

Code No: 114CS

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD**B. Tech II Year II Semester Examinations, May -2016****DESIGN AND ANALYSIS OF ALGORITHMS****(Computer Science Engineering)****Time: 3 hours****Max Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

PART-A (25 Marks)

1.
 - a) List the asymptotic notations. (2M)
 - b) Explain the time complexity of merge sort. (3M)
 - c) Define graph. (2M)
 - d) Explain the properties of strongly connected components. (3M)
 - e) Give brief description on greedy method. (2M)
 - f) What is multistage graph? (3M)
 - g) Write the applications of Branch and Bound problem. (2M)
 - h) What is sum of subsets problem? (3M)
 - i) What NP Hard? (2M)
 - j) Explain non deterministic algorithm (3M)

PART-B (50 Marks)

2.
 - a) What is an algorithm? Explain it's characteristics. (5+5M)
 - b) Explain the strassen's matrix multiplication.

OR
 3.
 - a) Discuss about space complexity in detail. (5+5M)
 - b) Write an algorithm for quick sort. Explain with an example.
 4.
 - a) Describe Union and Find algorithms. (5+5M)
 - b) Explain the BFS algorithm with example.

OR
 5.
 - a) Write a non-recursive algorithm for preorder traversal of binary tree T. (5+5M)
 - b) Explain game tree with an example.
 6.
 - a) Write a greedy algorithm to the job sequencing with deadlines. (5+5M)
 - b) Define merging and purging rules in 0/1 knapsack problem.

OR
 7.
 - a) Differentiate between greedy method and dynamic programming. (5+5M)
 - b) Explain the kruskal's algorithm with an example.
 8. Draw the portion of state space tree generated by LCBB for the following (10M)
instances: $n=5, M=12, (p_1, \dots, p_5) = (10,15,6,8,4)$ (w_1, \dots, w_5)=(4,6,3,4,2)
- OR**
9. a) Describe Backtracking technique to m-coloring graph. (5+5M)

b) Briefly explain n-queen problem using Backtracking.

10. a) Explain the classes of NP-Hard and NP-Complete.

(5+5M)

b) Explain satisfiability problem.

OR

11. a) Explain the strategy to prove that a problem is NP Hard.

b) Explain the non deterministic sorting problem.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, November/December - 2015

DESIGN AND ANALYSIS OF ALGORITHMS

(Computer Science and Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A (25 Marks)

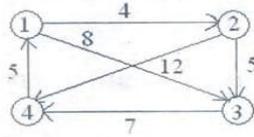
- 1.a) Arrange the following functions in increasing order
n, logn, n², n³, nlogn, 2ⁿ [2]
- b) Find the worst-case, best-case and average -case time complexity of the binary search. [3]
- c) Write an algorithm for set Union operation. [2]
- d) Explain the tree traversal techniques with an example. [3]
- e) State the principle of optimality. [2]
- f) Write control abstraction algorithm of greedy method. [3]
- g) Find the sum of subsets for the following set of integers by using fixed tuple method
{5, 10, 25, 50, 100} for W = 75 [2]
- h) What do you mean by dynamic program? [3]
- i) Define P, NP, NP-Complete and NP- Hard. [2]
- j) Write the non deterministic sorting algorithm. [3]

Part-B (50 Marks)

- 2.a) Derive the time complexity of quick sort in an average case. [5+5]
 - b) Write an Euclid's algorithm. [5+5]
- OR**
- 3.a) Write an algorithm of Merge sort.
 - b) Solve the following recurrence relation
 $T(n) = 4T(n/3) + n^2$ [5+5]
- 4.a) Write an algorithm of AND/OR graph traversal.
 - b) Explain how BFS can be used to identify the connected components in a graph with an example. [5+5]
- OR**
- 5.a) Write an algorithm to find the strongly connected components in a digraph.
 - b) Explain the properties of Bi - connected components. [5+5]
- 6.a) Find an optimal solution to the 0/1 knapsack instance n=7, m=15,
(p1, P2,P7) = (10, 5, 15, 7, 6, 18, 3) and
(w1, w2.....w7) = (2, 3, 5, 7, 1, 4, 1)
 - b) Write an algorithm for single source shortest path. [5+5]

OR

- 7.a) Obtain all pair shortest paths for the following graph:



- b) Write an algorithm for job sequencing with deadlines. [5+5]
- 8.a) Explain how the Hamiltonian circuit problem is solved by using the backtracking concept.
- b) Write an algorithm of FIFO Branch and Bound. [5+5]
- OR**
9. Draw the portion of the state space tree generated by LCBB for the following knapsack instances:
 $n=5, (P_1, P_2, P_3, P_4, P_5) = (W_1, W_2, W_3, W_4, W_5) = (4, 4, 5, 8, 9)$ and $m=15$. [10]
- 10.a) Show that the Hamiltonian-path problem is NP-complete.
- b) Write a non deterministic sum of subsets problem. [5+5]
- OR**
- 11.a) Explain satisfiability problem and write the algorithm for the same.
- b) Is travelling salesman problem NP-hard or NP-Complete? Justify your answer. [5+5]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD**B. Tech II Year II Semester Examinations, Model Paper - I****DESIGN AND ANALYSIS OF ALGORITHMS****(Computer Science Engineering)****Time: 3 hours****Max Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

PART-A (25 Marks)

1.
 - a) Define algorithm. (2M)
 - b) Write algorithm for binary search? (3M)
 - c) Define game tree? (2M)
 - d) Write a non recursive post order traversal algorithm? (3M)
 - e) Define minimum spanning tree? (2M)
 - f) Briefly Explain Multistage Graphs (3M)
 - g) Define graph coloring? (2M)
 - h) Explain general method for Branch and Bound? (3M)
 - i) Define deterministic algorithm? (2M)
 - j) Briefly explain the classes of P and NP? (3M)

PART-B (50 Marks)

