Code No.: **40509** | **MR14**

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 II SEMESTER SUPPLEMENTARY EXAMINATIONS, MAY-2018

Subject: **Object Oriented Programming**

Branch: **CSE**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. What are the primitive data types in java?
2. Define super keyword.
3. What is an interface?
4. What is serialization?
5. Where are the applets executed?

II. Answer ALL questions of the following **10x2Mark=20 Marks**

1. Why pointers are eliminated from java?
2. What is the difference between >> and >>> Operator?
3. Explain Abstract class and abstract method in java?
4. What is the difference between String Buffer and String Builder Classes?
5. What are checked Exceptions?
6. What is a JAR file?
7. How can you stop a thread in java?
8. What is the advantage of stream concepts?
9. What is event delegation model?
10. What is the difference between a window and a Frame?

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

Q1 .a).What is a Buzzword? List and explain all the java buzzwords? [5+5]

b). Determine the value for each of the following expression if a=5, b=10, and c=-6

a) a>b && a
b) a && a>c
c) a<=c || b>a
d) b>15 && c>0 || a>0
e) (a/2==0 || b/2==0) && c<0

(OR)

Q2. Write a java program to read two matrices from key board and find out Multiplication of two matrices. [10]

Q3. a).What is the advantage of using "this" keyword, explain?

b). Write a java program to find the factorial of a given number? [5+5]

(OR)

Q4. a). Write a java program to find whether the given string is a palindrome or not

b).What is a constructor? How do we invoke a constructor? What are its special properties? [5+5]

Q5. a). Define package and show how the user defined packages are implemented?

b).Differentiate between throws and throw keywords? [5+5]

(OR)

Q6. a).How does "try-catch-finally" mechanism handle an exception?

b).Name and explain about any 5 built in packages? [5+5]

Q7. a). Explain the concept of TCP and UDP.

b). Define thread? Name and explain different states in the lifecycle of threads? [5+5]

(OR)

Q8 a).Explain about notify (), notifyall () and join () in threads?

b). what is difference between Byte stream and Character Stream [5+5]

Q9. Write a java code to explain the concept of Flow Layout, Border Layout, Grid Layout in AWT? [10]

(OR)

Q10. a).Explain Applet Life Cycle with suitable example?

b). List and explain about the various drawing methods used in graphics class [5+5]

Code No.: **40510**

MR14

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

Subject: **Computer Organization**

Branch: **CSE**

Time: 3 hours **Max. Marks: 75**

PART-A

I. Answer ALL Questions of the following **5x1M=5M**

1. What is Shift Micro Operation?
2. What is Instruction Code?
3. What is Main Memory?
4. Define RISC.
5. What is Direct Addressing?

II. Answer ALL Questions of the following **10x2M=20M**

1. What are the Computer Types? Explain it
2. What is the Difference between Micro Operation and Macro Operation?
3. Explain about Computer Instructions.
4. Explain about Program Control.
5. What is Control Memory? Draw Control Memory Block Diagram.
6. Explain about Memory Hierarchy.
7. What are the I/O Operations? Explain it
8. Explain about Pipelining.
9. Explain about Array Processor
10. Explain MISD Processors.

PART-B

Answer ALL Questions of the following **5x10M=50M**

1. (a) What is RTL? Explain about RTL Operations.

   (b) What is Micro operation? Explain all Arithmetic Micro operations.

OR

2.(a) Draw a neat sketch of Interconnection of the bus structure.

(b) Draw a block diagram of 4 bit Arithmetic adder circuit.

3. (a) Explain briefly about Memory Reference Instructions.

   (b) Explain all Addressing Modes with suitable examples

OR

4. (a) Explain briefly about Data Transfer and Manipulation instructions.

   (b) Explain about Stack Organization with example.

5. (a) What are the difference between Hardwired and Micro programmed control

(b) What is Cache Memory? Explain briefly about it.

OR

6. (a) Draw a block diagram of Control Unit.

(b) Explain briefly about Auxiliary Memory with neat sketch.

7. (a) Explain booths multiplication algorithm

(b) What are the Modes of Transfer? Explain it.

OR

8. (a) Explain about DMA Transfer

(b) Explain about Priority Interrupts.

9. (a) What are the types of Pipelining? Explain all.

(b) Explain briefly about Vector Processing

OR

10.(a) Explain briefly about RISC.

(b) Explain about Parallel Processing.

