

MODEL PAPERS

**B.TECH II YEAR – II SEM (R18)
(2019-20)**



**DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING**

**MALLA REDDY COLLEGE OF ENGINEERING &
TECHNOLOGY**

(Autonomous Institution – UGC, Govt. of India)

Recognized under 2(f) and 12 (B) of UGC ACT 1956

(Affiliated to JNTUH, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – 'A' Grade - ISO 9001:2015 Certified)
Maisammaguda, Dhulapally (Post Via. Hakimpet), Secunderabad – 500100, Telangana State, India

Code No: xxxxxx

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**(Autonomous Institution – UGC, Govt. of India)****DESIGN AND ANALYSIS OF ALGORITHMS****II B. Tech II Semester Model Paper-I****(CSE& IT)**

Roll No									
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Time: 3 hours**Max. Marks: 70****Note:**

Question paper Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION – I

1. Define time and space complexity. Explain with examples. [14M]

(OR)2. For $T(n)=7T(n/2)+18n^2$ Solve the recurrence relation and find the time complexity. [14M]**SECTION – II**

3. Explain AND/OR graphs [14M]

(OR)

4. How 8-Queen's problem can be solved using back tracking and explain with an example. [14M]

SECTION – III5. Explain General method of Greedy method. Find the greedy solution for following job sequencing with deadlines problem $n = 7$, $(p_1, p_2, p_3, p_4, p_5, p_6, p_7) = (3, 5, 20, 18, 1, 6, 30)$, $(d_1, d_2, d_3, d_4, \dots, d_7) = (1, 3, 4, 3, 2, 1, 2)$ [14M]**(OR)**

6. a) A motorist wishing to ride from city A to B. Formulate greedy based algorithms to generate shortest path and explain with an example graph. [7M]

b) What is the solution generated by function Job Sequencing algorithm when $n=6$ $(P_1 \dots p_6) = (3, 5, 20, 18, 1, 6)$, and $(d_1 \dots d_6) = (1, 3, 4, 3, 2, 1)$. [7M]**SECTION – IV**

7. Solve a travelling sales person problem using dynamic programming [14M]

(OR)

8 Write a function to compute lengths of shortest paths between all pairs of nodes for the given adjacency matrix. [14M]

$$\begin{pmatrix} 0 & 6 & 13 \\ 8 & 0 & 4 \\ 5 & \infty & 0 \end{pmatrix}$$

SECTION – V

9. Discuss Draw the portion of state space tree generated by FIFOBB for the following instance of 0/1 knapsack $n= 5$, $M=12$, $(p_1, \dots, p_5) = (10,15,6,8,4)$ $(w_1, \dots, w_5)=(4,6,3,4,2)$ [14M]

(OR)

10. (a) Write and explain the Cooks theorem. [7M]

(b) What is non deterministic algorithm explain. [7M]

Code No: XXXXXX

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**(Autonomous Institution – UGC, Govt. of India)****II B.Tech II Semester Model Paper-II****Design and analysis of Algorithms****(CSE & IT)**

Roll No									
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Time: 3 hours**Max. Marks: 70**

Note: Question paper Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION – I

1. Illustrate Merge sort algorithm and discuss its time complexity.[14M]

(OR)

2. Explain Strassen's matrix multiplication and its time complexity [14M]

SECTION – II

3. Discuss union and find algorithms in detail with an example. [14M]

(OR)

4. a) Explain Prim's algorithm for minimal spanning tree with an example.[7M]
b) Write in detail about Hamiltonian cycles. Give example to it.[7M]

SECTION – III

5. Write a greedy algorithm for sequencing unit time jobs with dead lines and profits. [14M]

(OR)

6. Derive time complexity of job sequencing with deadlines .Obtain the optimal solution when $n=5$, $(p_1, p_2, \dots)=(20, 15, 10, 5, 1)$ and $(d_1, d_2, \dots)=(2, 2, 1, 3, 3)$.[14M]

SECTION – IV

7. Explain the chained matrix multiplication with suitable example.[14M]

(OR)

8. Describe Travelling Salesperson Problem (TSP) using Dynamic Programming.[14M]

SECTION – V

9. Discuss in detail about the class P, NP, NP-hard and NP-complete problems. Give examples for each class.[14M]

(OR)

10. Describe Travelling Salesperson Problem (TSP) using Branch and Bound.[14M]

Code No: xxxxxx

R18

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

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II B.Tech II Semester Model Paper-III

Design and analysis of Algorithms

(CSE & IT)

Roll No									
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Time: 3 hours

Max. Marks: 70

Note: Question paper Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION – I

1. Simulate Quick sort algorithm for the following example 25,36,12,4,5,16,58,54,24,16,9,65,78 [14M]

(OR)

2. a) Write an algorithm for linear search and analyze the algorithm for its time complexity. [7M]
b) What is pseudo-code? Explain with an example. [7M]

SECTION – II

3. Explain about bi-connected components in detail. [14M]

(OR)

4. Give the solution to the m-coloring of a graph using backtracking. [14M]

SECTION – III

5. Define Greedy knapsack. 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 $(w_1, w_2, \dots, w_7) = (2, 3, 5, 7, 1, 4, 1)$. [14M]

(OR)

6. Write about 0/1 knapsack problem with an example. [14M]

SECTION – IV

7. Let $n=4$ and (a_1, a_2, a_3, a_4) Construct optimal binary search for $(a_1, a_2, a_3, a_4) = (\text{do}, \text{if}, \text{int}, \text{while})$, $p(1 : 4) = (3, 3, 1, 1)$ $q(0 : 4) = (2, 3, 1, 1, 1)$ [14M]

(OR)

8. Explain how solution will be provided for all pairs shortest path problem using dynamic programming. [14M]

SECTION – V

9. a) Explain non-deterministic algorithm with an example.[7M]
b) Explain Satisfiability problem.[7M]

(OR)

10. Draw the portion of state space tree generated by LCBB for the following instance of 0/1 knapsack $n=5$, $M=12$, $(p_1, \dots, p_5) = (10, 15, 6, 8, 4)$ $(w_1, \dots, w_5) = (4, 6, 3, 4, 2)$. [14M]

R18

Code No: xxxxxx

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

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II B.Tech II Semester Model Paper-IV

Design and analysis of Algorithms

(CSE & IT)

Roll No										
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Time: 3 hours

Max. Marks: 70

Note: Question paper Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION – I

1. a) Explain the process of designing an algorithm. Give characteristics of an algorithm. [7M]
b) Explain asymptotic notations. [7M]

(OR)

2. a) Give the general procedure of divide and conquer method.[7M]
b) Write about quick sort method with example.[7M]

SECTION – II

3. a) Explain about Disjoint set operations.[7M]
b) Write short notes on spanning trees. [7M].