2. Write an algorithm for quick sort and derive worst case time complexity? (10M)
OR
3. Explain Strassen 's matrix multiplication algorithm with an example ?
4. Write algorithms for BFS and DFS? (10M)
OR
5. What is an Articulation Point? Write the Algorithm to find Articulation points?
6. Write an algorithm of prim's minimum spanning tree. (10M)
OR
7. Find the optimal solution of the Knapsack instance $n=7, M=15$,
 $(p_1, p_2, \dots, p_7) = (10, 5, 15, 7, 6, 18, 3)$ and $(w_1, w_2, \dots, w_7) = (2, 3, 5, 7, 1, 4, 1)$.
8. What is Graph coloring? Write an algorithm for it and explain with an example. (10M)
OR
9. What is bounding? Explain the following with an example. (4+3+3M)
 - a) Job Sequencing with Deadlines
 - b) FIFO Branch and Bound
 - c) LC Branch and Bound
10. Prove that Chromatic Number decision problem is NP-Complete. (10M)
OR
11. State Cook's theorem and explain its importance.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD**B. Tech II Year II Semester Examinations, Model Paper - II****DESIGN AND ANALYSIS OF ALGORITHMS****(Computer Science Engineering)****Time: 3 hours****Max Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

PART-A (25 Marks)

1.
 - a) Define order of growth. (2M)
 - b) Explain about Amortized analysis? (3M)
 - c) Define spanning tree. (2M)
 - d) Write a non-recursive algorithm of in-order traversal of a binary tree? (3M)
 - e) Define principle of optimality. (2M)
 - f) Write general method for greedy method? (3M)
 - g) Define state space. (2M)
 - h) Write general method for Backtracking? (3M)
 - i) Define non-deterministic algorithm? (2M)
 - j) Write about tractable and intractable problems? (3M)

PART-B (50 Marks)

2. Show how the Quick sort sorts the following sequences of keys in ascending order 22, 55, 33, 11, 99, 77, 55, 66, 54, 21, 32. (10M)
OR
3. Explain probabilistic analysis with example.
4. Describe the strongly connected components with an example. (10M)
OR
5. What is an Articulation Point? Write the Algorithm to find Articulation points?
6. Write an algorithm of prim's minimum spanning tree. (10M)
OR
7. Find the optimal solution of the Knapsack instance $n=7$, $M=15$,
 $(p_1, p_2, \dots, p_7) = (10, 5, 15, 7, 6, 18, 3)$ and $(w_1, w_2, \dots, w_7) = (2, 3, 5, 7, 1, 4, 1)$.
8. What is Graph coloring? Write an algorithm for it and explain with an example. (10M)
OR
9. What is bounding? Explain the following with an example. (4+3+3M)
 - a) Job Sequencing with Deadlines
 - b) FIFO Branch and Bound
 - c) LC Branch and Bound
10. Prove that Chromatic Number decision problem is NP-Complete. (10M)
OR
11. State Cook's theorem and explain its importance.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD**B. Tech II Year II Semester Examinations, Model Paper - III****DESIGN AND ANALYSIS OF ALGORITHMS****(Computer Science Engineering)****Time: 3 hours****Max Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

PART-A (25 Marks)

1.
 - a) What do you mean by linear search? (2M)
 - b) What are the properties of big oh notation. (3M)
 - c) What is greedy algorithm? (2M)
 - d) What is knapsack problem? (3M)
 - e) What is travelling sales man problem (2M)
 - f) What do you mean by multi stage graph? (3M)
 - g) State general method of backtracking. (2M)
 - h) What is spanning tree? Explain with an example. (3M)
 - i) What is graph coloring? (2M)
 - j) What is NP completeness? (3M)

PART-B (50 Marks)

2. Define time and space complexity. Describe different notations used to represent these complexities. (10M)

OR

3. (a) Solve the recurrence relation of formula $T(n) = \begin{cases} g(n) & n \text{ is small} \\ 2T(n/2) + F(n) & \text{otherwise} \end{cases}$
When (i) $g(n) = O(1)$ and $f(n) = O(n)$
(ii) $g(n) = O(n)$ and $f(n) = O(1)$
(b) Write and explain Divide and conquer algorithm for computing the no of levels in a binary tree.

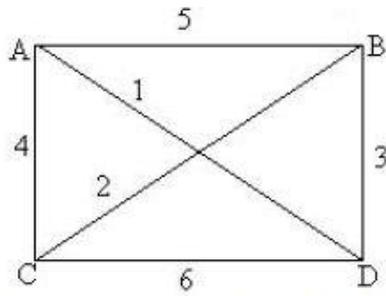
4. Explain the following algorithms.
 - a) BFS
 - b) DFS(5+5M)

OR

5. Explain AND/OR graphs and Bi-connected components. (10M)
6. Distinguish the following: (5+5M)
 - i) Dynamic programming vs. Divide and Conquer.
 - ii) Dynamic programming vs. Greedy Method

OR

7. a) Find the shortest tour of TSP for the following graph using dynamic programming.



- b) What is the best method between greedy method and dynamic programming to solve Single source shortest path problem? Justify your answer with example. (5+5M)
8. a) Consider a set $S = \{5, 10, 12, 13, 15, 18\}$ and $d = 30$. Solve it for obtaining Sum of Subset problem.
- b) What is Hamiltonian Cycle? Describe with an example (5+5M)
- OR**
9. a) Describe Travelling Salesperson Problem (TSP) using Branch and Bound. (5+5M)
- b) Explain 0/1 knapsack problem LCBB.
10. a) Write the properties of NP-Complete and NP-Hard Problems. (5+5M)
- b) How to deal with a NP-Complete problem? Discuss with example
- OR**
11. a) State and prove Cook's Theorem (5+5M)
- b) Prove that Chromatic Number decision problem is NP-Complete.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Data Base Management System
Model Paper – 1 (R13)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

1.
 - a. List the purpose of Database System.
 - b. Define Data Independence.
 - c. Define Relational Model.
 - d. Define Query and Query language
 - e. Define Relational Algebra.
 - f. Define functional dependency
 - g. Define normalization.
 - h. Explain Serializability.
 - i. Define RAID.
 - j. Define Hash indices?

