

Hall Ticket No:

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Question Paper Code: 20MCAP106

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

MCA I Year II Semester (R20) Supplementary End Semester Examinations, March - 2023
JAVA PROGRAMMING

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either A or B only

Q.No	Question	Marks	CO	BL
Q.1(A)	Write a program in Java to take input of a sentence through command line argument and then count the number of words and vowels.	12	1	1
OR				
Q.1(B)	Describe in detail about functions and implement the same to calculate employee payroll using functions.	12	1	3
Q.2(A)	Write a java Program to create a class called Room with two data member length and width and then implement a constructor overloading in it.	12	2	2
OR				
Q.2(B)	Write a program to create a class Student with data 'name, city and age' along with method named 'printData' to display the data. Create the two objects s1, s2 to declare and access the values.	12	2	2
Q.3(A)	Explain the concept of Serialization with examples	12	3	2
OR				
Q.3(B)	Write a java program to write the content to a file and read the content from the file and display it on the screen.	12	3	3
Q.4(A)	Write a java Program to handle the exception using try and multiple catch block; the exceptions that you will handle are, number format error, array Bound error and divide by zero.	12	4	3
OR				
Q.4(B)	Discuss the concept of try, catch and finally blocks by applying the concept of Array index out of bounds exception.	12	4	2
Q.5(A)	Explain the concept of Input and Message Dialog boxes with examples.	12	5	2
OR				
Q.5(B)	What is use of JOptionPane method in java and explain with examples	12	5	3

***** END*****

Hall Ticket No:

Question Paper Code: 20MCAP107

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

MCA I Year II Semester (R20) Supplementary End Semester Examinations, March - 2023

Database Management Systems

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either A or B only

Q.No	Question	Marks	CO	BL
Q.1(A)	Explain the overall system architecture of DBMS.	12M	1	2
OR				
Q.1(B)	(a) Define schema, Entity with examples.	6M	1	1
	(b) Write various types of users.	6M	1	1
Q.2(A)	Consider the following relational schema Employee (empno, name, office, age) Books (isbn, title, authors, publisher) Loan (empno, isbn, date) Write the following queries in relational algebra. a. Find the names of employees who have borrowed a book Published by McGraw-Hill?	12M	2	3
OR				
Q.2(B)	Write the various types of Integrity constraints with examples.	12M	2	2
Q.3(A)	(a)What are the pitfalls in bad database design?	6M	3	2
	(b) Explain dependency preservation with example.	6M	3	2
OR				
Q.3(B)	Write the notes on the following. (a) Functional dependency. (b) Fully functional dependency. (c) Multi valued dependency	12M	3	2
Q.4(A)	(a) List and explain various types of specialized locking techniques used in DBMS.	6M	4	2
	(b) Explain Two phase locking protocol.	6M	4	2
OR				
Q.4(B)	Explain about data base recovery management.	12M	4	2
Q.5(A)	Write the procedures and functions in PL / SQL with examples.	12M	5	2
OR				
Q.5(B)	Explain various types of databases in No Sql.	12M	5	2

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Question Paper Code: 20MCAP108

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

MCA I Year II Semester (R20) Supplementary End Semester Examinations, March - 2023

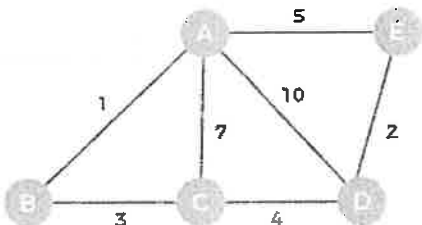
DATA STRUCTURES AND ALGORITHMS

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.

