Code No: **R15A0507**
MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
II B.Tech II Semester Supplementary Examinations, June 2024
Java Programming
(CSE)

Roll No									

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

Note: This question paper contains two parts A and B

Part A is compulsory which carriers 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.

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		PART-A (25 Marks) **(Write all answers of this part at one place)**	**BCLL**	**CO(s)**	**Marks**
1	A	What is type casting? Explain with an example.	L2	CO-I	[2M]
	B	Differentiate between break and continue statement.	L4	CO-I	[3M]
	C	What is a package? How to define it and access it?	L1	CO-II	[2M]
	D	What is the use of super keyword?	L1	CO-II	[3M]
	E	How does Java support inter thread communication?	L3	CO-III	[2M]
	F	List any six built-in exceptions in Java.	L1	CO-III	[3M]
	G	What is the need of JDBC type 3, type 4 drivers?	L1	CO-IV	[2M]
	H	Compare byte streams with character streams.	L4	CO-IV	[3M]
	I	Explain the use of layout managers.	L3	CO-V	[2M]
	J	Give the hierarchy for swing components.	L1	CO-V	[3M]

PART-B (50 Marks)
SECTION-I

			BCLL	**CO(s)**	**Marks**
2	A	What are the drawbacks of procedural languages?	L1	CO-I	[5M]
	B	Explain the need of object oriented programming with suitable program.	L2	CO-I	[5M]
		OR			
3	A	Does Java support multi way selection statement? Justify your answer.	L5	CO-I	[5M]
	B	Compare and contrast between the overloading and overriding methods with an example?	L4	CO-I	[5M]

SECTION-II

			BCLL	**CO(s)**	**Marks**
4	A	Explain the importance of anonymous inner class with example	L1	CO-II	[5M]
	B	How to define a package? How to access, and import a package? Explain with Examples.	L3	CO-II	[5M]
		OR			
5	A	Write a runtime polymorphism program in Java using Interface reference variable	L2	CO-II	[5M]
	B	Explain the various access specifies are used in java	L1	CO-II	[5M]

SECTION-III

6	A	With a program illustrate user defined esception handling?	L5	CO-III	[5M]
	B	How to handle multiple catch blocks for a nested try block? Explain with example?	L3	CO-III	[5M]

<div align="center">OR</div>

7	A	What is the difference between a thread and a process?	L4	CO-III	[5M]
	B	Describe producer -consumer pattern using inter-thread communication?	L3	CO-III	[5M]

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SECTION-IV

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8	A	What support is provided by File class for file management? Illustrate with suitable scenarios.	L1	CO-IV	[5M]
	B	Explain the methods defined by Math	L2	CO-IV	[5M]

<div align="center">OR</div>

9	A	Write about driver manager class for database connectivity	L1	CO-IV	[5M]
	B	Write a JDBC program to search for an attribute in a table and display the entire tuple to the user.	L2	CO-IV	[5M]

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SECTION-V

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10	A	Is Applet more secure than application program? Justify your answer?	L4	CO-V	[5M]
	B	Explain delegation event model.	L1	CO-V	[5M]

<div align="center">OR</div>

11	A	What is the significance of layout managers? Discuss briefly various layout managers.	L2	CO-V	[5M]
	B	Describe about various components in AWT	L5	CO-V	[5M]

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R15

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
II B.Tech II Semester Supplementary Examinations, June 2024
Design and Analysis of Algorithms
(CSE)

Roll No										

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

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 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.

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	PART-A (25 Marks)	BCLL	CO(S)	Marks
1). a	Define Algorithm.	L1	CO-I	[2M]
b	What is time complexity of Stassen's matrix multiplication?	L2	CO-I	[3M]
c	Write pseudo code for find algorithm.	L5	CO-II	[2M]
d	What is a spanning tree?	L4	CO-II	[3M]
e	What is job sequencing with deadlines?	L4	CO-III	[2M]
f	What is 0/1 knapsack problem?	L4	CO-III	[3M]
g	What is Hamiltonian cycle	L4	CO-IV	[2M]
h	What is sum of subsets problem?	L6	CO-IV	[3M]
i	What is NP hard and NP complete problems?	L4	CO-V	[2M]
j	What is linear programming?	L5	CO-V	[3M]