Answer all the questions either (a) or (b)

2. What is logical data independence and why is it important?

OR

3. a) What is partial key? How is it represented in ER diagram? Give an example?
b) What is a descriptive attribute? Explain?
c) Discuss the usage of ISA feature in ER diagram?
4. Explain the following with examples.
 - a) Key constraints.
 - b) Foreign key constraints.

OR

5. What is a view? Explain about views in detail?
6. Explain the following
 - a) Lossless Join
 - b) Lossless decomposition

OR

7. What are the advantages of normalized relations over the unnormalized relations?

OR

8. a) How the use of 2PL would prevent interference between the two transactions.
b) Explain the difference between strict 2PL and rigorous 2PL?

OR

9. Explain different recovery techniques used in transaction failure?
10. Explain all the operations on B+ tree by taking a sample example

OR

11. Explain B+ Trees with examples?

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Data Base Management System
Model Paper – 2 (R13)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

1.
 - a. List the drawback of normal File Processing System.
 - b. Define Data Models and list the types of Data Model.
 - c. List the role of DBA.
 - d. Define Embedded SQL.
 - e. List the properties of decomposition.
 - f. Define First Normal Form.
 - g. Define sparse index?
 - h. Define Query processing?
 - i. Define hash-table overflow?
 - j. Define Functional Dependency.

Answer all the questions either (a) or (b)

2.
 - a) Describe storage manager component of database system structure?
 - b) Explain levels of abstraction in DBMS

OR
3. Explain the E-R diagram components and notations with their extended features?
4. Explain the following.
 - a) Types of Join Operations
 - b) Set Operations

OR
5.
 - a) Define Relational Algebra, tuple and domain relational calculus?
 - b) What are the differences between the two types of relational calculus?
6. Define BCNF? How does BCNF differ from 3NF? Explain with an example.

OR
7. What is Redundancy? What are the different problems encountered by redundancy? Explain them.
8. What are the transaction isolation levels in SQL?

OR
9. Explain how concurrency execution of transactions improves overall system performance?
10.
 - a) What is the relationship between files and Indexes?
 - b) What is the search key for an Index?
 - c) What is Data entry in an Index

OR
11. Explain shadow-copy Technique for Atomicity and Durability.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Data Base Management System
Model Paper – 3 (R13)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

1.
 1. Define Data Abstraction and list the levels of Data Abstraction.
 2. Discuss about Object-Based Logical Models.
 3. List the different types of database-system users.
 4. Define Second Normal Form.
 5. Explain Optical Storage Device?
 6. Define Triggers.
 7. Define lock?
 8. How the time stamps are implemented
 9. What are the ACID properties
 10. Define instance and schema?

Answer all the questions either (a) or (b)

2. Define DBMS? List Database system applications.
OR
3. List four significant differences between a file processing system and a DBMS?
4. a) Write a detail note on participation constraints?
b) What is the class hierarchy? How is it represented in the ER diagrams?
OR
5. What are NULL values? Explain in detail.
6. Explain FD and MVD with examples
OR
7. What is Normalization? Discuss what are the types? Discuss the 1NF, 2NF, 3NF with example?
8. What are the types of failures of a system?
OR
9. What are the two tables used in crash recovery along with log record? Explain with suitable example?
10. Explain about tertiary storage media in detail?
OR
11. Explain
 - a) Clustered Indexes
 - b) Primary and Secondary Indexes

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Data Base Management System
Model Paper – 4 (R13)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

1.
 1. Define DBMS.
 2. Define E-R model.
 3. Write about the role of Transaction manager.
 4. Define BCNF.
 5. Define disk controller?
 6. Define file organization
 7. List the pitfalls in Relational Database Design
 8. What are the two methods for dealing deadlock problem?
 9. What is a primary key?
 10. What does the cardinality ratio specify?

Answer all the questions either (a) or (b)

2. Explain key constraints with an example?
OR
3. Discuss the query processor of database system structure?
4. Explain different types of Join Operations with relevant examples.
5. Explain the following in SQL with examples.
 - a) Nested Queries
 - b) Correlated Queries
 - c) Group by and Having Clauses
 - d) Triggers
6. Explain about the fourth and fifth normal forms.
OR
7. Define Functional dependencies? How are primary keys related to functional dependencies?
8. Write the locking compatibility matrix used for multiple granularity? Explain with suitable examples?
OR
9. Define the concept of schedule for a set of concurrent transaction. Give a suitable example.
10. Explain about Tree based Indexing and Hash based Indexing.
OR
11. Explain about fixed length file organization with an example? And also explain about byte-string representation in detail.

Code No: XXXXX

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech II Year II Semester Examinations

FORMAL LANGUAGES AND AUTOMATA THEORY

Time: 3 hours

Max Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

- 1) a) Define the terms alphabet, string, prefix, suffix, language give examples to each. (2M)
- b) Give DFA & NFA which accept the language $\{ (10)_n : n \geq 0 \}$ (2M)
- c) Define a linear grammar (2M)
- d) Define a ambiguous CFG (2M)
- e) Construct a CFG for the set of all strings over the alphabet $\{a,b\}$ with exactly twice 10 as many a's and b's. (2M)
- f) Distinguish between DPDA and NPDA (3M)
- g) Explain the operations of a NPDA with diagram? (3M)
- h) Define unrestricted grammar.(3M)
- i) What is the modified version of PCP (3M)
- j) Differentiate between PDA and TM with respect to: halt state and final state (3M)

PART-B

- 2) Construct a Mealy machine which is equivalent to the Moore machine given in table. (10M)

Present State	Next State		Output
	a=0	a=1	
$\rightarrow q_0$	q_3	q_1	0
q_1	q_1	q_2	1
q_2	q_2	q_3	0
q_3	q_3	q_0	0

(OR)

- 3) Construct the corresponding Mealy machine to the Moore machine described by the transition table given. (10M)

Present State	Next State		Output
	a=0	a=1	
$\rightarrow q_1$	q_1	q_2	0
q_2	q_1	q_3	0
q_3	q_1	q_3	1