In Q.no 1 to 5 answer either A or B only

Q.No	Question	Marks	CO	BL
Q.1(A)	Define space complexity and time complexity? Explain about asymptotic notations.	12	1	2
OR				
Q.1(B)	(i) Differentiate linear and non-linear data structures.	6M	1	2
	(ii) Define Queue. List and explain the applications of Queue.	6M	1	1
Q.2(A)	Differentiate the time complexities of Linear and Binary search with examples.	12M	2	3
OR				
Q.2(B)	(i) Demonstrate the merge sort results for the following initial array of elements. 25 15 12 8 34 9 18 21 10	6M	2	4
	(ii) Demonstrate the Fibonacci search for the following initial array of elements. 36 89 11 14 16 19 32 38 40 45 49 Search 16 and 35	6M	2	3
Q.3(A)	Explain Binary Search Tree. Construct Binary Search Tree for the following keys: 45, 15, 79, 90, 10, 55, 12, 20, 50. Perform In-order, Pre-order and Post-order Tree Traversals on the constructed Binary Search Tree.	12M	3	2
OR				
Q.3(B)	What is Minimum Spanning Tree? Use Prims algorithm to find the minimum spanning Tree of the given graph	12M	3	4
				
Q.4(A)	What is hashing? How to do indexing and retrieving items using hashing with an example? Explain?	12M	4	2

OR

Q.4(B) Explain matrix and linked list representation of a graph. Also give the application of Graph. 12M 4 3

Q.5(A) Describe Greedy Method and Illustrate Single source shortest path problem with an example. 12M 5 4

OR

Q.5(B) What do you understand by backtracking? Explain the N-Queens problem with the help of suitable example? 12M 5 2

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Hall Ticket No:

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Question Paper Code: 20MCAP109

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

MCA I Year II Semester (R20) Supplementary Semester Examinations, March - 2023

BLOCKCHAIN TECHNOLOGY

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either A or B only

Q.No	Question	Marks	CO	BL
Q.1(A)	Write a note on: (i) Digital Signature (ii) Zero Knowledge Protocols	12M	1	2
OR				
Q.1(B)	Explain public key cryptography and explain about public key encryption algorithms.	12M	1	2
Q.2(A)	Elaborate the Byzantine General problem and Fault Tolerance in Distributed environment.	12M	2	5
OR				
Q.2(B)	(i) Define distributed systems. List out the characteristics of Distributed Systems. (ii) Explain about Distributed Database in detail	12M	2	2
Q.3(A)	(i) Define Blockchain and list out the properties of the blockchain. (ii) Explain about distributed Consensus in Blockchain network.	12M	3	2
OR				
Q.3(B)	Write a note on the following: (i) Blockchain Wallet (ii) Transaction Fee and Reward	12M	3	2
Q.4(A)	Illustrate Proof of Work and Proof of Stake consensus algorithms	12M	4	3
OR				
Q.4(B)	Write a note on: (i) Sybil Attack (ii) Difficulty Level	12M	4	2
Q.5(A)	What is Smart Contract and explain about some of the attacks on smart contracts.	12M	5	2
OR				
Q.5(B)	Explain the application of Blockchain Technology in Medical Record Management System.	12M	5	2

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)

MCA I Year II Semester (R20) Supplementary End Semester Examinations, March - 2023
Artificial Intelligence Techniques and Applications

Time: 3Hrs

Max Marks: 60

Attempt all the questions. All parts of the question must be answered in one place only.
In Q.no 1 to 5 answer either A or B only

Q.No	Question	Marks	CO	BL
Q.1(A)	Explain the application and types of machine learning.	12M	1	2
	OR			
Q.1(B)	What do you mean by advanced search? How A* search is different from AO* search? Deliberate.	12M	1	2
Q.2(A)	What is NLP? How NLP is useful in chatbot? Discuss.	12M	2	1
	OR			
Q.2(B)	List the components of speech recognition and elaborate.	12M	2	2
Q.3(A)	Define segmentation. Explain optical character recognition.	12M	3	1
	OR			
Q.3(B)	How computer vision is useful in predicting analysis for crop and soil. Portray.	12M	3	2
Q.4(A)	Write a note on i) IBM Watson in jeopardy ii) agents in reinforcement learning.	12M	4	2
	OR			
Q.4(B)	Explain (i) alpha go (ii) deep blue in chess.	12M	4	1
Q.5(A)	How artificial intelligence is used in smart manufacturing? Explain.	12M	5	2
	OR			
Q.5(B)	Why artificial intelligence is important for smart agriculture? Deliberate.	12M	5	2

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