PART-B (50 MARKS)
SECTION-I

2	Explain about different space complexities.	L4	CO-I	[10M]
	OR			
3	Demonstrate how Strassen's Matrix multiplication decreases the complexity of an algorithm. Compare with classical approach.	L5	CO-I	[10M]

SECTION-II

4	Explain about non-recursive traversal algorithm.	L2	CO-II	[10M]
	OR			
5	Analyze the Graph traversals - Breadth first search and Depth first search	L4	CO-II	[10M]

SECTION-III

6	How do you construct a minimum Spanning tree using kruskals algorithm explain? List any two applications.	L1	CO-III	[10M]
	OR			
7	Construct OBST for the following data. N=4 , (a1,a2,a3,a4) = (and, goto, print, stop) and P(1:4) = (4,2,1,1) ,Q(0:4)=(4,3,1,1,1).	L3	CO-III	[10M]

SECTION-IV

8	Explain the Travelling salesmen problem using Branch and bound technique.	L2	CO-IV	[10M]

| 9 | Explain about n-Queens algorithm with an example. | **L5** | **CO-IV** | **[10M]** |

SECTION-V

| 10 | Explain about cooks theorem. | **L5** | **CO-V** | **[10M]** |

| 11 | Explain NP –Complete class. Show the relation between NP hard and NP complete Problems. | **L2** | **CO-V** | **[10M]** |

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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
II B.Tech II Semester Supplementary Examinations, June 2024
Database Management Systems
(CSE)

Roll No									

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

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 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.

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		PART-A (25 Marks)	**BCLL**	**CO(s)**	**Marks**
		(Write all answers of this part at one place)			
1	A	Define Database?	L1	CO-I	[2M]
	B	Draw Two-tier architecture?	L1	CO-I	[3M]
	C	Distinguish between super key and Candidate key.	L2	CO-II	[2M]
	D	What is trigger?	L1	CO-II	[3M]
	E	What is functional dependency?	L1	CO-III	[2M]
	F	Define Normalization?	L1	CO-III	[3M]
	G	Define the term ACID properties	L1	CO-IV	[2M]
	H	Discuss Log file?	L1	CO-IV	[3M]
	I	What are various file organization mechanisms.	L1	CO-V	[2M]
	J	What is called a query –execution engine	L1	CO-V	[3M]
		PART-B (50 Marks)			
		SECTION-I			
2	A	Discuss DDL and DML in detail?	L4	CO-I	[5M]
	B	Describe three level architecture of database schema.	L2	CO-I	[5M]
		OR			
3	A	Explain key constraints? Give examples?	L2	CO-I	[5M]
	B	Draw an E-R Diagram for online book store	L1	CO-I	[5M]
		SECTION-II			
4	A	Compare tuple and domain relational calculus.	L2	CO-II	[5M]
	B	Give an overview of trigeers.	L1	CO-II	[5M]
		OR			
5	A	Explain various fundamental operations in relational algebra with examples.	L2	CO-II	[5M]
	B	Consider the following tables: Employee (Emp_no, Name, Emp_city) Company (Emp_no, Company_name, Salary) i. Write a SQL query to display employee name, employee city ,company name and salary of all the employees whose salary >10000 ii. Write a query to display all the employees working in	L3	CO-II	[5M]

'XYZ' company.

SECTION-III

6 A What conditions are required for a relation to be in 1NF, and 2NF. Explain with examples.   **L1**   **CO-III**   **[5M]**

   B What are the limitations of redundancy?   **L1**   **CO-III**   **[5M]**

OR

7 A What are the conditions are required for a relation to be in 4NF and 3NF explain with examples.   **L1**   **CO-III**   **[5M]**

   B Discuss join dependencies in detail with examples?   **L4**   **CO-III**   **[5M]**

SECTION-IV

8 A What is Concurrency control? Explain how multiple granularity protocol is used to Control concurrent transactions.   **L1**   **CO-IV**   **[5M]**

   B Discuss in detail about timestamp based concurrency control techniques.   **L4**   **CO-IV**   **[5M]**

OR

9 A Explain the following log based recovery schemes.
i) Deferred data base modification
ii) Immediate data base modification.   **L2**   **CO-IV**   **[5M]**

   B What is transaction? Explain the properties of transaction.   **L1**   **CO-IV**   **[5M]**

SECTION-V

10 A Explain about dynamic file organization.   **L2**   **CO-V**   **[5M]**

   B What are the various kinds of indexes? And explain them.   **L2**   **CO-V**   **[5M]**

OR

11 A Explain about fixed length file organization with an example?   **L2**   **CO-V**   **[5M]**

   B Explain about tertiary storage media in detail?   **L2**   **CO-V**   **[5M]**

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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
II B.Tech II Semester Supplementary Examinations, June 2024
Computer Organization
(CSE)

Roll No										

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

Note: This question paper contains two parts A and B
     Part A is compulsory which carriers 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.