- 4) a) Construct an equivalent unambiguous grammar on the below production rules.(5M)
- b) Construct an unambiguous grammar for all arithmetic expressions with no redundant parenthesis. A set of parenthesis is redundant if its removal does not change the expressions.

$$E \rightarrow E + E / E * E / E / id \quad (5M)$$

(OR)

- 5) Explain left & right derivations and left & right derivation trees with examples? (10M)

- 6) State and prove pumping lemma for CFG? (10M)

(OR)

7) Explain CNF with example? (10M)

8) Design Turing Machine to increment the value of any binary number by one. The output should also be a binary number with value one more than the number given. (10M)

(OR)

9) Explain LBA with example? (10M)

10) a) Design Turing Machine over $\{0,1\}$, $L = \{w \mid |w| \text{ is a multiple of } 3\}$. b)
Draw the transition diagram for above language. (10M)

(OR)

11) a) Explain undecidability of posts with example (5M)

12) b) Explain universal Turing machine?(5M)

Code No: XXXXX

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech II Year I Semester Examinations

FORMAL LANGUAGES AND AUTOMATA THEORY

Time: 3 hours

Max Marks: 75

PART-A

- 1) a) What are Universal Turing Machines (2M)
- b) Define computations of a TM? (2M)
- c) Define CFG and What are its advantages (2M)
- d) Define unit production.(2M)
- e) Find all strings in $L((a+b)^*b(a+ab)^*)$ of length less than four (3M)
- f) Compare NFA & DFA (2M)
- g) Write a note on applications of formal languages and automata.(3M)
- h) Define regular expression ,Give a regular expression for $L=\{a_n b_m : n \geq 4, m \geq 3\}$ (3M)
- i) Prove or disprove the following for regular expressions $r,s,$ and t $(rs+r)r=r(sr+r)^*$ (3M)
- j) Give the formal definition of TM? What are the different types of TMs?(3M)

PART-B

- 2) a) Construct DFA and NFA accepting the set of all strings containing 10 as a substring.
 - b) Draw the transition diagram of a FA which accepts all strings of a's and b's in which both the number of b's and a's are even.
 - c) Define NFA with epsilon with an example. (10M)
- (OR)
- 3) a) Construct a DFA with reduced states equivalent to the regular expression $10 + (0 + 11)0^* 1$.(5M)
 - b) Prove $(a + b)^* = a^*(ba^*)^*$ (5M)
- 4) prove pumping lemma of regular sets? (10M)
- (OR)
- 5) Explain left & right derivations and left & right derivation trees with examples? (10M)

- 6) Convert the following Push down Automata to Context Free Grammar (10M)

$$M = (\{q_0, q_1\}, \{a, b\}, \{z_0, z_a\}, \delta, q_0, z_0, \varphi)$$

δ is given by

$$\delta(q_0, a, z_0) = (q_0, z_a z_0)$$

$$\delta(q_0, a, z_a) = (q_0, z_a z_a)$$

$$\delta(q_0, b, z_a) = (q_1, \varepsilon)$$

$$\delta(q_1, b, z_a) = (q_1, \varepsilon)$$

$$\delta(q_1, \varepsilon, z_0) = (q_1, \varepsilon)$$

OR

- 7) Convert the following grammar to Greibach Normal Form $G = (\{A_1, A_2, A_3\}, \{a, b\}, P, S)$ Where P consists of the following

$$A_1 \rightarrow A_2 A_3$$

$$A_2 \rightarrow A_3 A_1 \mid b$$

$$A_3 \rightarrow A_1 A_2 \mid a \quad (10M)$$

- 8) Design Turing Machine to increment the value of any binary number by one. The output should also be a binary number with value one more the number given. (10M)

(OR)

- 9) Explain counter machine (10M)

- 10) What are the various variations of TM? How to achieve complex tasks using TM (10M)

(OR)

- 11) a) Explain correspondence problem? (5M)
 b) Explain P and NP problems?(5M)

R 13

Code No: XXXXX

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech II Year II Semester Examinations

FORMAL LANGUAGES AND AUTOMATA THEORY

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Max Marks: 75

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Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

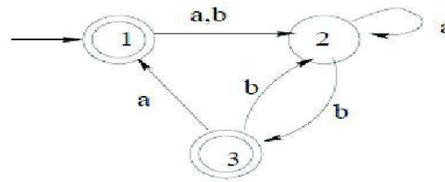
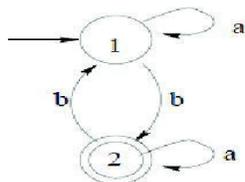
- 1) a) Give a description about FA with empty moves (2M)
- b) Define regular grammar with example. (3M)
- c) Give the set and explain in English the sets denoted by following regular expressions.(3M)
 - i) $(11+0)(00+1)$
 - ii) $(1+01+001)(0+00)$
 - iii) $(0+1)00(0+1)$
 - iv) $0\ 1\ 2$
 - v) $00\ 11\ 22$
- d) Explain dependency graph & its applications in CFG.(2M)
- e) Prove the substitution rule of context free grammar?(3M)
- f) Give a CFG generating the following set that is the set of palindromes over alphabet $\{a,b\}$ (2M)
- g) Let G be the grammar $S \rightarrow aS \mid aSbS \mid \epsilon$. prove that $L(G) = \{x \mid \text{each prefix of } x \text{ has atleast as many a's and b's}\}$ (3M)
- h) Define Chomsky Normal form and Greibach Normal form? (3M)
- i) Give the formal definition of TM? What are the different types of TMs?(2M)
- j) What is left recursion? How to eliminate the left recursion?(2M)

PART-B

- 2) Design a Moore machine to determine the residue mod 5 for each binary string treated as integer.(10M)

(OR)

- 3) Draw the transition table, transition diagram, transition function of DFA
 - a) Which accepts strings which have odd number of a's and b's over the alphabet $\{a,b\}$
 - b) Which accepts string which have even number of a's and b's over the alphabet $\{a,b\}$
 - c) Which accepts all strings ending in 00 over alphabet $\{0, 1\}$
 - d) Which accepts all strings having 3 consecutive zeros?
 - e) Which accepts all strings having 5 consecutive ones?
 - f) Which accepts all strings having even number of symbols?(10M)
- 4) Convert the following finite automata to regular expressions:(10M)



(OR)

- 5) Find a Regular expression corresponding to each of the following subsets over $\{0,1\}^*$.
- The set of all strings containing no three consecutive 0's.
 - The set of all strings where the 10th symbol from right end is a 1.
 - The set of all strings over $\{0,1\}$ having even number of 0's & odd number of 1's.
 - The set of all strings over $\{0,1\}$ in which the number of occurrences of is divisible by 3
(10M)

6) Convert the following grammar into CNF.

