Narasaraopeta Engineering College (Autonomous)
Kotappakonda Road, Yellamanda (P.O), Narasaraopet- 522601, Guntur District, AP.

Subject Code: R16MCS101

M.Tech - I Semester Regular and Supplementary Examinations, Dec-2018.

ADVANCED DATA STRUCTURES AND ALGORITHM ANALYSIS

(CSE)

Time: 3 hours **Max Marks: 60**

Answer any FIVE questions.

All questions carry EQUAL marks of 12.

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1. (a) Define Double Linked List? Write an algorithm to insert a new node before and after a particular node in Double Linked List? 6M
   (b) Explain about Circular Queue? Write algorithm for Implementation of queue using Linked List. 6M

2. (a) Write and explain depth first traversal algorithm with an example 6M
   (b) What is a Binary tree? Explain the Prefix and Postfix notations with an Example 6M

3. (a) Compare Hash table and Hash function? Explain Insertion and Deletion Operations on Hash Table with an example 6M
   (b) Give the reasons for collision occur? Explain Linear probing and double hashing with examples. 6M

4. (a) Define Priority Queue ? Explain Insertion and deletion operations on Priority Queue 4M
   (b) Construct a binary Heap with the following values: 23,7,92,6,12,14,40,44,20,21 8M

5. (a) Define Binary Search Tree ? Explain the Algorithm for insertion and deletion of Childs 8M
   (b) Explain implementation of binary search tree with an example 4M

6. (a) What is AVL Tree ? Explain the Rotations of AVL tree 6M
   (b) Give the applications for AVL tree? Explain about Splay Trees 6M

7. (a) Give the best case average case analysis for Selection sort 4M
   (b) Write a Program to implement linear search 8M

8. (a) Differentiate between the List ADT, Stack ADT, Queue ADT. 6M
   (b)Explain about Red-Black Tree 6M

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Subject Code: R16MCS102

M.Tech - I Semester Regular and Supplementary Examinations, Dec-2018.

COMPUTER ORGANIZATION AND ARCHITECTURE

(CSE)

Time: 3 hours **Max Marks: 60**

Answer any FIVE questions.
All questions carry EQUAL marks of 12.

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1. (a) a) Explain Parity generator and checker with neat diagram?

b) Represent **$-85_{(10)}$** in Sign-Magnitude form, Signed-1's complement form and Signed-2's Complement form.

c) Represent **$425.25_{(10)}$** in binary, octal, and BCD forms. [6+3+3]

2. (a) Explain about Binary Adder and Binary Subtractor with example [6+6]
(b) Discuss Fetch and Decode Cycles.

3. (a)How do you calculate the Effective Address ? Explain Addressing modes with suitable examples.
(b) Explain micro-programmed control unit with neat diagram? [6+6]

4. (a) Explain the Booth algorithm for multiplication of signed-2's complement numbers. Consider the given two numbers are -8 and -14. [12]

5. (a) Explain the mapping procedures in cache memory

b). Explain the relation between address space and memory space in virtual memory with suitable diagram [6+6]

6. (a) What are the differences between Programmed I/O and Interrupt-initiated I/O [5+7]

b). Explain the concept of DMA Transfer with appropriate diagram

7. (a) Discuss CISC Vs RISC
(b) Describe the functional units of micro-computer?
c) Write a short note on instruction cycle?

[4+4+4]

8) a) Write about BCD adder?

b) Difference between Associative Mapping and Direct Mapping [4+4+4]

c) What is Multistage switching network.

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Subject Code: R16MCS103

M.Tech - I Semester Regular/Supplementary Examinations, Dec - 2018

DATABASE MANAGEMENT SYSTEMS

(CSE)

Time: 3 hours **Max Marks: 60**

Answer any FIVE questions.

All questions carry EQUAL marks of 12.

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1. (a) What are the different data models present and explain briefly?
(b) b) Explain the structure of DBMS with a neat diagram. [6+6]M

2. (a) Draw an ER diagram for College management system.
(b) Explain the difference between a weak and a strong entity set with examples. [6+6]M

3. (a) What is a group function? List and explain how to use group functions in SQL with appropriate examples.
(b))Explain about Correlated Nested Queries. . [8+4]M

4. (a) Explain about dependency Preserving decomposition.
(b) What is concurrency control? What are its objectives? [7+5]M

5. (a) Explain about 2NF and 3NF with suitable examples.
(b) What is functional dependency? Explain with an example. [6+6]M

6. Discuss in detail about account of recovery from a system crash. 12M

7. (a) Explain in detail about dynamic hashing.
(b) Discuss in detail about multilevel indexes. [6+6]M

8. Write short notes on
(a) Advantages of data base systems
(b) ACID property
(c) Relational model [4+4+4]M

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Subject Code: R16MCS104

M.Tech - I Semester Regular and Supplementary Examinations, Dec-2018.

OPERATING SYSTEMS

(CSE)

Time: 3 hours **Max Marks: 60**

Answer any FIVE questions.

All questions carry EQUAL marks of 12.

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1. (a) Define Operating System? Explain various Views present in Operating System. 6+6
(b) Explain about Evolution of the Operating System

2. (a) Differentiate between the Process and Program ? Explain about PCB
(b) What is Preemptive Scheduling? Discuss about SJF and Priority Scheduling Algorithms 6+6

3. (a) What is critical section problem? How to provide synchronization using monitors? Explain. 6+6
(b) Explain about the necessary steps that can be done for deadlock detection and prevention

4. (a) Difference between Paging and Segmentation 4+4+4
(b) Discuss the need of Demand Paging
(c) Discuss about LRU page replacement algorithm with an example

5. (a) What are bad blocks and boot blocks? Discuss. 6+6
(b) Discuss about RAID structure

6. (a) Explain about File operations and File structures
(b) How do you implement Directory with the help of hash table ? Discuss 6+6

7. (a) How do you manage the free space? Explain with a suitable example. 6+6
(b) Discuss about I/O scheduling in kernel I/O subsystem

8 Explain about the following terms
a) Principles of Protection
b) Fragmentation
c) Denial Lock service 4+4+4

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Subject Code: R16MCS105

M.Tech - I Semester Regular & SupplementaryExaminations, Dec- 18 /Jan - 19

COMPUTER COMMUNICATIONS

(CSE)

Time: 3 hours **Max Marks: 60**

Answer any FIVE questions.
All questions carry EQUAL marks of 12.

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1. (a) Write in detail about OSI reference model?
(b) Explain about Network Architecture and Various Topologies [8+4]

2. (a) Discuss Data link layer protocols
(b) Write about configuration and transfer modes of HDLC? [6+6]

3. (a) Explain the necessity of Limited Contention Protocols [6+6]
(b) Discuss about IEEE 802.3?

4. (a) Explain Congestion Control Algorithm [6+6]
(b) Discuss IP Protocol and Adress

5. (a) Explain about connection establishment and connection release in transport layer. [6+6]
(b) Differentiate between TCP& UDP

6. (a) Explain about DNS and SNMP
(b) What is the necessity of HTTP frame format ? Explain [6+6]

7. (a) Explain about channel utilization in pure ALOHA

b) Write about various sliding window protocols [6+6]

8. (a) Write about CSMA collision avoidance with example
b) Write short notes on flow control & buffering [6+6]

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