(OR)

4. What is an articulation point? How to find articulation point for a given graph. [14M]

SECTION – III

5. Define Greedy knapsack. Find the optimal solution of the Knapsack instance $n=7, M=20, (p_1, p_2, \dots, p_7) = (8,5,6,7,6,12,3)$ and $(w_1, w_2, \dots, w_7) = (2,10,8,7,6,4,11)$. [14M]

(OR)

6. Give the optimal solution for 0/1 knapsack problem using greedy method.
 $(p_1, p_2, p_3, p_4) = (11, 21, 31, 33), (w_1, w_2, w_3, w_4) = (2, 11, 22, 15), M=40, n=4$. [14M]

SECTION – IV

7. Let $n=4$ and (a_1, a_2, a_3, a_4) Construct optimal binary search for $(a_1, a_2, a_3, a_4) = (\text{cout, float, if, while})$, $p(1 : 4) = (1/20, 1/5, 1/10, 1/20)$ $q(0 : 4) = (1/5, 1/10, 1/5, 1/20, 1/20)$ [14M]

(OR)

8. Explain optimal binary search tree with an example. [14M]

SECTION – V

9. What is state space tree? What are the different ways of searching an answer node in an state space tree explain with example. [14M]

(OR)

10. a) Write non-deterministic algorithm for knapsack problem?[7M]

b) Difference between NP-hard and NP-complete problems[7M]

Code No: R17A0508

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

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II B.Tech II Semester Regular Examinations, April/May 2019**Design and Analysis of Algorithms****(CSE & IT)**

Roll No										
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Time: 3 hours**Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing **ONE** Question from each SECTION and each Question carries 14 marks.

SECTION-I

- 1 Explain about Psuedo code for expressing algorithms [7M]
Define an algorithm and write the characteristics of algorithm. [7M]

OR

- 2 Describe performance analysis, space complexity and time complexity. [7M]

Differentiate between probabilistic analysis and amortized analysis. [7M]

SECTION-II

- 3 Illustrate the general method of divide and conquer technique. [7M]
Write an algorithm for Binary search and discuss its complexity. [7M]

OR

- 4 a. Explain knapsack problem in Greedy method [7M]
b. Explain algorithm for Job sequencing with deadlines [7M]

SECTION-III

- 5 Explain Matrix chain multiplication in dynamic programming. [14M]

OR

- 6 Explain 0/1 knapsack problem dynamic programming. [14M]

SECTION-IV

- 7 a. Write a depth first search algorithm for graph traversal. [7M]
b. Discuss about AND / OR graphs and game trees [7M]

OR

- 8 a. Define graph coloring and write an algorithm to find Hamiltonian cycles. [7M]
b. Compare and contrast between connected components and bi connected components. [7M]

SECTION-V

- 9 a. Explain FIFO Branch and Bound solution. [7M]
b. Differentiate between NP - Hard and NPComplete classes. [7M]

OR

- 10 a. Explain 0/1 knapsack problem in Branch and Bound technique. [7M]
b. Discuss about general method of branch and bound technique. [7M]

Code No: R15A0508

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech II Semester Regular/Supplementary Examinations, April/May 2018

Design and analysis of Algorithms

(CSE & IT)

Roll No									
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Time: 3 hours**Max. Marks: 75****Note:** This question paper contains two parts A and B

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

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

PART – A**(25 Marks)**

1. (a) General strategy of divide and conquer [2M]
- (b) What are the performance analysis techniques of an algorithm? [3M]
- (c) What is union and find? [2M]
- (d) Explain bi connected components. [3M]
- (e) What is job sequencing with deadlines? [2M]
- (f) What is greedy method? [3M]
- (g) What is a graph coloring problem? [2M]
- (h) What is general backtracking method? [3M]
- (i) What is the difference between NP hard and NP Complete problem? [2M]
- (j) List the advantages of dynamic programming. [3M]

PART – B**(50 Marks)****SECTION – I**

2. Explain in detail about asymptotic notations. [10M]

(OR)

3. Explain Merge sort technique. Give the time complexity of merge sort. [10M]

SECTION – II

4. Explain the following graph traversal
- (c) Depth First search [5M]
- (d) Breath First search. [5M]

(OR)

5. Write short notes on
- a) Game trees [5M]
- b) AND/OR graphs [5M]

SECTION – III

6. How do you construct a minimum Spanning tree using kruskals algorithm explain? List any two applications. [10M]

(OR)

7. State dynamic programming. Explain with one application. [10M]

SECTION – IV

8. Explain the Travelling salesmen problem using Branch and bound technique. [10M]

(OR)

9. Give the solution to the 8 queen's problems using backtracking. [10M]

SECTION – V

10. Discuss in detail about the class P, NP, NP-hard and NP-complete problems. Give examples for each class. [10M]

(OR)

11. (a) Write and explain the Cook's theorem. [5M]

(b) What is non deterministic algorithm explain. [5M]

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
DATABASE MANAGEMENT SYSTEMS
MODEL PAPER-I

R18

Time: 3 hours

Max. Marks: 70

Note: .Question paper Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION – I

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

OR

2. 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?

SECTION – II

3. Explain the following with examples.
a) Key constraints. b) Foreign key constraints.

OR

4. What is a view? Explain about views in detail?

SECTION – III

5. Explain the following
a) Lossless Join b) Lossless decomposition

OR

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

SECTION – IV

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

OR

8. Explain different recovery techniques used in transaction failure?

SECTION – V

9. How the volatile and the nonvolatile storage device are differ from each other?

OR

10. How the data will be recovered by concurrent transcatons?

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
DATABASE MANAGEMENT SYSTEMS
MODEL PAPER-II

Time: 3 hours

Max. Marks: 70

Note: .Question paper Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION – I

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

OR

2. Explain the E-R diagram components and notations with their extended features?

SECTION – II

3. Explain the following.
a) Types of Join Operations b) Set Operations

OR

4. a) Define Relational Algebra, tuple and domain relational calculus?
b) What are the differences between the two types of relational calculus?

SECTION – III

5. Define BCNF? How does BCNF differ from 3NF? Explain with an example.

OR

6. What is Redundancy? What are the different problems encountered by redundancy? Explain them.

SECTION – IV

7. What are the transaction isolation levels in SQL?

OR

8. Explain how concurrency execution of transactions improves overall system performance?

SECTION – V

9. How the data will be recovered by concurrent transactions?

OR

10. What is Buffer Management? What is Log Based Recovery and recovery base Transactions?

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
DATABASE MANAGEMENT SYSTEMS
MODEL PAPER-III

R18

Time: 3 hours

Max. Marks: 70

Note: .Question paper Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION – I

1. Define DBMS? List Database system applications.

OR

2. List four significant differences between a file processing system and a DBMS?

SECTION – II

3. a) Write a detail note on participation constraints?

b) What is the class hierarchy? How is it represented in the ER diagrams?