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		PART-A (25 Marks) **(Write all answers of this part at one place)**	**BCLL**	**CO(s)**	**Marks**
1	A	Explain the concept of bus structures in computer architecture.	**L2**	**CO-I**	**[2M]**
	B	Describe the differences between fixed-point and floating-point representations in computer systems.	**L2**	**CO-I**	**[3M]**
	C	Define register transfer language and provide an example.	**L1**	**CO-II**	**[2M]**
	D	Explain the role of arithmetic logic shift unit in computer architecture.	**L2**	**CO-II**	**[3M]**
	E	What are the main components of the instruction cycle?	**L1**	**CO-III**	**[2M]**
	F	Differentiate between CISC and RISC architectures, highlighting their advantages and disadvantages.	**L2**	**CO-III**	**[3M]**
	G	Explain the concept of priority interrupt in input-output organization.	**L2**	**CO-IV**	**[2M]**
	H	Discuss the modes of data transfer in input-output systems, focusing on asynchronous data transfer.	**L2**	**CO-IV**	**[3M]**
	I	Define cache memory and explain its importance in computer systems.	**L1**	**CO-V**	**[2M]**
	J	Compare and contrast the different mapping techniques used in cache memory: associative mapping, direct mapping, and set-associative mapping.	**L2**	**CO-V**	**[3M]**

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PART-B (50 Marks)
SECTION-I
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2	A	Discuss the different types of computers based on their architecture and intended use.	**L2**	**CO-I**	**[5M]**
	B	Compare and contrast fixed and floating point data representations.	**L4**	**CO-I**	**[5M]**

<div align="center">OR</div>

3	A	Explain the concept of functional units in a computer system and discuss their roles in executing instructions.	**L2**	**CO-I**	**[5M]**
	B	Explain the concepts of multiprocessors and multi-computers. How do they differ from single-processor systems, and what are their advantages?	**L2**	**CO-I**	**[5M]**

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SECTION-II
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4	A	Discuss arithmetic micro-operations and provide examples of their implementation in digital logic	**L2**	**CO-II**	**[5M]**

		circuits.			
	B	What are shift micro-operations, and how are they implemented in hardware? Discuss their applications in data manipulation.	**L2**	**CO-II**	**[5M]**

<div align="center">OR</div>

5	A	Explain logic micro-operations and how they are utilized in performing Boolean logic functions within a computer system.	**L2**	**CO-II**	**[5M]**
	B	Describe the components and operation of an arithmetic logic shift unit (ALU) in a computer processor.	**L2**	**CO-II**	**[5M]**

SECTION-III

6	A	Describe the general register organization in a computer system. What are the different types of registers, and how are they used?	**L2**	**CO-III**	**[5M]**
	B	Explain the data transfer and manipulation operations performed by a computer processor during program execution.	**L2**	**CO-III**	**[5M]**

<div align="center">OR</div>

7	A	Explain the stack organization and its significance in managing subroutine calls and nested function invocations.	**L2**	**CO-III**	**[5M]**
	B	Compare and contrast Complex Instruction Set Computing (CISC) and Reduced Instruction Set Computing (RISC) architectures.	**L4**	**CO-III**	**[5M]**

SECTION-IV

8	A	Describe asynchronous data transfer and its modes. How does it differ from synchronous data transfer?	**L2**	**CO-IV**	**[5M]**
	B	Explain the concept of direct memory access (DMA) and its role in improving the efficiency of data transfer between I/O devices and memory.	**L2**	**CO-IV**	**[5M]**

<div align="center">OR</div>

9	A	What are priority interrupts, and how are they handled in a computer system? Discuss their significance in managing I/O operations.	**L2**	**CO-IV**	**[5M]**
	B	Discuss the components and operation of an Input-Output Processor (IOP) in computer systems.	**L2**	**CO-IV**	**[5M]**

