MCSE10114

M.Tech Degree Examinations - July-2015

(Regulation 2014-15)

(Examination at the end of I Semester)

Paper-I: Data Structures and Algorithms

Time : Three Hours | Maximum Marks: 70

Answer ALL questions

All questions carry equal marks (5x14 marks)

UNIT I

I. (a) Briefly explain about asymptotic notations
(b) Explain about single linked lists with an example.

Or

(c) What are the applications of stacks?
(d) Write an algorithm for insertion and deletion operations on queue.

UNIT II

2. (a) Explain briefly about B - trees.
(b) What are the applications of graphs?

Or

(c) Write about graph traversals.
(d) Explain about binary search trees.

UNIT III

3. (a) Write and explain Dijkstra's Algorithm for single source shortest path.
(b) Write an algorithm for selection problem in divide and conquer technique.

Or

(c) Explain about Knap sack Problem.
(d) Write the general method of greedy method.

UNIT IV

4. (a) Write the general method of Dynamic programming.
(b) Explain briefly about Hamilton cycle in back tracking method.

Or

(c) Explain about 8 queens problem.
(d) Explain briefly about Matrix chain multiplication.

UNIT V

5. (a) Explain about P & NP class Problem?
(b) Explain the general method of branch and bond technique?

Or

(c) Explain travelling sales person problem in branch and bond technique?
(d) Explain about NP Complete problems.

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Paper-II: Advanced Computer Architecture

Time : Three Hours | Maximum Marks: 70

Answer ALL questions
All questions carry equal marks (5x14 marks)

UNIT – I

1. (a) Explain about quantitative principles of computer design?

   Or

   (b) Explain about trends in cost?

UNIT – II

2. (a) Explain about classifying instruction set?
   (b) Explain about encoding an instruction set?

   Or

   (c) Explain about memory addressing?
   (d) Explain what are the operations in the instruction set?

UNIT – III

3. (a) Explain about static branch protection?
   (b) Explain about data hazards?

   Or

   (c) Explain about VLIW approach?
   (d) Explain about ILP software approach?

UNIT – IV

4. (a) Explain about virtual memory?

   Or

   (b) Explain about cache performance?

UNIT – V

5. (a) Explain about multi threading?

   Or

   (b) Explain about distributed shared memory?

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Paper-III: Advanced Operating Systems

Time : Three Hours | Maximum Marks: 70

Answer all questions. All questions carry equal marks (5 x 14 marks)

1. Explain different design approaches

OR

2. What is a Semaphore? Explain Semaphore solution to Readers and Writers Synchronization Problem

3. Explain different issues in Distributed Operating Systems

OR

4. What is a Global State? Explain Chandy's Lamport's global state recording algorithms

5. Explain Graph Theoretic Model of a System

OR

6. Explain different Deadlock handling strategies in Distributed Systems

7. Explain different design issues involved in Distributed File System

OR

8. Explain the following
   a. Cache Consistency
   b. Scalability
   c. Semantics

9. What is Distributed Shared Memory? Explain Architecture and Motivation of Distributed Shared Memory.

OR

10. Explain various load distributing algorithms

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(Examination at the end of I Semester)

Paper-IV: Computer Networks

Time : Three Hours | Maximum Marks: 70

1. a) Explain in details about ISO OSI reference model architecture with neat diagram.

OR

2. a) Explain what are the differences between Connection- Oriented and Connectionless oriented commutation.
   b) What are the basic comparison between OSI and TCP/IP reference model.

3. a) Explain the four basic network topologies with relevant features.
   b) Write a short note on Bluetooth.

OR

4. a) Explain in details about Back off algorithm.
   b) Write a short note on Spanning Tree Bridge.

5. Discuss in details about various issues of Network layer.

OR

6. a) Explain in details about exterior Gateway Routing Protocol.
   b) Explain Routing algorithm for optimality.

7. Explain the duties of Transport layer

(or)

8. a) Write a short note on Multiplexing.
   b) Explain in details about UDP.

9. Explain DMS components and its working procedure.

(or)

10. a) Explain the concept of Video and audio compression.
    b) Explain in details about World Wide Web architecture.

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M.Tech Degree Examinations - July-2015

(Regulation 2014-15)

(Examination at the end of I Semester)

Paper-V: Advanced Database Management System

Time : Three Hours | Maximum Marks: 70

Answer ALL questions

All questions carry equal marks (5x14 marks)

UNIT I

1. (a) Explain about data abstractions?
   (b) Explain briefly about database users and administrators?

   Or

   (c) Explain about DDL & DML commands with an example?
   (d) Explain about any FIVE commands in relational algebra?

UNIT II

2. (a) Explain about problem caused by redundancy?
   (b) Explain about first three normal forms?

   Or

   (c) Explain about decompositions?
   (d) Explain about loss less join decomposition?

UNIT III

3. (a) Explain about ACID properties in transaction management?
   (b) Explain about the write a head log protocol?

   Or

   (c) Explain briefly about lock based concurrency control?
   (d) Explain about media recovery?

UNIT IV

4. (a) Explain about tree based indexing?
   (b) Explain briefly about B+ Trees?

   Or

   (c) Explain briefly about hash based indexing?
   (d) Explain about clustered indexes?

UNIT V

5. (a) What is distributed database? Explain briefly?
   (b) Explain about distributed query processing?

   Or

   (c) Explain about distributed DBMS architectures?
   (d) Explain about distributed recovery?

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M.Tech Degree Examinations - July-2015

(Regulation 2014-15)

(Examination at the end of I Semester)

Paper-VI: Software Engineering

Time : Three Hours | Maximum Marks: 70

1. a) For the scenario described below, which life cycle model would you choose? Give the reason why you would choose this model. You are interacting with the MIS department of a very large oil company with multiple departments. The have a complex legacy system. Migrating the data from this legacy system is not an easy task and would take a considerable time. The oil company is very particular about processes, acceptance criteria and legal contracts.
   b) Write a short note on Software Myths.

OR

2. Describe Waterfall, Incremental, Iterative model. Waterfall model and Spiral model based SLCS and compare.

3. a) Distinguish between the terms inception, elicitation and elaboration with reference to requirements.
   b) Write a short note on Design concepts.

OR

4. a) Explain Software Architecture.
   b) What are the basic differences between Validation and Verification?

5. a) Explain in details about Object Oriented design process.
   b) What are the basic differences between process and design?

OR

6. Write a short note on
   a) Object Class
   b) Interface design Steeps
   c) Design evaluation
   d) Golden rules

7. a) What is the purpose of regression testing? Explain activities of Regression testing.
   b) Write a short note on White-Box testing.

OR

8. Explain in details about various Software Testing strategies.

9. a) Compare with Reactive Vs Proactive Risk strategies.
   b) Write a short note on RMMM.

OR

10. a) Write a short note on Software reliability.
    b) Explain the concept of Software Quality Assurance.