OR

4. What are NULL values? Explain in detail.

SECTION – III

5. Explain FD and MVD with examples

OR

6. What is Normalization? Discuss what are the types? Discuss the 1NF, 2NF, 3NF with example?

SECTION – IV

7. What are the types of failures of a system?

OR

8. What are the two tables used in crash recovery along with log record? Explain with suitable example?

SECTION – V

9. What is Buffer Management??

OR

10. What is Log Based Recovery and recovery base Transactions?

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**(Autonomous Institution – UGC, Govt. of India)****DATABASE MANAGEMENT SYSTEMS****MODEL PAPER-IV****Time: 3 hours****Max. Marks: 70**

Note: .Question paper Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION – I

1. Explain key constraints with an example?

OR

2. Discuss the query processor of database system structure?

SECTION – II

3. Explain different types of Join Operations with relevant examples.

OR

4. Explain the following in SQL with examples.

a) Nested Queries

b) Correlated Queries

c) Group by and Having Clauses

d) Triggers

SECTION – III

5. Explain about the fourth and fifth normal forms.

OR

6. Define Functional dependencies? How are primary keys related to functional dependencies?

SECTION – IV

7. Write the locking compatibility matrix used for multiple granularity?

Explain with suitable examples?

OR

8. Define the concept of schedule for a set of concurrent transaction. Give a suitable example.

SECTION – V

9. What is Log Based Recovery and recovery base Transactions?

OR

10. How the volatile and the non volatile storage device are differ from each other?

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
B.Tech II Year II Semester Examinations
FORMAL LANGUAGES AND AUTOMATA
THEORY

Time: 3 hours

Max Marks: 70

SECTION-I

1) Construct a Mealy machine which is equivalent to the Moore machine given in table. (14M)

Present State	Next State		Output
	a=0	a=1	
→ 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)

2) Construct the corresponding Mealy machine to the Moore machine described by the transition table given. (14M)

Present State	Next State		Output
	a=0	a=1	
→ q ₁	q ₁	q ₂	0
q ₂	q ₁	q ₃	0
q ₃	q ₁	q ₃	1

SECTION -II

- 3) a) Write the Regular Expression for the language L over {0, 1} such that every string must contain at least "000"
 b) Define Regular Expression & Design a Regular expression set of all starting with "a" and ending with "b"

(OR)

4) Explain left & right derivations and left & right derivation trees with examples? (14M)

SECTION-III

5) State and prove pumping lemma for CFG? (14M)

(OR)

6) Explain CNF with example? (14M)

SECTION - IV

7) 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. (14M)

(OR)

8) Explain LBA with example? (14M)

SECTION -V

- 9) 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. (14M)

(OR)

- 10) a) Explain undecidability of posts with example (7M)
 b) Explain universal Turing machine?(7M)

SECTION-I

- 1) 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. (14M)

(OR)

- 2) a) Construct a DFA with reduced states equivalent to the regular expression $10 + (0 + 11)0^*$ (7M)
 b) Prove $(a + b)^* = a^*(ba^*)^*$ (7M)

SECTION -II

- 3) Prove pumping lemma of regular sets? (14M)

(OR)

- 4) a) Write Regular expression for Set of all the string over {a, b} containing exactly two a's
 b) Define pumping lemma and Write Regular Expression which denoting the language containing empty string.

SECTION -III

- 5) Convert the following Push down Automata to Context Free Grammar (14M)

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

δ is given by

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

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

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

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

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

(OR)

- 6) 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

$$A_1 \rightarrow A_2 A_3$$

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

$$A_3 \rightarrow A_1 A_2 \mid a$$

(14M)

SECTION -IV

- 7) 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. (14M)

(OR)

- 8) Explain counter machine (14M)

SECTION -V

- 9) What are the various variations of TM? How to achieve complex tasks using TM (14M)

(OR)

- 10) a) Explain correspondence problem? (7M)

- b) Explain P and NP problems?(7M)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
B.Tech II Year II Semester Examinations
FORMAL LANGUAGES AND AUTOMATA THEORY

Time: 3 hours

Max Marks: 70

SECTION - I

1) Design a Moore machine to determine the residue mod 5 for each binary string treated as integer.(14M)

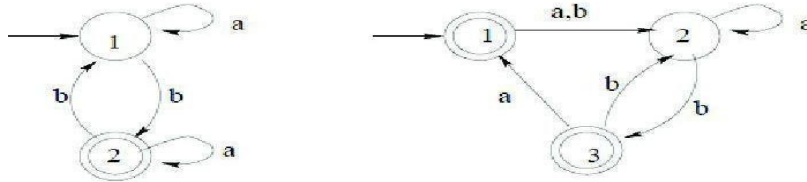
(OR)

2) 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?(14M)

SECTION - II

3) Convert the following finite automata to regular expressions:(14M)



(OR)

4) Find a Regular expression corresponding to each of the following subsets over $\{0,1\}^*$.

- a) The set of all strings containing no three consecutive 0's.
- b) The set of all strings where the 10th symbol from right end is a 1.
- c) The set of all strings over $\{0,1\}$ having even number of 0's & odd number of 1's.
- d) The set of all strings over $\{0,1\}$ in which the number of occurrences of is divisible by 3 (14M)

SECTION -III

5) Convert the following grammar into CNF.

S → aAD
A → aB
B → bAB
D → d (14M)

(OR)

6) Prove that the following language is not context-free language $L = \{www \mid w \in \{a,b\}^*\}$ is not context free.(14M)

SECTION -IV

7) a) Describe the TM that accepts the language $L = \{w a\{a,b,c\}_- \mid w \text{ contains equal number of } a\text{'s, } b\text{'s, an } c\text{'s}\}$. (7M)

b) Explain in detail Church's hypothesis.(7M)

(OR)

8) a) Design a Turing Machine that accepts the set of all even palindromes over $\{0,1\}$.(7M)

b) Given $_ = \{0,1\}$, design a Turing machine that accepts the language denoted by the regular expressions 00^* (7M)

SECTION -V

9) a) What is decidability? Explain any two undecidable problems.(7M)

b) Show that the following post correspondence problem has a solution and give the solution(7M).

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

(OR)

- 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.

SECTION - I

- 1) 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. (14M)

(OR)

- 2) 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. (14M)

SECTION - II

- 3) Represent the following sets by regular expressions(14M)

(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)

- 4) Discuss about (14M)

- a) Context Free Grammar
 b) Left most derivation
 c) Right most derivation
 d) Derivation tree.

SECTION - III

- 5) Which of the following are CFL's? Explain (14M)

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

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

(OR)

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

$A \rightarrow aBb \mid bBa$

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

- b) Convert the following grammar to Greibach Normal Form (7M)

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

$A \rightarrow aA \mid a$

$B \rightarrow bB \mid b$.

