART-B

Answer any FIVE Questions of the following **5x10 Marks= 50Marks**

1. Two sets S1 and S2 are S1= {1,2,4,6} and S2= {7,8}
   a) Draw Disjoint sets S1 and S2 using Trees.
   b) Draw Disjoint sets S3 such that S3=S1 U S2.
   c) Draw Disjoint sets S4 such that S4=S2 U S1.
2. Find out the connected components and strongly connected components of a given graph.



3. a) What is the importance of Binary search when compared to normal search algorithm.
   b) Explain iterative binary search algorithm?
4. a) Comparison between dynamic programming and Divide and conquer?
   b) Solve the following 0/1 knapsack problem using Greedy method, M=10, (P_1,P_2,P_3,P_4) are (2,4,5,6) weights (w_1,w_2,w_3,w_4) are (1,2,4,2)
5. Consider **4** elements $\mathbf{a_1<a_2<a_3<a_4}$, with $q_0=1/4, q_1=3/16, q_2=q_3=q_4=1/16$
   $P_1=1/4, p_2=1/8, p_3=p_4=1/16$.
   a). Construct Optimal Binary Search Tree as minimum cost tree
   b). Construct the table values w_{ij}, C_{ij}, V_{ij} Computed by the algorithm to compute the roots of the Optimal sub-tree
6. Explain about Optimal binary search trees? Give example.
7. Explain sum of subsets problem using back tracking with an example.
8. Explain how Non deterministic algorithms are useful in solving NP-Hard and NP-Complete problems.

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Object Oriented Programming**

Branch: **CSE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Why do we need oop?
2. What is an abstract class and give an example.
3. Demonstrate the application of variables in interface.
4. Write any two differences between thread and process.
5. Write about life cycle of an applet.

PART-B

Answer any FIVE Questions of the following **5x10 Marks= 50Marks**

1. Illustrate with an example Binary operator overloading and constructor overloading in C++.
2. a) Write a Java program to find the area of a triangle and rectangle using Dynamic method dispatch.
   b) Write the two uses of super keyword?
3. What is the difference between an abstract class and an interface? Write a program in java to illustrate the use of an interface and also to extend interfaces.
4. Illustrate with an example the two ways we can synchronize the code when two or more threads are trying to access it.
5. Illustrate with an example order of applet initialization and termination.
6. a) What is constructor overloading in java explain with an example?
   b) Explain the keywords staic , final .
   c) What is mean by call by value in java explain with suitable example?
7. a) Develop a package program which holds a package name as "MyPack" and which holds a class name as "AccountBalance".
   b) Give some examples for unchecked exceptions. Explain with example.
8. a) Give an example to create user defined exception.
   b) How to set thread priorities explain with example.

Code No.: 50452

MR15-2015-16 & 2016-17 Batch

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Digital Logic Design**

Branch: **CSE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Write about the Complements
2. Show the difference between SOP and POS Small Example.
3. Brief about Encoder & Multiplexer.
4. What is meant by state reduction in synchronous Sequential Logic?
5. Define state diagram with example.

PART-B

Answer any FIVE Questions of the following **5x10 Marks= 50Marks**

1.a. Convert the octal number 3575.450 into corresponding binary number
b. Convert the decimal number 511.515 into corresponding Hexa decimal number

2. a. Subtract 54710 from 79210 using the excess-3 subtractor.
b. Excess-3 code – Explain in detail .

3.a. Draw circuit diagram for the following Boolean expressions
i. BC(A+B+C)+AB(B+C'+A)+A'B'C'
ii.AB+C'+(B'+C')'+(A'+C'+D')'
b. Reduce the following function using K-map technique and implement using NAND Gates. $F(A, B, C, D) = \sum m (0.2,4,6,8,10,12,14,, 15) + d(1, 3)$

4.a. Define SOP and POS and make a K-Map of the following expression and obtain minimal expression in SOP and POS form?
$S=AB+\bar{A}C+C+AD+ABC+\bar{A}BC$
b. Minimize the following multiple output functions using K-Map
(i) $F1 = \sum m=(0,2,6,10,11,12,13) + d(3,4,5,14,15)$ (ii) $F2 =\pi M(0,4,9,10,11,14,15)$

5. Explain how you design a combinational circuit. Show combinational circuit and working for a Binary multiplier.

6.a. Design a 4 bit combinational circuit incrementer using four half adders?
b. Give the HDC code for synchronous counters.

7.a. Explain the Analysis procedure for Asynchronous Sequential circuits?
b. Write short notes on shared row state assignment with an example.

8.a. Explain the static and dynamic hazards in Asynchronous sequential circuits.
b. Compare synchronous and asynchronous sequential circuits

Code No.: **50B12**

MR15-2015-16 & 2016-17 Batch

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Applied Statistics**

Branch: **CSE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Explain the concept of skewness.
2. State the Hypotheses of ANOVA
3. Write the importance of design of experiments.
4. Explain single sampling plan.
5. Write the utility of time series.

PART-B

Answer any FIVE Questions of the following **5x10 Marks= 50Marks**

1. During 10 weeks of a certain certificate program in Computer Science, two candidates X and Y score marks as given below:

Marks scored by X	58	59	60	54	65	66	52	75	69	62
Marks scored by Y	87	89	78	71	73	84	65	66	56	46

By finding standard deviation
Who is the better scorer: X or Y?
Who is more consistent?