$S \rightarrow aAD$
 $A \rightarrow aB-B > bAB$

$D \rightarrow d$ (10M)

M)

7) Prove that the following language is not context-free
 language $L = \{www \mid w \in \{a,b\}^*\}$ is not context free. (10M)

- 8) a) Describe the TM that accepts the language
 $L = \{w a \{a,b,c\}_- \mid w \text{ contains equal number of } a\text{'s, } b\text{'s, an } c\text{'s}\}$. (5M)
 b) Explain in detail Church's hypothesis. (5M)

(OR)

- 9) a) Design a Turing Machine that accepts the set of all even palindromes over $\{0,1\}$. (5M)
 b) Given $_ = \{0,1\}$, design a Turing machine that accepts the language denoted by the regular expressions 00^* . (5M)
- 10) a) What is decidability? Explain any two undecidable problems. (5M)
 b) Show that the following post correspondence problem has a solution and give the solution (5M).

		List
I	List A	B
1	11	11
2	100	001
3	111	11

(OR)

- 11) a) Find whether the post correspondence problem $P = \{(10,101), (011,11), (101,011)\}$ has a match. Give the solution.
 b) Explain Turing reducibility machines.
 c) Show that if L and $L?$ Are recursively enumerable, and then L is recursive.
 (10M)

Code No: XXXXX

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech II Year II Semester Examinations

FORMAL LANGUAGES AND AUTOMATA THEORY

Time: 3 hours

Max Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

- 1) a) Find the DFA that recognizes the set of all string on $\Sigma=\{a,b\}$ starting with the prefix "ab" (2M)
- b) Construct a DFA & NFA to accept all string in $\{a,b\}$ such that every "a" has one "b" immediately to its right?(2M)
- c) Find all strings in $L((a+b)^*b(a+ab)^*)$ of length less than four(3M)
- d) Prove the following identities for regular expression r,s and t here $r=s$ means $L(r)=L(s)$ $r+s=s+r$, $(rs)t=r(st)$, $(r+s)t=rt+st$ (3M)
- e) Find the NFA that accepts the language $L\{ab^*aa+bba^*ab\}$ (2M)
- f) What are CFG's Give CFG for the language $L=\{a_n b_{2n} \mid n>0\}$ (2M)
- g) Define context free grammars formally. Give some examples .(3M)
- h) Why FAs are less powerful than the PDA's (2M)

I)What is Unit Production? If you eliminate the unit productions from the given CFG, what will be the effect on the language by the resultant grammar (3M)

J) Give a CFG generating the following set that is the set of palindromes over alphabet $\{a,b\}$ (2M)

PART-B

- 2) a) Construct DFA and NFA accepting the set of all strings not containing 101 as a substring.
- b) Draw the transition diagram of a FA which accepts all strings of 1's and 0's in which both the number of 0's and 1's are even.
- c) Define NFA with an example.(5M)

(OR)

- 3) a) Draw the transition diagram of a FA which accepts all strings of 1's and 0's in which both the number of 0's and 1's are even.
- b) Construct NFA which accepts the set of all strings over $\{0,1\}$ in which there are at least two occurrences of 1 between any two occurrences of 0. Construct DFA for the same set.(5M)

4) Represent the following sets by regular expressions(5M)

(a) $\{0,1,2\}$

(b) $\{1^{2n+1} \mid n>0\}$

(c) $\{w \in \{a, b\}^* \mid w \text{ has only one } a\}$

(d) The set of all strings over $\{0,1\}$, which has at most two zeros

(OR)

- 5) Discuss about (5M)
- Context Free Grammar
 - Left most derivation
 - Right most derivation
 - Derivation tree.
- 6) Which of the following are CFL's? Explain (5M)

(a) $\{a^i b^j \mid i \neq j \text{ and } i \neq 2j\}$

(b) $\{a^i b^j \mid i \geq 1 \text{ and } j \geq 1\}$

(c) $\{(a+b)^* \mid \{a^n b^n \mid n \geq 1\}\}$

(d) $\{a^n b^n c^m \mid n \leq m \leq 2n\}$.

(OR)

- 7) a) Eliminate epsilon productions from the grammar 'G' given as (5M)

$$A \rightarrow aBb \mid bBa$$

$$B \rightarrow aB \mid bB \mid \epsilon.$$

- b) Convert the following grammar to Greibach Normal Form

$$S \rightarrow ABA \mid AB \mid BA \mid AA \mid B$$

$$A \rightarrow aA \mid a$$

$$B \rightarrow bB \mid b.$$

- 8) Write a note on Turing Thesis. Define algorithm in terms of TM. (5M)

(OR)

- 9) Write short notes on: (5M)

- Halting Problem of Turing Machine
- Application of CFG
- Multi Tape Turing Machine
- Post-Correspondence Problem

- 10) a) Find whether the post correspondence problem $P = \{(10,101), (011,11), (101,011)\}$ has a match. Give

the solution.

- b) Explain Turing reducibility machines.

- c) Show that if L and L? Are recursively enumerable, and then L is recursive. (5M)

(OR)

- 11) Write brief about the following (10M)

- Decidability of problems
- RICE Theorem
- Undecidability of post correspondence problem.