SECTION - IV

- 7) Write a note on Turing Thesis. Define algorithm in terms of TM. (14M)

(OR)

- 8) Write short notes on: (14M)

- a) Halting Problem of Turing Machine
 b) Application of CFG
 c) Multi Tape Turing Machine

d) Post-Correspondence Problem

SECTION - V

- 9)** 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.

(OR)

- 10)** Write brief about the following (14M)
a) Decidability of problems
b) RICE Theorem
c) Undecidability of post correspondence problem.

Code No: R15A0506

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech II Semester Regular/Supplementary Examinations, April/May 2018

**Formal Language and Automata Theory
(CSE & IT)**

Roll No										
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Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B

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

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

PART – A

(25 Marks)

1. (a) Define NFA. (2M)
- (b) List out the applications of a Finite Automata. (3M)
- (c) Define Regular Expression with an example. (2M)
- (d) List out the closure properties of regular sets. (3M)
- (e) State Pumping lemma for CFL's. (2M)
- (f) Define a right linear grammar with an example. (3M)
- (g) What do you understand by the term LBA? (2M)
- (h) Show the acceptance of PDA by empty stack. (3M)
- (i) Define PCP and MPCP. (2M)
- (j) Define turning machine. How a TM accepts a language? (3M)

PART – B

(50 Marks)

SECTION – I

2. a) Construct a DFA equivalent to the regular expression $10+(0+11)0^*11+00$ (5M)
- b) Explain Chomsky Hierarchy. (5M)

(OR)

3. a) Design a DFA for the following language, also give the transition diagram and the regular expression.

$$L = \{ 0^m 1^n \mid m \geq 0 \text{ and } n \geq 1 \} \quad (5M)$$

- b) Find DFA equivalent to NFA, described by the following state transition table.

$$I.S=p, F.S=\{q, s\} \quad (5M)$$

Q \ Σ	0	1
→ p	{q, s}	q
(q)	r	{q, r}
r	s	p
(s)	-	p

SECTION – II

4. Consider the following regular expression and construct the finite automaton
- a) $a + b$ b) $(a + b)^*$
c) $a(a + b)^*$ d) $a(a + b)^*b$ e) $b+ba$ (10M)
(OR)

5. a) Convert the R.E. $(a+b)^*$ into DFA (5M)
b) Explain the steps to construct a FA for a given regular expression. (5M)

SECTION – III

6. a) Construct right-linear and left-linear grammars for the following regular expression.
 $A_0 \rightarrow aA_1, A_1 \rightarrow bA_1, A_1 \rightarrow a, A_1 \rightarrow bA_0$ (5M)

- b) Construct the left-most and right-most derivations and parse trees for the following grammar

$S \rightarrow aB \mid bA$
 $A \rightarrow aS \mid bAA \mid a$
 $B \rightarrow bS \mid aBB \mid b$ which accepts the string “aaabbabbba”. (5M)
(OR)

7. a) Construct a DFA for the following regular grammar

$S \rightarrow Aa$
 $A \rightarrow Sb \mid Ab \mid \epsilon$ (5M)

- b) Convert the given grammar to GNF.

$S \rightarrow AB$
 $A \rightarrow BS \mid b$
 $B \rightarrow SA \mid a$ (5M)

SECTION – IV

8. a) Obtain the PDA accept the language $L = \{w \mid w \in (a, b)^* \text{ and } n_a(w) > n_b(w)\}$ i.e., number of a's in 'w' is greater than number of b's in 'w'. (5M)
b) Define Push Down Automata. Explain how CFG is accepted by PDA. (5M)
(OR)

9. a) Design a PDA which accepts strings of the language $\{0^n 1^n \mid n \geq 1\}$ (5M)
b) Convert the following grammar to PDA.

$S \rightarrow aAD$
 $A \rightarrow aB \mid bAB$
 $B \rightarrow bBB \mid a$ (5M)

SECTION – V

10. a) Explain about different types of Turing machines. (5M)
b) Find whether the post correspondence problem $P = \{(10, 101), (011, 11), (101, 011)\}$ has a match. Give the solution. (5M)

(OR)

11. a) Construct LR(0) items for the grammar given, find its equivalent DFA. Check the parsing by taking a suitable derived string.

$S^1 \rightarrow S$
 $S \rightarrow AS \mid \epsilon$
 $A \rightarrow aA \mid b$ (6M)

- b) Explain the Churches' hypothesis. (4M)

Code No: R15A0506

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution - UGC, Govt. of India)

II B.Tech II Semester Supplementary Examinations, December 2019
Formal Language and Automata Theory
(CSE & IT)

Roll No										
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Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B

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

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions.

Choosing ONE Question from each SECTION and each Question carries 10 marks.

PART-A (25 Marks)

- 1) a Construct DFA for $\{0^m 1^n \mid m \geq 0 \text{ and } n \geq 1\}$. [2M]
- b Construct NFA for accepting the set of all strings where second last symbol is 1 over the alphabet $\Sigma = \{0, 1\}$. [3M]
- c Define Ambiguity. [2M]
- d Eliminate ϵ -productions from the following grammar: [3M]
 $S \rightarrow XYX \quad X \rightarrow 0X/\epsilon \quad Y \rightarrow 1Y/\epsilon$
- e List out the closure properties of context free languages. [2M]
- f Define useful symbols in context free grammar. [3M]
- g Consider the following regular expression and construct the finite automata. [2M]
 $a(a + b)^*$
- h Show the acceptance of PDA by empty stack. [3M]
- i List out different types of Turing machines [2M]
- j Differentiate recursive and recursive enumerable language [3M]

PART-B (50 MARKS)

SECTION-I

- 2 Minimize the following DFA with table Filling method [10M]

δ	0	1
$\rightarrow A$	B	C
B	D	E
C	F	G
*D	D	E
E	F	G
*F	D	E
*G	F	G

OR

- 3 a. Convert to a DFA the following NFA

	0	1
$\rightarrow p$	$\{p,r\}$	$\{q\}$
q	$\{r,s\}$	$\{p\}$
*r	$\{p,s\}$	$\{r\}$
*s	$\{q,r\}$	\emptyset

Design a NFA for the language $L = \{\text{set of all strings over } \{0,1\} \text{ that have at least two consecutive 0's or 1's}\}$ [3M]

SECTION-II

Construct the left-most and right-most derivations and parse trees for the following grammar [6M]

$$S \rightarrow aB \mid bA$$

$$A \rightarrow aS \mid bAA \mid a$$

$$B \rightarrow bS \mid aBB \mid b \quad \text{which accepts the string "aaabbabbba".}$$