SECTION-V

10	A	Discuss the memory hierarchy in computer systems, including the levels of memory and their respective characteristics.	**L2**	**CO-V**	**[5M]**
	B	Describe the hardware organization of associative memory. How does it differ from conventional memory structures?	**L2**	**CO-V**	**[5M]**

<div align="center">OR</div>

11	A	Describe the structure and function of main memory, including RAM and ROM chips. How do they differ in terms of volatility and accessibility?	**L2**	**CO-V**	**[5M]**
	B	Explain the concept of cache memory and its different mapping techniques, including associative mapping, direct mapping, and set-associative mapping.	**L2**	**CO-V**	**[5M]**

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Code No: **R15A0061**

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
II B.Tech II Semester Supplementary Examinations, June 2024
Managerial Economics and Financial Analysis
(CSE)

Roll No									

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

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 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.

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		PART-A (25 Marks) (Write all answers of this part at one place)	BCLL	CO(s)	Marks
1	A	Define Managerial Economics.	L1	CO-I	[2M]
	B	What is the scope of Managerial Economics?	L1	CO-I	[3M]
	C	Define Production Function.	L1	CO-II	[2M]
	D	Explain briefly about Cobb-Douglas Production function.	L2	CO-II	[3M]
	E	Compare and contrast Public Limited Company and Private Limited Company briefly.	L4	CO-III	[2M]
	F	How is Monopoly different from Monopolistic Competition?	L1	CO-III	[3M]
	G	What do you mean by Capital and what is its Significance?	L1	CO-IV	[2M]
	H	Discriminate Capital Budget from Cash Budget.	L4	CO-IV	[3M]
	I	List out the Features of Capital Budgeting proposals.	L1	CO-V	[2M]
	J	Explain briefly about any three Methods of Capital Budgeting.	L2	CO-V	[3M]

PART-B (50 Marks)

SECTION-I

			BCLL	CO(s)	Marks
2	A	Explain about the Law of Demand and Exceptions to it.	L5	CO-I	[5M]
	B	Define Elasticity of Demand and Elaborate its Types.	L6	CO-I	[5M]
		OR			
3	A	How does Measurement of Price Elasticity of demand take place and what is the Significance of Price Elasticity of Demand?	L1	CO-I	[5M]
	B	Discuss about any five Methods of Demand Forecasting.	L6	CO-I	[5M]

SECTION-II

			BCLL	CO(s)	Marks
4	A	Compare and contrast Isoquants and Isocosts .	L4	CO-II	[5M]
	B	Summarise about the Internal and External Economies of Scale.	L2	CO-II	[5M]
		OR			
5	A	Explain about any Five Cost concepts involved in Cost	L2	CO-II	[5M]

		Analysis.			
	B	Diagrammatically explain about Break-even Analysis (BEA) and illustrate its significance in business entities.	L2	CO-II	[5M]

SECTION-III

6	A	Elaborate about the Features of Perfect competition.	L6	CO-III	[5M]
	B	Explain how the Business Environment has been changing in Post-Liberalization Scenario.	L5	CO-III	[5M]

OR

7	A	Distinguish Sole Proprietorship from Partnership.	L4	CO-III	[5M]
	B	Discuss about any Five Methods of Pricing.	L6	CO-III	[5M]

SECTION-IV

8	A	Elaborate how the estimation of Fixed and Working capital requirements takes in business organisations.	L6	CO-IV	[5M]
	B	Explain about the Accounting Concepts and Conventions.	L5	CO-IV	[5M]

OR

9	A	Discuss about the Methods and Sources of raising Finance.	L6	CO-IV	[5M]
	B	List out various types of Assets and Liabilities in terms of the Format of Balance Sheet of a typical company.	L6	CO-IV	[5M]

SECTION-V

10	A	What is the Payback Period of the below Projects?	L2	CO-V	[5M]

Particulars	Project - A	Project - B
Project cost	1,00,000	2,00,000
Annual Cash inflows	40,000	50,000
Duration	5 Years	6 Years

	B	What is the Accounting Rate of Return (ARR) of the below Projects, considering average capital?	L2	CO-V	[5M]