Code No: 114AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, May - 2016

FORMAL LANGUAGES AND AUTOMATA THEORY

(Computer Science and Engineering)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
 Part A is compulsory which carries 25 marks. Answer all questions in Part A.
 Part B consists of 5 Units. Answer any one full question from each unit.
 Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

- 1.a) Define a non-deterministic model with example. [2]
- b) State and explain Moors Machine. [3]
- c) Give an example to explain the concept of regular set. [2]
- d) Discuss about right linear and left linear grammars. [3]
- e) Give an example for context free language. [2]
- f) Write a context free grammar for the language $\{0^n 1^n / n \geq 1\}$. [3]
- g) When do you say that the Turing machine accepts a string. [2]
- h) What are the components of a Turing machine? [3]
- i) State and explain universal Turing machine. [2]
- j) Give an example to explain NP hard and NP Complete problems. [3]

PART - B

(50 Marks)

2. Define DFA and Regular expression. DFA accepts all strings corresponding to the expression $1^*01(0+11)^*$. Also explain how to convert a regular expression to DFA. [10]
- OR
3. Convert the following regular expressions to NFA with epsilon transitions
 a) 0^*+1101 b) $(0+1)^*$ [5+5]
4. Show that if L is regular grammar the L is a regular set. [10]
- OR
5. Explain various components of context free grammar and derivation tree in detail. [10]
6. When do you say a language L is unambiguous? Show that the language $L = \{a^n b^n / n \geq 1\}$ is unambiguous. [10]
- OR
7. Show that the L is context free language, then there exists a Push down automata M such that $L = N(M)$. [10]

8. Show that any non-trivial property of the recursively enumerable language is undecidable? [10]

OR

9. Design a Turing machine to accept the set of all palindrome over $\{0,1\}^*$. Draw a transition diagram for the Turing machine of the above. [10]

10. State and explain in detail about P and NP problems. [10]

OR

11. Explain what undecidable problem is and post correspondence problem? [10]

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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Java Programming
Model Paper – R13
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

PART-A

(Marks 25)

1. (a) What are the properties of object oriented programming?
(b) What is method overriding?
(c) Define an Exception. What is meant by Exception Handling?
(d) List some of the classes available in collection?
(e) List the components of Swing?
(f) Discuss briefly about streams.
(g) What is inheritance?
(h) What is thread priority?
(i) What are the steps involved in connecting the database?
(j) What is an event?

Answer all the questions

PART – B

(Marks: 5*10=50)

2. (a) Discuss in detail about inheritance. Also write its benefits.
(OR)
(b) Describe about Type conversion. Also explain how casting is used to perform type conversion between incompatible types.
3. (a) What is inheritance ? Explain different types of inheritance.
(OR)
(b) How a method can be overridden? Explain.
4. (a) Give the class hierarchy in Java related to exception handling. Briefly explain each class.
(OR)
(b) What is a thread? Explain the states of a thread with an example.
5. (a) Explain in detail about collection interfaces.
(OR)
(b) Explain in details about primary input and output operations.
6. (a) Explain in detail about the classification of swing components.
(OR)
(b) Explain in brief about events and event sources.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Java Programming
Model Paper –2 (R13)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

PART-A

(Marks 25)

1. (a) What is Data Abstraction? (2M)
- (b) Compare AWT and Swings? (3M)
- (c) Explain about operators in Java? (2M)
- (d) Explain final keyword with example? (3M)
- (e) Explain about the usage of this keyword with example? (2M)
- (f) Explain inner classes in java? (3M)
- (g) Explain the differences between throw and throws (2M)
- (h) Explain the Array List class? (3M)
- (i) What is Dynamic Binding (2M)
- (j) Difference between Applet and Applications? (3M)

PART – B

(Marks: 5*10=50)

Answer all the questions

2. (a) What is Parameter Passing? Explain with Program? (5M)
- (b) What is Recursion? Write a program for Factorial of number using Recursion? (5M)
- (OR)
- (c) Explain about String Buffer class methods in java? Explain about Access Control (5M)
- 3 (a) Define an interface? Explain about Abstract class with Program? (10M)
- (OR)
- (b) How multiple inheritances are achieved in java with the interfaces? Explain with an example? (10M)
- 4 (a) Explain Exception Handling Mechanism in java with programs (10M)
- (OR)
- (b) What is Inter thread Communication? Explain Producer Consumer pattern with program? (10M)
- 5 (a) Explain the difference between: i) Hash Table. ii) File Management using file class (10M)
- (OR)
- (b) Explain about Connecting to a database and Updating data with JDBC (10M)
- 6 (a) Write a java program for Handling Mouse Events and Key Events? (10M)
- (OR)
- (b) Explain about Swing Components: i) JButton ii) JLabel iii) JTextArea iv) JTextField (10M)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Java Programming
Model Paper –3 (R13)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

PART-A

(Marks 25)

1. (a) List the data types present in java.
- (b) Explain in brief about interfaces.
- (c) What is meant by checked exception and unchecked exception.
- (d) How statements call can be used? Also list the types of methods in statement class.
- (e) Discuss about JFrame and JPanel
- (f) Discuss briefly about enumerated data types.
- (g) What is CLASSPATH ?
- (h) What is multithreading?
- (i) List the types of JDBC drivers present in java.
- (j) What are event sources?

PART – B

(Marks:5*10=50)

Answer all the questions

1. (a) List the primitive data types of java. Explain each of them in detail.
(OR)
(b) What are the different types of array? List out the advantages of using arrays?
2. (a) Write in detail about super class and subclasses.
(OR)
(b) Write the differences between interfaces and abstract.
3. (a) How are finally statements used in java? Explain in detail.
(OR)
(b) Is it possible to interrupt a thread? Explain.
4. (a) Explain in detail about hash table class.
(OR)
(b) Explain in detail about the types of drivers in JDBC.
5. (a) Discuss in detail about swing components.
(OR)
(b) Explain about various event classes.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Java Programming
Model Paper –4 (R13)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

PART-A

(Marks 25)