Convert the following regular expression $011(0+1)^*$ to NFA's with epsilon transitions. [4M]

OR

Write regular expression for DFA that accepting all strings with a substring 01. [6M]

Prove the given language $L = \{a^n b^n / n \geq 0\}$ is not regular. [4M]

SECTION-III

Convert the given grammar to GNF. [6M]

$$S \rightarrow AB$$

$$A \rightarrow BS \mid b$$

$$B \rightarrow SA \mid a$$

Write Pumping Lemma conditions to prove language is not context free. [4M]

OR

Eliminate ϵ -productions from the given grammar [5M]

$$S \rightarrow ABC$$

$$A \rightarrow BC \mid a$$

$$B \rightarrow bAC \mid \epsilon$$

$$C \rightarrow cAB \mid \epsilon$$

Eliminate Useless symbols from the given grammar [5M]

$$S \rightarrow AB \mid AC$$

$$A \rightarrow aA \mid bAa \mid a$$

$$B \rightarrow bbA \mid aB \mid AB$$

$$C \rightarrow aCa \mid aD$$

$$D \rightarrow aD \mid bC$$

SECTION-IV

Construct PDA for the language $L = \{w \mid n_a(w) = n_b(w)\}$ over the alphabet $\Sigma = \{a,b\}$ [5M]

Convert the given grammar into PDA that accepts same language by empty stack [5M]

$$S \rightarrow OAA$$

$$A \rightarrow 0S \mid 1S \mid 0$$

OR

Design Push Down Automata for accepting the language $\{a^n b^n c^n \text{ for } n \geq 1\}$ [6M]

Write procedure acceptance by final state to acceptance by empty stack [4M]

SECTION-V

Design Turing Machine for set of all palindromes over the alphabet $\Sigma = \{0,1\}$ [10M]

OR

Design a Turing machine to accept $L = \{0^n 1^n / n \geq 1\}$. [6M]

Explain Chomsky hierarchy of languages [4M]

Code No: R17A0506

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

II B.Tech II Semester Supplementary Examinations, December 2019**Formal Language and Automata Theory**

(CSE & IT)

Roll No									
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Time: 3 hours

Max. Marks: 70

Note: This question paper Consists of 5 Sections. Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

SECTION-I

- 1 Design a DFA (deterministic finite automaton) to accept the language $L1 = \{ \alpha \in \{a, b, c\}^* \mid \alpha \text{ starts and ends with the same symbol} \}$. Only draw the transition diagram, and clearly indicate the start state and the final state(s). [14M]

OR

- 2 Construct the Deterministic Finite Automata to accept the binary strings where every string ends with 10 and length of the string is odd. [14M]

SECTION-II

- 3 (a) Write the identities of regular expressions. [14M]
(b) Draw the ϵ NFA to accept the languages generated by aa^*bb^*

OR

- 4 (a) Compute the right linear grammar for the regular expression $r = 0(10)^*$. Obtain equivalent NFA for the resulting right linear grammar. [7M]
(b) State and prove pumping lemma for regular languages. Prove that the language of palindromes over $\{a, b\}$ is not regular using pumping lemma. [7M]

SECTION-III

- 5 (a) Consider the context free grammar $G = (\{S, A, B\}, \{a, b\}, P, S)$ where the productions are given by [7M]

 $S \rightarrow aAbB$ $A \rightarrow Ab \mid b$ $B \rightarrow Ba \mid a$

Construct an equivalent Chomsky Normal Form for the given CFG

- (b) Consider the following context free grammar $G = (\{S, X, Y\}, \{0,1\}, P, S)$ where the productions are given by

 $S \rightarrow XY$ $X \rightarrow YS \mid 1$ $Y \rightarrow SX \mid 0$

Construct an equivalent Greibach Normal Form for the given CFG. [7M]

OR

- 6 (a) Explain the following terms with example: [7M]
(i) Ambiguous Grammar. (ii) Left Recursion. (iii) Chomsky's Normal Form.
(b) Discuss the closure properties of Context free languages. [7M]

SECTION-IV

- 7 Construct the Push Down Automata for the following Language: [14M]
 $L = \{a^n b^n \mid n \geq 1\}$

OR

- 8 Construct the Push Down Automata for the following Language: [14M]
 $L = \{WcW^R \mid W \in (0+1)^*\}$

SECTION-V

- 9 Construct the Turing Machine for the following Language: [14M]
 $L = \{a^n b^n c^n \mid n \geq 0\}$

OR

- 10 Write short notes on the following: [5M]
(a) Universal Turing machine. [5M]
(b) Linear bounded automat. [4M]
(c) church hypothesis.

B.Tech III Year II Semester , **Model Paper - I**

Intellectual Property Rights

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 .

1. Explain the roles and responsibilities of US Patent and trademark office (USPTO) [14]

OR

2. Discuss the importance of intellectual property rights. [14]

3. List and explain about various trade marks in detail. [14]

OR

4. Explain the procedure involved in filling and documenting an application by USPTO.

5. Discuss the common rights law under the 1976 copy right law. [14]

OR

6 Explain the procedure for searching a patent. [14]

7.Discuss the legalities involved protection against u n f a i r competition. [14]

OR

8. Explain the procedure to f determine trade secret status. [14]

10.Explain in detail about the international development in trade secrets law. [14]

OR

11. What are the new developments patent law?. Explain. [14]

B.Tech III Year II Semester , **Model Paper - II**

Intellectual Property Rights

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 .

1. Explain the types of intellectual property rights with illustrations. [10]

OR

- 2 Explain the procedure to select and evaluate trademarks with a case study. [10]
- 3 Discuss the norms and standards laid down by the World Trade Organization in respect of TRIPs related to 'Law of Copyright'. [10]

OR

- 4 Section-3 of the amended Patent Act, 2000 takes note of the dangers of patenting. Explain the dangers. What areas are excluded from the purview of Patent Law? [10]
- 5 Explain the significance of trade secrets in the industrial economy of India. [10]

OR

7. Explain the role of I.P.R. in protection against unfair competition. [10]
- 8 . Write short notes on
- a) New developments in trade mark law [5]
 - b) False advertising [5]

OR

9. Explain the trading norms and functions of W.T.O. towards I.P.R. [10]

10. **Discuss** NewDevelopments in PatentLaw? [10]

OR

11. Explain about intellectual property audit? [10]

B.Tech III Year II Semester , **Model Paper - III**

Intellectual Property Rights

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 .