Particulars	Project - X	Project - Y
Project cost	5,00,000	10,00,000
Annual Cash inflows	1,00,000	1,50,000
Duration	6 Years	8 Years

OR

11	A	Given that a project costing Rs. 2,00,000 has annual cash inflows of Rs. 50,000, after taxes, for a period of 6 years. How much is the Net Present Value (NPV), if the firm expects 10% per annum. (Present Value factors for 1,2,3,4,5 & 6 years are 0.909, 0.826,0.751, 0.683, 0.621 & 0.564 respectively)	L2	CO-V	[5M]
	B	Discuss about any Five Profitability Ratios illustratively.	L6	CO-V	[5M]

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R15

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
II B.Tech II Semester Supplementary Examinations, June 2024
Formal Language and Automata Theory
(CSE)

Roll No									

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

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 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.

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		PART-A (25 Marks) (Write all answers of this part at one place)	**BCL L**	**CO(s)**	**Marks**
1	A	Define Alphabet.	L1	CO-I	[2M]
	B	Compare Non-deterministic Finite Automata and Deterministic Finite Automata.	L4	CO-I	[3M]
	C	Write a regular expression to accept strings of a's and b's where number of a's and b's are odd.	L3	CO-II	[2M]
	D	Give description of the following language : b(a*ba)*a*b	L2	CO-II	[3M]
	E	Define a right linear grammar with an example.	L2	CO-III	[2M]
	F	How do we say that the given grammar is ambiguous?	L4	CO-III	[3M]
	G	Differentiate Push Down Automata and non-deterministic Push Down Automata.	L4	CO-IV	[2M]
	H	How do we show the acceptance of CFL?	L2	CO-IV	[3M]
	I	Define Turning Machine. How a Turing Machine accepts a language?	L2	CO-V	[2M]
	J	Define the classes P and NP.	L2	CO-V	[3M]

PART-B (50 Marks)
SECTION-I

2	A	Design a DFA for the following language L = { $0^m 1^n$ | $m \geq 0$ and $n \geq 1$}	L6	CO-I	[5M]
	B	Construct a Mealy machine which is equivalent to the Moore machine given in table.	L3	CO-I	[5M]

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

3	A	Construct DFA and NFA accepting the set of all strings containing 10 as a substring.	L3	CO-I	[5M]

	B	Construct the corresponding Mealy machine to the Moore machine described by the transition table given.	L3	CO-I	[5M]

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

4	A	Represent the following sets by regular expressions:	L3	CO-II	[5M]

(a) {0,1,2}

(b) {1^{2n+1} | n>0}

(c) {w ε {a, b}* | w has only one a }

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

	B	Show that if L is a regular grammar then the L is a regular set.	L4	CO-II	[5M]

OR

5	A	Write the procedure of converting Finite Automata to Regular expression with suitable example.	L3	CO-II	[5M]
	B	Explain about closure properties of regular sets in detail.	L2	CO-II	[5M]

SECTION-III

6	A	Explain left and right derivation trees with suitable examples.	L2	CO-III	[5M]
	B	Explain about closure properties of Context free languages in detail.	L3	CO-III	[5M]

OR

7	A	Explain various components of context free grammar and derivation tree in detail.	L2	CO-III	[5M]
	B	Convert the following grammar to Greibach Normal Form G = ({A1, A2, A3}, {a,b},P,S) Where P consists of the following:	L3	CO-III	[5M]

A1→A2 A3
A2→A3 A1 | b
A3→A1 A2 | a

SECTION-IV

8	A	Construct Push Down Automata which accept the following language L= {$a^n b^n$ n≥0}.	L6	CO-IV	[5M]
	B	Explain about the equivalence of CFL and PDA in detail.	L2	CO-IV	[5M]

OR

9	A	Show that L is context free language, then there exists a Push Down Automata M such that L = N(M).	L4	CO-IV	[5M]
	B	Explain about Decision properties of DCFL in detail.	L2	CO-IV	[5M]

SECTION-V

10	A	Design a Turing Machine to accept the strings having equal number of 0's and 1's.	L6	CO-V	[5M]
	B	Explain in detail about Church's hypothesis.	L2	CO-V	[5M]

OR

11		Design a Turing Machine that recognizes any palindrome of digits {0, 1}. Give its state transition diagram and table.	L6	CO-V	[10M]

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