1. (a) What are the OOPs features? (2M)
- (b) Compare Procedural and OOP Languages? (3M)
- (c) Explain about control statements in java? (2M)
- (d) Explain about method overloading with example? (3M)
- (e) Explain about the usage of super keyword with an example? (2M)
- (f) Explain how interfaces are implemented with an example? (3M)
- (g) Explain the following: try, catch, throw, throws, finally (2M)
- (h) Explain the creation of threads with an example? (3M)
- (i) List the types of JDBC drivers present in java (2M)
- (j) What are event sources and explain the life cycle of an applet? (3M)

PART – B

(Marks: 5*10=50)

Answer all the questions

2. (a) What is type casting and conversion? When it is required? (5M)
- (b) What is an array? How arrays are declared in java with an example? (5M)
- (OR)
- (c) Explain about method overloading with example? Explain about constructor overloading with example?
- 3 (a) What is method overriding? How method overriding is achieved in Java, with an example? (10M)
- (OR)
- (b) How multiple inheritances are achieved in java with the interfaces? Explain with an example? (10M)
- 4 (a) What are the checked Exceptions and Unchecked Exceptions? Explain some of these exceptions with an example and also give the difference between them. (10M)
- (OR)
- (b) How the priorities can be assigned to threads? Explain with example? (10M)
- 5 (a) Explain the difference between: i) Vector and Array List. ii) Enumeration and Iterator. (10M)
- (OR)
- (b) Explain in detail about the types of drivers in JDBC (10M)
- 6 (a) Define an event. Give examples of events. Define event handler. How it handles events? (10M)
- (OR)
- (b) Explain about layout manager? With an example? (10M)

II B. Tech II Semester Regular Examinations, May/June - 2015
COMPUTER ORGANIZATION
 (Com. to CSE, IT, ECC)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**

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**PART-A**

1. a) Find (1001101 - 10101001) using 1's complement?  
 b) What is instruction cycle?  
 c) Write the advantage of RISC over CISC?  
 d) Draw the circuit diagram and Truth table for Full adder?  
 e) Draw the hierarchy of memory? Why memory hierarchy is important in computer system?  
 f) Differentiate between Synchronous and Asynchronous modes of data transfer?  
 (3M+3M+4M+4M+4M+4M)

**PART-B**

2. a) Discuss three representations of Signed integers with suitable examples.  
 b) Explain the components of the Computer system. (8M+8M)
3. a) List and explain the steps involved in the execution of a complete instruction  
 b) What is Micro operation? Briefly explain the arithmetic micro operations? (8M+8M)
4. a) Explain the organization of registers.  
 b) Explain how microinstructions execution takes place. (8M+8M)
5. a) Explain the issue involved with multiplication operation.  
 b) Design 4-bit adder/Subtractor and explain its function. (8M+8M)
6. What is a mapping function? What are the ways the cache can be mapped? Explain in detail. (16M)
7. a) What is multiprocessor system? Explain the advantages of multi processors over uniprocessors  
 b) Explain the functions of typical input-output interface. (8M+8M)



**II B. Tech II Semester Regular Examinations, May/June - 2015**  
**COMPUTER ORGANIZATION**  
 (Com. to CSE, IT, ECC)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
 2. Answer **ALL** the question in **Part-A**  
 3. Answer any **THREE** Questions from **Part-B**

**PART-A**

1. a) What are 2's Complement? Give its Significance?  
 b) What is interrupt? Give the steps for handling interrupt?  
 c) Compare RISC and CISC?  
 d) Realize full adder using two half adders and logic gate?  
 e) What is Auxiliary memory?  
 f) What are different forms of parallelism? (4M+4M+4M+4M+3M+3M)

**PART-B**

2. a) Explain the functional architecture of the computer system.  
 b) Discuss the concept of compliments used to represent signed numbers. (8M+8M)
3. a) What is instruction cycle? Briefly explain with the help of state diagram?  
 b) Briefly explain the arithmetic logic shift unit (8M+8M)
4. a) Explain the various addressing modes with examples.  
 b) Explain the basic organization of microprogrammed control unit (8M+8M)
5. a) Design carry look ahead adder and explain its function.  
 b) Derive and explain an algorithm for adding and subtracting 2 floating point binary numbers (8M+8M)
6. a) Explain the Address Translation in Virtual Memory  
 b) Explain different types of mapping functions in cache memory (8M+8M)
7. a) How data transfers can be controlled using handshaking technique?  
 b) Explain organization of multiprocessor system with neat sketch. (8M+8M)



**II B. Tech II Semester Regular Examinations, May/June - 2015**  
**COMPUTER ORGANIZATION**  
 (Com. to CSE, IT, ECC)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
 2. Answer **ALL** the question in **Part-A**  
 3. Answer any **THREE** Questions from **Part-B**

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PART-A

Part A

1. a) What is parity? Give its significance?
 b) What is one address, two address and three address instruction formats?
 c) What is Register Indirect Addressing mode? Give an example?
 d) Draw the circuit diagram and Truth table for half adder?
 e) What is Cache memory? Mention its advantages?
 f) What is the use of priority interrupt? (3M+4M+4M+4M+4M+3M)

PART-B

2. a) Describe the connections between the processor and memory with a neat structure diagram
 b) Find 2's complement of the following
 i) 10010 ii) 111000 iii) 0101010 iv) 111111 (8M+8M)
3. a) Explain the Memory reference instructions? Give examples?
 b) List and explain the shift micro operations? (8M+8M)
4. a) Explain micro instruction sequencing in detail.
 b) With a neat diagram explain the internal organization of a processor. (8M+8M)
5. a) Explain hardware implementation of Binary multiplier with example.
 b) Discuss decimal arithmetic operations (8M+8M)
6. a) Explain about associative memory
 b) Explain internal organization of memory chips. (8M+8M)
7. a) With a neat sketch explain the working principle of DMA
 b) Explain the interconnection structure for multiprocessor systems (8M+8M)



II B. Tech II Semester Regular Examinations, May/June - 2015
COMPUTER ORGANIZATION
 (Com. to CSE, IT, ECC)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **THREE** Questions from **Part-B**