1. List out various regulatory authorities under the IP laws in India. [10]

OR

2. Write about the confidentiality agreement between Employer and Employee. [10]

3. Explain the Advertising function of trademark? [10]

OR

4. Discuss the Foundation of patent law? [10]

6 . Write how the the Fundamental of Copyrightslaws were formulated [10]

OR

7 Explain the trading norms and functions of W.T.O. towards I.P.R. [10]

8. Determine the affect for misappropriations of trade secrets? [10]

OR

9. Write five physical protections in trade secret protectionprogram? [10]

10 Write the duties of IP audit? [10]

OR

11. Explain the importance of Privacy policy of intermediaries like you tube and face book. [10]

B.Tech III Year II Semester , **Model Paper - IV**

Intellectual Property Rights

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 .

1. Explain the procedure for registration of trade marks. What are the effects of registration of trade mark ? [10]

OR

2. Discuss in brief the provisions of Madrid Agreement and its importance. [10]

3.. Explain the Principal and Supplemental Registers? [10]

OR

5 Discuss the offences and penalties under the Trade Marks Act, 1999. [10]

6. Explain the rights and obligations of patentee. [10]

OR

7. Discuss the law relating to revocation and surrender of patents. [10]

8. Explain the salient features of Indian Copyright Act, 1957. [10]

OR

9. Discuss the various subject matters covered under Copyright Act. [10]

10. Discuss right of publicity? Explain? [10]

OR

11. Write about new developments in IPRs. [10]

B.Tech III Year II Semester , **Model Paper - V**

Intellectual Property Rights

Time : 3 Hours

Max.Marks : 75

1. What are the exceptions to the copyright infringement? [10]

OR

2. Write an essay on moral rights of an author under the copyright Act. [10]

3. What is 'patent addition' under the Patents Act? [10]

OR

4. What are the components of a complete specification under the Patents Act? [10]

5. What is the procedure for registration of a trademark? [10]

OR

6. When a trademark owner's right to his trademark is said to be infringed? [10]

7. Write about the confidentiality agreement between Employer and Employee. [10]

OR

8. Explain the spring board doctrine under the unfair competition law. [10]

9. What is data theft and internet hours theft? [10]

OR

10. Explain the trade secret. What are the rights of a owner of trade secrets? [10]

R18

Code No: xxxxxxxx

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

**QUESTION PAPER
JAVA PROGRAMMING
(CSE)**

Roll No										
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Time: 3 hours

Max. Marks: 70

Note:

Question paper Consists of 5 SECTIONS (One SECTION for each UNIT).

Answer **FIVE** Questions, Choosing **ONE** Question from each SECTION and each Question carries 14 marks.

SECTION-I

1). Explain briefly about Object Oriented Programming concepts? [14M]

(OR)

2. a) Explain briefly about type conversion and type casting with example program? [7M]

b) Write a java program for finding the factorial of a given number using recursion? [7M]

SECTION-II

3. a) Explain different types of inheritances with example program? [7M]

b) What is a package? Explain User defined package with program? [7M]

(OR)

4. a) What is an Object class? Explain Object class methods? [7M]

b) Explain super keyword with program? [7M]

SECTION-III

5. a) What is an Exception? Explain different types of Exceptions? [7M]

b) Explain about try and catch with example program? [7M]

(OR)

6 a) Explain how to create a Thread with example program? [7M]

b) Explain about Thread Priority with example program? [7M]

SECTION- IV

7). Explain about Vector class and StringTokenizer class with example Program? [14M]

(OR)

9. a) Explain File class methods with program? [7M]

b) Explain different types of Drivers in JDBC? [7M]

SECTION- V

10.a) Write a java program for handling Mouse Events and Key Events? [7M]

b) Explain about AWT and Swing? [7M]

(OR)

11) Explain different types of Layouts with example program? [14M]

Code No: xxxxxxxx

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

QUESTION PAPER**JAVA PROGRAMMING**

(CSE)

Roll No										
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Time: 3 hours**Max. Marks: 70****Note:**

Question paper Consists of 5 SECTIONS (One SECTION for each UNIT).

Answer **FIVE** Questions, Choosing **ONE** Question from each SECTION and each Question carries 14 marks.

SECTION-I

1). Explain Procedure oriented programming and Object Oriented programming? [14M]

(OR)

2. a) Explain different loop control statements with example program? [7M]

b) Explain parameter passing Mechanism with example program? [7M]

SECTION-II

3. a) Explain Method overriding and Abstract class with example program? [7M]

b) What is inner class? Explain different types of inner classes? [7M]

(OR)

4. a) Difference between Interface and Abstract class? [7M]

b) Explain final keyword with method and class? [7M]

SECTION-III

5. a) What is user defined Exception? Explain user defined Exception with program? [7M]

b) Explain Multiple catch blocks with program? [7M]

(OR)

6 a) What is a Thread? Explain Thread Life cycle with neat diagram? [7M]

b) Explain Inter-Thread Communication with Producer and Consumer problem? [7M]

SECTION- IV

7). Explain Array List class, Vector class and Hash table class with example program? [14M]

(OR)

9. a) Explain FileInputStream and FileOutputStream class with example program? [7M]

b) Write a program to update data in the database using JDBC? [7M]

SECTION- V

10.a) Explain Applet life cycle with neat diagram? [7M]

b) Explain any three Swing components? [7M]

(OR)

11) Write a program for Calculator using Swings? [14M]

Code No: xxxxxxxx

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**(Autonomous Institution – UGC, Govt. of India)****QUESTION PAPER****JAVA PROGRAMMING****(CSE)**

Roll No										
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Time: 3 hours**Max. Marks: 70****Note:**

Question paper Consists of 5 SECTIONS (One SECTION for each UNIT).

Answer **FIVE** Questions, Choosing **ONE** Question from each SECTION and each Question carries 14 marks.

SECTION-I

1). Explain Constructor Overloading and Method Overloading with example program? [14M]

(OR)

2. a) Explain different Operators in Java with examples [7M]

b) Explain different String Handling methods with examples? [7M]

SECTION-II

3. a) Explain Dynamic binding with example program? [7M]

b) What is an interface? Explain how to extend an interface with program? [7M]

(OR)

4. a) Explain different Access Specifiers in java? [7M]

b) Explain about this keyword and built in packages? [7M]

SECTION-III

5. a) Explain throw and throws keyword with example program? [7M]

b) Explain nested try block with example program? [7M]

(OR)

6 a) Explain Thread Synchronization with example program? [7M]

b) Explain about Interrupting thread with example program? [7M]

SECTION- IV

7). Explain Stack class, Random class and Scanner class with example program? [14M]

(OR)

9. a) Explain RandomAccessFile methods with example program? [7M]

b) Write a program to insert data in to the database using JDBC? [7M]

SECTION- V

10.a) Explain Adapter class with example program? [7M]

b) Difference between Applets and Applications? [7M]

(OR)

11) Explain Event classes and Event Listeners in Event handling Mechanism [14M]

Code No: xxxxxxxx

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**(Autonomous Institution – UGC, Govt. of India)****QUESTION PAPER****JAVA PROGRAMMING****(CSE)**

Roll No										
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Time: 3 hours**Max. Marks: 70****Note:**

Question paper Consists of 5 SECTIONS (One SECTION for each UNIT).