2. The following data show the birth weights of babies born, classified according to the age of mother and order of gravid, being 3 observations per call

	15-20	20-25	25-30	30-35	35 and above
1	5.1, 5.0, 4.8	5.0,5.1,5.3	5.1,5.1,4.9	4.9,4.9,5.0	5.0,5.0,5.0
2	5.2, 5.2, 5.4	5.3,5.3,5.5	5.3,5.2,5.2	5.2,5.0,5.5	5.1,5.3,5.9
3	5.8, 5.7,5.9	6.0,5.9,6.2	5.8,5.9,5.9	5.8,5.5,5.5	5.9,5.4,5.5
4	6.0,6.0,5.9	6.2,6.5,6.0	6.0,6.1,6.0	6.0,5.8,5.5	5.8,5.6,5.5
5 and over	6.0,6.0,6.0	6.0,6.1,6.3	5.9,6.0,5.8	5.9,6.0,5.5	5.5,6.0,6.2

Test whether the age of mother and order of gravid significantly affect the birth weight

3. Define Completely Randomized Design, its advantages and applications
4. The following table gives the results of daily inspection of sewing machine needles for a particular quality characteristic. Compute a p-chart and np chart.

Day	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Number of needles inspected	**106**	**29**	**141**	**36**	**162**	**138**	**189**	**162**	**123**	**108**	**36**	**142**
Number of defectives	**4**	**0**	**22**	**1**	**24**	**8**	**15**	**23**	**9**	**7**	**0**	**18**

5. Find Fisher's Ideal Index number from the following data using 2000 as the base year.

Commodity	2000		2002	
	Price	Quantity	Price	Quantity
A	4	20	10	15
B	8	4	16	5
C	2	10	4	12
D	10	5	20	6

6. For the following distribution of marks obtained, find the value of Arithmetic Mean and Standard deviation.

Marks Obtained:	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
No. of students:	2	5	7	13	21	16	8	3

7. The following table gives the retail prices (*Rs. Per kg.*) of a commodity in some shops selected at random in four cities. Cary out the ANOVA to test the significance of the difference between the mean prices of commodities in four cities. Assume α=0.05.

City A	City B	City C	City D
22	20	19	24
24	19	17	26
27	23	21	29
23	22	18	26
28		22	25

(The critical value of $F(3, 15) = 3.29$ *at* $\alpha=0.05$)

8. Give an example of $\mathbf{2^2}$ factorial experiment and explain the meaning of main effects and interactions

Code No.: 50507

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, JUNE-2018

Subject: Mathematical Foundation for Computer Science

Branch: **CSE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. Write the truth table for BiConditional connective
2. If A={1,2,3,4} and R,S are relations on A defined by R={ (1 , 2), (1 ,3), (2 ,4), (4, 4) }
   S= { (1 ,1), (1 ,2), (1 ,3), (1 ,4), (2, 3), (2 ,4)} find R o S, S o R
3. Define a function and give example.
4. Find the coefficient of x^9y^3 in the expansion of $(2x-3y)^{12}$.
5. If the roots different write Expression for Second order Recurrence Relations.

PART-B

Answer any FIVE Questions of the following **5x10 Marks= 50Marks**

1. a) Find DNF of ~(P∨Q)<=> (P∧Q)
   b) Find PCNF of (Q→P) ∧ (~P∧Q)

2. a) Find the DNF of the following p→{(p→ q) ^ ~(~q v ~p)}
   b) Define Conjunctive and Disjunctive normal forms with suitable example

3. a) Show that the relation of congruence modulo 'm' has m distinct equivalence classes.
   b) Define these terms: Equivalence Relations, Transitive Closure & POSET.

4. a) Determine whether the following argument is valid:
   No graduate student of commerce or literature studies physics.
   Anil is a graduate student who studies physics.
   ∴ Anil is not a graduate student of literature.
   b) Determine the validity of the following argument.

   p→r
   r→s
   t V~s
   ~t V u
   ~u

   ∴ ~p

5. a) If H is a subgroup of a group G then show that HH=H is converse is true?
   b) Show that the intersection of two sub groups is a subgroup.

6. a) List and explain different types of functions with examples.
   b) Define these terms 1) group, 2) Moniod 3)Semi group

7. a) Write the Binomial & Multinomial theorems with examples.
   b) How may bit strings of length eight start with 1 or end with 00 using inclusion – exclusion principle?

8. a) If "0" is an operation on Z defined by X0Y=X+Y+1. Prove that <Z,0> is an abelian group.
   b) Solve the Recurrence Relation $a_n + a_{n-1} + 6\,a_{n-2} = 0$

Code No.: **50H16**

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II B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Environmental Sciences**

Branch: **Common to ECE & CSE**

Time: 3 hours **Max. Marks: 60**

PART – A

Answer ALL questions of the following **5x2Mark=10 Marks**

1. What are carnivores? Give two examples.
2. Define biodiversity.
3. Define pollution? Name various atmosphere pollution.
4. Define Greenhouse effect.
5. Write a short note on over exploitation.

PART-B

Answer any FIVE Questions of the following **5x10 Marks= 50Marks**

1. a) List the main components of an Ecosystem. And briefly describe the functions of each.
   b) Difference between Food chain & Food web.
2. a) Write short notes on Over utilization of natural resources.

   b) Give brief note about mineral resources.
3. Discuss the adverse effects of costal pollution due to sewage and industrial waste.
4. a) What is global warming and write its impact on environment.
   b) Explain sea level rise. What are its causes and effects?
5. a) Explain about present scenario of urbanization in India
   b) Write short notes on Importance of environmental education.
6. Discuss in detail the Renewable and Non- Renewable resources with examples.
7. Discuss various sources of Marine pollution, How can you prevent pollution of an Ocean.
8. a) Write a short note on desertification.
   b) Write a short note on De-forestation