Code No.: **40508** | **MR14**

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

Subject: **Database Management Systems**

Branch: **CSE**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. Define DBMS and its applications?
2. What is a Relational Calculus?
3. What is Normalization?
4. Define Checkpointing?
5. What is linear hashing?

II. Answer ALL questions of the following **10x2Mark=20 Marks**

1. Describe the advantages DBMS.
2. Compare Entity Vs Relationships?
3. What are the SET operations in SQL?
4. What are the different Aggregate Operations in SQL?
5. Differentiate BCNF and Third Normal form?
6. Write about Multi-valued dependencies?
7. Briefly Explain about ACID Properties?
8. Write about Validation based protocols?
9. Explain B+ Tree?
10. Discuss Static Hashing?

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

1. What is a data model? List and explain different data models?

OR

2. Explain the difference between weak entity and strong entity sets? How do you represent the strong and weak entity set through E-R diagrams.
3. What is join operation in relational algebra? Discuss in detail about variants of joins?

OR

4. Explain about Nested Queries or Sub Queries?
5. What is schema refinement? Discuss the problems caused by redundancy?

OR

6. What is decomposition? Describe problems related to decomposition?
7. Explain about Serializability? Discuss about conflict serializability?

OR

8. Explain about time stamp method protocol?
9. What is over flow page? With a neat diagram, briefly describe ISAM Index structure?

OR

10. How is data organized in a B-tree index files? When would you use a Tree-based index?

Code No.: 30510/40511 | MR13 & MR14

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

Subject: **Formal Languages and Automata Theory**

Branch: **CSE & IT (Only MR13)**

Time: 3 hours **Max. Marks: 75**

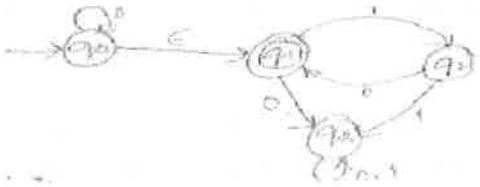
PART-A

I. Answer ALL questions of the following **5 x 1M=5 M**

1. What is the difference between DFA and NFA?
2. Draw the transition diagram for the string 010.
3. Define Right Most Derivation
4. What is an ambiguous grammar?
5. Define P problems

II. Answer ALL questions of the following **10 x 2M=20 M**

1. Differentiate Kleene Closure and Positive Closure.
2. Design DFA which accept all strings which are ending with 101 over an alphabet {0,1}
3. What are the types of automata?
4. Write the E-closure for all the states in the transition diagram given below.



5. Write the steps to convert RE to FA.
6. Write the steps involved in conversion of FA to RE.
7. Can push down automata accept the regular language?
8. Remove ϵ productions from $S \rightarrow aSa|bSb|\epsilon$
9. What is Decidable and Un-decidable problem?
10. Is the $a^n b^n c^n$ context sensitive? Explain.

PART-B

Answer ALL questions of the following **5 x 10 M=50 M**

1. a) Construct a DFA equivalent to NFA given below.M=({q0,q1,q2,q3},δ,q0,{q3}),where δ is define in the following transition table. (5m)

δ	0	1
q0	{qo,q1}	{q0}
ql	{q2}	{ql}
q2	{q3}	{q3}
q3	ϕ	{q2}

b) Prove that for every NDFA accepting a langauage L, there exist an equivalent DFA accepting the same language L.

OR

2. a) Design a DFA which accepts all strings which does not contain substring ab over input symbol set {0,1}

b) Design DFA that accepts the language L(M) = {w/w ϵ (0,1)*} and w does not contains three consecutive 0's.

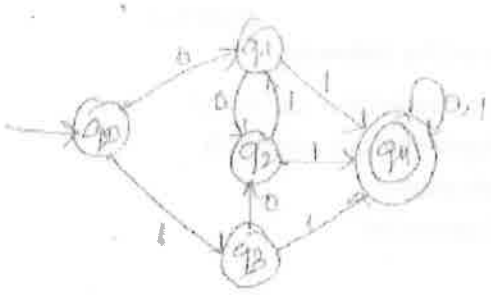
3. Show that following languages are not regular

   i) $L=\{a^n b^m | n, m \text{ t0 and } n<m\}$

   ii) $L=\{ a^n b^m | n, m \text{ t0 and } n>m\}$

OR

4. Minimize the following



5. Construct NFA for the following

   a) 0+10*+01*0 b) (0+1)*(01+110)

OR

6. a) Convert the following right linear to left linear grammar. S→0A, A→1A, A→ϵ.

   b) Construct PDA for L = $\{a^i b^j c^j / i,j >= 1\}$. Show the moves of the PDA for the string.