Answer **FIVE** Questions, Choosing **ONE** Question from each SECTION and each Question carries 14 marks.

SECTION-I

1). Explain about Java Buzz words or Features and History of java [14M]

(OR)

2. a) Explain about Garbage Collector in java ? [7M]

b) Explain this keyword with example program? [7M]

SECTION-II

3. a) Explain Object class Methods with example? [7M]

b) Explain difference between Abstract class and Interface? [7M]

(OR)

4. a) Explain about super keyword with example program? [7M]

b) Explain how multiple inheritance is supported in java? Justify [7M]

SECTION-III

5. a) What is Exception? Explain Built in Exceptions in java [7M]

b) What is User defined Exception? Explain User defined Exception with program [7M]

(OR)

6 a) Explain about Thread Group in java with program? [7M]

b) Explain Daemon Thread with example program? [7M]

SECTION- IV

7). Explain Calendar class and Random class with example program? [14M]

(OR)

9. a) Explain different steps for creating JDBC? [7M]

b) Write a program to delete data from the database using JDBC? [7M]

SECTION- V

10.a) Explain about Delegation Event Model? [7M]

b) Explain how to pass parameters to an applet with program [7M]

(OR)

11) Explain Swing components [14M]

i) JButton ii) JLabel iii) Jtextfield iv) JTextArea

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)

UG Model question paper
Managerial Economics and Financial Analysis

Time:3hours

Max Marks: 70

Note: This question of 5 sections. Answer five questions, choosing one question from each section and each question paper contains carries 14 marks.

Section-I

1. a) what is managerial economics? Discuss the nature & Scope of Managerial economics [7M]
- b) What is demand forecasting? Explain various factors involved in demand forecasting. [7M]

OR

2. a) Explain Law of Demand with its exceptions [7M]
- b) Distinguish between Micro and Macroeconomic concepts (7M)

Section-II

3. a) Define Production function. How can a producer find it useful? Illustrate. (7M)
- b) Define Cost. Explain the different cost concepts used in the process of Cost Analysis. (7M)

OR

4. a) Distinguish between explicit and implicit costs? [3M]
- b) State and illustrate Cobb-Douglas production function. What are the properties of this function? (5M)
- c) Calculate the BEP in units and rupees using the following details: • Selling price per unit Rs. 100 • Variable cost per unit Rs. 60 • Fixed costs Rs. 20,000 • Actual sales Rs. 2,00,000 (6M)

Section-III

5. a) Define Market. Explain the structure of market with suitable examples. (7M)
- b) Define partnership. Explain its features and evaluate it as against sole proprietorship (7M)

OR

6. a) what is price? Explain different methods of Pricing. (7M)
- b) Explain the need for public enterprises in India. Do you think Public Enterprises as a whole have fulfilled that need? (7M)

Section-IV

7. a) What are the accounting concepts that govern accounting process? Explain in brief. (7M)
- b) Explain the main sources have long term finance. (7M)

OR

8. a) Explain the factors affecting the requirements of working capital. (7M)
- b) Explain about cash and capital budget. (7M)

Section-V

9. a) what is capital budgeting ? Explain methods of capital budgeting? (7M)
- b) What is ratio analysis? Explain different types of ratio analysis (7M)

OR

10. a) Ram Enterprise is considering purchasing a CNC machine. The following are the earnings after tax from the two alternative proposal under consideration each costing Rs 8,00,000. Select the better proposal if the company wishes to operate @ 10% rate of return. (7M)

	Year 1	Year 2	Year 3	Year 4	Year 5
Proposal I	80,000	2,40,000	3,20,000	4,80,000	3,20,000
Proposal 2	2,40,000	3,20,000	4,00,000	2,40,000	1,60,000
Present value of Rs 1 @10%	0.909	0.826	0.751	0.683	0.620

- b) What do you mean by capital budgeting? Explain its significance. (7M)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)

UG Model question paper
Managerial Economics and Financial Analysis

Time:3hours

Max Marks: 70

Note: This question of 5 sections. Answer five questions, choosing one question from each section and each question paper contains carries 14 marks.

Section-I

1. a) what is managerial economics? Discuss the nature & Scope of Managerial economics [7M]
- b) What is demand forecasting? Explain various factors involved in demand forecasting. [7M]

OR

2. a) Explain Law of Demand with its exceptions [7M]
- b) Distinguish between Micro and Macroeconomic concepts (7M)

Section-II

3. a) Define Production function. How can a producer find it useful? Illustrate. (7M)
- b) Define Cost. Explain the different cost concepts used in the process of Cost Analysis. (7M)

OR

4. a) Discuss about the economies and diseconomies of scale. (7M)
- b) Calculate the BEP in units and rupees using the following details: • Selling price per unit Rs. 100 • Variable cost per unit Rs. 60 • Fixed costs Rs. 20,000 • Actual sales Rs. 2,00,000 (7M)

Section-III

5. a) Define Market. Explain the structure of market with suitable examples.
- b) Define partnership. Explain its features and evaluate it as against sole proprietorship

OR

6. a) what is price? Explain different methods of Pricing. (7M)
- b) Explain the need for public enterprises in India. Do you think Public Enterprises as a whole have fulfilled that need? (7M)

Section-IV

7. a) What are the accounting concepts that govern accounting process? Explain in brief. (7M)
- b) Explain the main sources have long term finance. (7M)

OR

8. a) Explain the factors affecting the requirements of working capital. (7M)
- b) Explain about cash and capital budget. (7M)

Section-V

9. a) what is capital budgeting ? Explain methods of capital budgeting? (7M)
- b) What is ratio analysis? Explain different types of ratio analysis (7M)

OR

10. a) Ram Enterprise is considering purchasing a CNC machine. The following are the earnings after tax from the two alternative proposal under consideration each costing Rs 8,00,000. Select the better proposal if the company wishes to operate @ 10% rate of return. (7M)

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Section-I

1. a) “Managerial Economics is the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management”. Explain? (7M)
b) Define demand and describe its determinants with suitable examples? (7M)

OR

2. a) What do you understand by Elasticity of demand? How do you measure it? What is its significance? (7M)
b) What do you understand by demand? What the different types are of demand? (7M)

Section-II

3. a) Explain and illustrate the following: and also mention why they arise: a) The Law of Constant Returns b) The Law of increasing returns. (7M)
b) discuss about iso quants and iso costs? (7M)

