

Hall Ticket No:

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Question Paper Code: 16MCA104

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

MCA I Year II Semester (R16) Supplementary End Semester Examinations – June 2019

(Regulations: R16)

DATABASE MANAGEMENT SYSTEMS

Time: 3Hrs

Max Marks: 50

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

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

Q.1(A) What is a Database? Explain the differences of DBMS and RDBMS? Explain any 3 real world applications of DBMS? 10M

OR

Q.1(B) What is an E-R Diagram? Design a E-R Diagram for super market? 10M

Q.2(A) Explain the role of various keys in DBMS with examples? 10M

OR

Q.2(B) Write short notes on DDL, DML, and DCL Commands? 10M

Q.3(A) Write about i) 2NF
ii) 3NF 10M

OR

Q.3(B) What is a schema? Define various schema refinement methods? 10M

Q.4(A) Explain in detail about lock based concurrency control mechanism with an example? 10M

OR

Q.4(B) Write about ACID Properties? 10M

Q.5(A) Write about data types and operators in SQL? 10M

OR

Q.5(B) What is a trigger? Write a program to insert the data in to database with the help of a trigger? 10M

***** END*****

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Question Paper Code: 16MCA105

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS)

MCAI Year II Semester (R16) Supplementary End Semester Examinations – June 2019

(Regulations: R16)

DATA STRUCTURES THROUGH C++

Time: 3Hrs

Max Marks: 50

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

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

- Q.1(A) i) What is a constructor? Give its syntax? What are its special properties? 10M
ii) What is a friend function? Demonstrate with an example.
- OR**
- Q.1(B) Explain about Dynamic Memory allocation and deallocation with a suitable example programs. 10M
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- Q.2(A) How Runtime Polymorphism can be accomplished in C++? Explain with a program? 10M
Give its merits with compile time polymorphism.
- OR**
- Q.2(B) Write a short note on the following 10M
i) Abstract Data Types
ii) Streams I/O
-
- Q.3(A) Define Stack? How Stack can be represented? Explain how Stack Implements PUSH and POP Operations with suitable example 10M
- OR**
- Q.3(B) i) Distinguish between Stack and Queues. 5M*2=
ii) Explain Array implementation of a priority queue. 10M
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- Q.4(A) i) How Skip list is a variant list for the linked list? Give its Node Structure. 5M*2=
ii) Discuss about the applications of Linked List in brief. 10M
- OR**
- Q.4(B) What is a collision? Write any three collision handling technique with suitable examples. 10M
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- Q.5(A) What is a Binary Search Tree? Explain its Operations in detail. 10M
- OR**
- Q.5(B) Discuss the following in brief 10M
i) Red-Black Tree
ii) Bubble Sort

*** END***

Hall Ticket No:

Question Paper Code: 16MCA106

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
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MCA I Year II Semester (R16) Supplementary End Semester Examinations – June 2019
(Regulations: R16)

OPERATING SYSTEMS

Time: 3Hrs

Max Marks: 50

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

Q.1(A) What is Virtual Machine? Explain with neat diagram. 10M

OR

Q.1(B) Explain about different types of Operating systems. 10M

Q.2(A) Explain about UNIX Structure and its Environment. 10M

OR

Q.2(B) What is AWK? Explain the fields and records in AWK? 10M

Q.3(A) Explain about SED and its operations in UNIX. 10M

OR

Q.3(B) What are the different types of methods for handling deadlocks? Explain them in detail. 10M

Q.4(A) Explain the shell loops with example. 10M

OR

Q.4(B) Discuss how FIFO page replacement algorithms can be implemented on the following reference string when numbers of frames is 4. Also calculate the number of page faults. 10M

7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1

Q.5(A) Explain the following: 5M
i. File Sharing 5M
ii. File Protection

OR

Q.5(B) Explain the concepts of Disk management and Swap space management. 10M

*** END***

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MCA I Year II Semester (R16) Supplementary End Semester Examinations – June 2019
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DISCRETE MATHEMATICS

Time: 3Hrs

Max Marks: 50

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

Q.1(A) Show that $\neg(p \vee (\neg p \wedge q))$ and $\neg p \wedge \neg q$ are logically equivalent by developing a series of logical equivalences. 10M

OR

Q.1(B) Prove that $\sqrt{3}$ is irrational by the method of contradiction. 10M

Q.2(A) (i) Write a recursive algorithm for computing the gcd of two positive integers a & b with $a < b$. 10M
(ii) Find the decimal expansion of $(2AE0B)_{16}$

OR

Q.2(B) Show that if n is a positive integer, then $(n^3 - n)$ is divisible by 3 whenever 'n' 10M

Q.3(A) Prove the following identities 10M
(i) $C(n+1, r) = C(n, r-1) + C(n, r)$. (ii) $C(m+n, 2) - C(m, 2) - C(n, 2) = mn$.

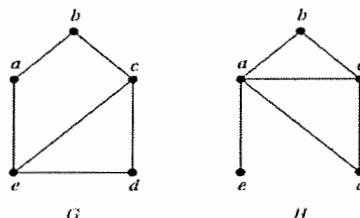
OR

Q.3(B) Draw the Hasse diagram representing the positive divisors of 36. 10M

Q.4(A) Explain the terms Chromatic Number, Euler graph, Multi graph, Hamilton path. 10M

OR

Q.4(B) Determine whether the given graphs are isomorphic or not? 10M



Q.5(A) Using generating function solve $a_n - 5a_{n-1} + 6a_{n-2} = 2, n \geq 2, a_0 = 1, a_1 = -1$ 10M

OR

Q.5(B) Using generating function, solve $a_{n+2} - 5a_{n+1} + 6a_n = 2, n \geq 0$ and $a_0 = 3, a_1 = 7$ 10M

*** END***