PART-A

1. a) What Sign magnitude representation? Give an example?
 b) Draw the structure of basic computer system?
 c) What is addressing mode? List any four Addressing modes?
 d) Draw the diagram for 4-bit adder?
 e) What is Virtual memory? Why it is significant?
 f) What is DMA? Write its Advantages? (4M+3M+4M+3M+4M+4M)

PART-B

2. a) Discuss about fixed point and floating point representations
 b) What are functions of ALU and explain. (8M+8M)
3. a) What is RTL? Explain with suitable examples? What is its significance Instructions?
 b) What is Interrupt? Explain Input output interrupts? (8M+8M)
4. a) Explain different addressing modes.
 b) Mention the advantages and disadvantages of microprogrammed control hardwired control (8M+8M)
5. a) Explain division algorithm with example.
 b) Explain Booth Multiplication algorithm with example. (8M+8M)
6. a) Analyze the memory hierarchy in terms of speed, size and Cost.
 b) Design 64k X 16 memory chip using 16k X 8 memory chips (8M+8M)
7. a) What are handshaking signals. Explain the handshake control of data transfer during input and output operation
 b) What is parallel processing? Explain any parallel processing mechanism. (8M+8M)



MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Managerial Economics and Financial Analysis
Model Paper – 1 (R15)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

1.
 - a) What is the scope of managerial economics?
 - b) Define the basic law of consumption
 - c) What is the angle of incidence
 - d) ISOCOST & MRTS
 - e) Explicit and implicit cost
 - f) Optimum size of firm –explain
 - g) Types of the competition markets
 - h) What is the significance ratios
 - i) Define the different types of companies
 - j) Short term sources of finance.

Answer all the questions

2. What is the managerial economic role in decision making?

Or

3. Demand function and its determents

4. What is the production function explain the cobbdougl's function

Or

5. Explain how cost output relationship helps the enterprenurer in expansion of the decision

6. Different types of the pricing strategies while fixing the price of the product

Or

7. What is the joint stock company discuss the features, advantages & disadvantages?

8. Describe the high lets of 1991 industrial policy

Or

9. What are the various types of the ratios?

10. What is the capital discuss the different sources of capital

Or

11. Write the proframa of final accounts.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Managerial Economics and Financial Analysis
Model Paper – 2 (R15)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

1.
 - a) Describe the normative statement?
 - b) Explain changes in Demand
 - c) What is the law of returns to scale?
 - d) Difference Between the perfect and Monopoly market?
 - e) What are the different kinds of partners?
 - f) List out the accounting concepts?
 - g) Features of working capital?
 - h) Limitations of ratio analysis
 - i) Types of capital budgeting discuss?
 - j) Explain the concept of privatization?

Answer all the questions

2. Explain how managerial economics linked with other disciplinarian?
Or
3. Describe the different methods of demand forecasting?
4. Explain the law of returns with appropriate examples?
Or
5. Define the BEP how do you use this for decision making?
6. What is the price output relation in monopoly competition?
Or
7. Why is pricing significant in the contest of business explain?
8. Explain the need for public enterprise in India?
Or
9. What are the new economic reforms of India after new economic policy?
10. Write about accounting concepts and conventions?
Or
11. Explain the IRR concept with example?

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Managerial Economics and Financial Analysis
Model Paper – 3 (R15)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

1.
 - a) What is the importance of investment decision in managerial Economics?
 - b) Explain the point of elasticity?
 - c) Describe the features of an ISOquant?
 - d) What is the impact of short run cost on production?
 - e) What is the Memorandum of association?
 - f) Influence of globalization on business environment?
 - g) List out the different branches of accounting?
 - h) Write the significance of capital?
 - i) Explain the profitability index?
 - j) Significance of liquidity ratios in the firm?

Answer all the questions

2. Explain the nature and scope of Managerial Economics?
Or
3. Define the price elasticity and its measurements?
4. Explain the different type's costs?
Or
5. Calculate BEP in both volume and units where fixed cost is 20000`, variable cost is 50 per unit selling price 80?
6. Price determination of perfect market in short runs?
Or
7. Discuss the competition oriented pricing?
8. Explain the features and characteristics of sole traders?
Or
9. What are the measures to solve problems arising from business cycles?
10. Write the format of Trail balance and Trading A/c
Or
11. Calculate the liquidity and Turnover ratios?

Liabilities	Amount (000)	Assets	Amount(000)
Preference share capital	100	Land and buioldings	225
Equity share capital	150	Plant and machinery	250
General reserve	250	Furniture and fixture	100
Debentures	400	stock	250
creditors	200	debtors	125
Bills payable	50	Cash at bank	250
Outstanding expenses	50	Cash in hand	125
P&l a/c	100	Prepaid expenses	50
Long-term bank loan	200	Marketable securities	125
	1500		1500

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
Managerial Economics and Financial Analysis
Model Paper – 4 (R15)
II CSE II Semester

Duration: 3hrs

Max Marks: 75

Answer all the following

1.
 - a) what are the determinants of demand?
 - b) Explain the exceptions of law of Demand?
 - c) what is the production function with two variable inputs?
 - d) Define the terms MRTS and Least cost combination of inputs?
 - e) what are the objectives of pricing?
 - f) what are the elements of partnership deed?
 - g) Mention different types of capitals?
 - h) what is cash budget?
 - i) Define the accounting and importance?
 - j) Define the words (a) Payback Period, (b) Average rate of return?

Answer all the questions

2. What is the Micro and Macro economics significance on managerial economics on decision making?
Or
3. What are the factors governing demand forecasting?
4. How the law of returns to scale play a vital role in decision making of production?
Or
5. What is BEP? What are its assumptions and limitations?
6. How the monopolies form in the market?
Or
7. Discuss the role of cooperative societies in economic growth?
8. How does the firm estimate its fixed and working capital requirements?
Or
9. Show the format for preparation of Profit and Loss A/c?
10. Calculate PB, ARR, NPV for following Initial investment is 15000 and discounting factor 10% p.a

Year	Amount
1	5000
2	7000
3	5000
4	-
5	6000

- Or
11. What is capital structure and write different types of leverage ratios' with formulas?