OR

4. a) Define BEP. How do you determine it. Show graphical presentation of BEA (7M)
b) You are given the following information for the year 2003 of XYZ Co. Ltd: Variable Cost 6,00,000 60% Fixed Cost 3,00,000 30% Net Profit 1,00,000 10% 10,00,000 100% Find out i) Break Even Point in units and sales ii) PV Ratio iii) Margin of Safety iv) Number of units that must be sold to earn a profit of 5,00,000 v) How many units must be sold to earn a net income of 13.5% of sales (7M)

Section-III

5. a) Do you think monopoly is present in the current business environment? Explain it with suitable examples. (7M)
b) Explain the merits and demerits of different forms of Business organization and their suitability with different types of business Activities (7M)

OR

6. a) what is pricing? Explain objectives and policies behind pricing. (7M)
- b) Explain the need for public enterprises in India. Do you think Public Enterprises as a whole have fulfilled that need? (7M)

Section-IV

7. a) What are the accounting concepts that govern accounting process? Explain in brief. (7M)
- b) Explain the main sources have long term finance. (7M)

OR

8. a) Explain the factors affecting the requirements of working capital. (7M)
- b) Explain about cash and capital budget. (7M)

Section-V

9. a) what is capital budgeting ? Explain methods of capital budgeting? (7M)
- b) What is ratio analysis? Explain different types of ratio analysis (7M)

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Section-I

1. (a) Define managerial economics. Illustrate how it helps in solving managerial problems and explain the nature. (4M)
- (b) Explain different methods of demand forecasting (6M)
- (c) Briefly explain elasticity of demand. (4M)

OR

2. (a) What are the different kinds of elasticity of demand that are relevant to the manager of a firm? (7M)
- (b) How do you forecast demand for a new product? (7M)

Section-II

3. (a) Explain the concepts of cost and explain their contribution to managerial decisions. [9M]
- (b) Explain production function. [5M]

OR

4. (a) Discuss about isoquants. [4M]
- (b) What is meant by breakeven analysis? Explain its advantages. (4M)
- (c) Critically evaluate the law of diminishing marginal return. (6M)

Section-III

- 5(a) Explain the types of competition. [7M]
- (b) What is perfect competition and explain its features. [7M]

OR

6. (a) Explain the state/ public enterprises and their various forms. [7M]
 (b) What is the importance of pricing in a business organization? [7M]

Section-IV

- 7(a) Write different types of shares [7M]
 (b) Define Financial Accounting. Explain the importance and Limitations of Financial Accounting. (7M)

OR

8. (a) what is accounting? Explain the principles of accounting. (7M)
 (b) write the format and importance of balance sheet. (7M)

Section-V

- 9.(a) Illustrate the advantages and Disadvantages of NPV Method. (7M)
 (b) A firm is considering two projects each with an initial investment of Rs.20,000 and a life of 4 years. The following is the list of estimated cash inflows after taxes and depreciation. (7M)

year	Proposal I	Proposal II	Proposal III
1	12500	11750	13500
2	12500	12250	12500
3	12500	12500	12250
4	12500	13500	11750
total	50000	50000	50000

Predict Accounting Rate of Return on (i) Average Capital (ii) Original Capital Employed

OR

- 10(a) discuss different types of liquidity and activity ratios (7M)
 (b) A Company has an estimated Life of 4 years and an investment opportunity costing Rs.2,50,000 with the following expected Net Cash flow After Taxes and Before Depreciation. (7M)

Years	Net cash flows (rs)	P.V. of Rs.1 @24% D.f
1	120000	0.806
2	90000	0.650
3	160000	0.524
4	30000	0.423

Calculate payback period and NPV using with 10% discounting factor

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Section-I

1. (a) Explain the influencing factors of the elasticity of demand. (7M)
(b) Define managerial economics and explain its areas (7M)

OR

- 2.(a) What is demand forecasting? Explain various factors involved in demand forecasting. (7M)
(b) What is elasticity of demand? And explain its types and measurement. (7M)
(7M)

Section-II

- 3.(a) Explain the importance production function and describe the salient features of Cobb-Douglas production function (7M)
(b) Describe the importance of Break-even analysis and Break-even point. (7M)

OR

- 4.(a) You are required to Determine i)P/V Ratio (ii) Break Even Point in Value (iii) Sales required to earn a profit of Rs.4,50,000 and (iv) Profit when Sales are Rs.21,60,000 from the following information (7M)

Fixed Expenditure Rs.90,000,
Variable Cost Per unit :
Direct Material Rs.5
Direct Labour Rs.2
Direct Overheads 100% of Direct Labour
Selling price per unit Rs.12/-

- (b) The Sales Turnover and profit during two years were given as follows: (7M)

Years	2003	2004
Sales (Rs.)	1,00,000	1,20,000
Profit (Rs.)	15,000	23,000

You are required to Compute the following: i)P/V Ratio ii) Fixed Cost iii) Break Even Point (Value) ii) Sales required to earn a profit of Rs.20,000 iii) Profit when Sales are Rs.1,25,000

Section-III

- 5.(a) define business. Explain its characteristics (7M)
(b) Explain the salient features of private limited and public limited companies (7M)

OR

6. (a) Describe the features of perfect competition. (7M)
(b) Make a comparison among Monopolistic, Monopoly and Oligopoly competition? (7M)

Section-IV

- 7.(a) Describe different types of capital. (7M)
(b) explain about different methods and sources of capital (7M)

OR

- 8.(a) Describe the advantages and disadvantages of double entry book keeping (7M)
(b) Prepare Trial Balance of Mr.Rajaram as on 31.12.2005 from the following balances:
- | | |
|-----------------------------|--------------------------------|
| 1. Sundry Debtors 32,000 | 9. Stock as on 1.1.2005 22,000 |
| 2. Cash in Hand 35 | 10. Cash at Bank 1,545 |
| 3. Plant & Machinery 17,500 | 11. Sundry Creditors 10,650 |
| 4. Trade expenses 1,075 | 12. Sales 2,34,500 |
| 5. Salaries 2,225 | 13. Carriage Outwards 400 |
| 6. Rent 900 | 14. Bills Payable 7,500 |
| 7. Purchases 2,18,870 | 15. Discount Allowed 1,100 |
| 8. Capital 79,500 | 16. Business Premises 34,500 |

Section-V

- 9.(a) Briefly explain the traditional methods of capital budgeting. (7M)
(b) Briefly describe the modern methods of capital budgeting. (7M)

OR

- 10 (a) describe the advantages and disadvantages of traditional methods of capital budgeting (7M)
(b) The following is an extract of a balance sheet of a company during the last year. Compute current ratio and quick ratio. Also interpret the ratios. (7M)

Land and buildings 1,50,000,	Plant and machinery 3,00,000,
Furniture and fixtures 1,25,000,	Closing stock 25,000,
Sundry debtors 62,500,	Wages prepaid 7,500,
Sundry creditors 18,000,	Rent outstanding 12,000