7. Define Chomsky normal form, convert the following grammar into CNF:

   S →bA/aB; A → bAA / aS / a; B→ aBB / aBB / bS / S

OR

8. Convert the given CFG to CNF S→aSa|bSb|a|b.

9. a) Design a TM for computing factorial of a given number n.

   b) What are the modifications that can be done to the basic model of a TM? Discuss any two in brief.

OR

10. Design a Turing Machine (TM) that accepts the set of all even palindromes over {0,1}

Code No.: **30511/40512** | **MR13 & MR14**

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

Subject: **Design and Analysis Of Algorithms**

Branch: **Common to CSE & IT (MR13 only)**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1M=5 Marks**

1. Define Algorithm.
2. What is minimal spanning tree?
3. Define Dynamic programming.
4. State the principle of backtracking.
5. Define NP-Hard problem.

II. Answer ALL questions of the following **10x2M=20 Marks**

1. Define space complexity.
2. What is amortized analysis?
3. Explain the general method of divide and conquer.
4. List the drawbacks of merge sort algorithm.
5. Distinguish between greedy method and dynamic programming
6. State the following terms
   a) balanced tree b) height of a balanced tree
7. Differentiate live node and dead node.
8. What is chromatic number for a graph?
9. Define the term branch and bound.
10. Define deterministic problem.

PART-B

Answer the following questions **5x10M=50 Marks**

Q1. Discuss with examples various asymptotic notations used in algorithm design.

(OR)

Q2. What is an articulation point? Write an algorithm to eliminate articulation point.

Q3. Explain with an example how divide and conquer paradigm can be used in binary search for searching an element.

(OR)

Q4. What is knapsack problem? Find an optimal solution to the knapsack instance n=3, m=20, (p1, p2, p3) = (25,24,15) and (w1, w2, w3) = (18,15,10)

Q5. Discuss how dynamic programming can be used in multiplying a chain of matrices.

(OR)

Q6. Explain in detail about reliability design problem.

Q7. Explain with an algorithm how backtracking works for solving 8-queens problem.

(OR)

Q8. What is Hamiltonian cycle? Write a backtracking algorithm that finds all the Hamiltonian cycles in a graph.

Q9. Explain FIFO branch and bound solution for 0/1 knapsack problem.

(OR)

Q10. State and prove Cook's theorem. Explain its significance in NP-complete theory.

Code No.: 30111/40111 | MR13/ MR14

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

Subject: **Environmental Studies**

Branch: **Common to ME, ECE & CSE**

Time: 3 hours **Max. Marks: 75**

PART – A

I. Answer ALL questions of the following **5x1Mark=5 Marks**

1. What is ecological succession?
2. What are the benefits of dams?
3. Give examples for primary and secondary air pollutants
4. What are the reasons for Global warming?
5. What are acid rains?

II. Answer ALL questions of the following **10x2Mark=20 Marks**

1. Write are biogeochemical cycles?
2. What is carrying capacity?
3. Give examples of renewable and non-renewable energy resources.
4. What is In-Situ and Ex-situ conservation?.
5. Write any two control methods for water pollution.
6. What are the major impacts of modern agriculture on soil?
7. Name the substances that causes ozone depletion.
8. Differentiate EIA and EMP
9. What is meant by crazy consumerism?
10. What are green buildings?

PART-B

Answer ALL questions of the following **5x10 Marks= 50Marks**

Q1. What are food chains and food webs ? Give their significance with examples

(OR)

Q2. Explain the different types of ecological pyramids?

Q3. Briefly discuss droughts and floods with respect to their occurrence and impacts.

(OR)

Q4. a)What are Hot spots of biodiversity?
b) Discuss various threats to the biodiversity

Q5. Discuss briefly the various waste water treatment methods.

(OR)

Q6. Explain in detail about the solid waste management and discuss the adverse effects of solid waste.

Q7. Explain the different types of rain water harvesting techniques employed to conserve water.

(OR)

Q8. Differentiate Kyoto protocol and Montréal Protocol

Q9. Discuss on the following
i) Overexploitation of resources ii) Role of IT in environment

(OR)

Q10 .Explain Concept of Sustainable Development and Threats to Sustainability,