

**Code: 4P3111***M.Tech. I Semester Regular & Supplementary Examinations Feb/Mar 2016***Advanced Data Mining**

(Computer Science &amp; Engineering)

Max. Marks: 60

Time: 3 Hours

Answer *all five* units by choosing one question from each unit ( 5 x 12 = 60 Marks )

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**UNIT-I**

1. Briefly explain various data mining tasks and discuss applications for each one. 12M

**OR**

2. a) What is a negative pattern? Give example. How to mine negative patterns? 6M  
b) Compare Apriori algorithm with FP-Growth algorithm. 6M

**UNIT-II**

3. What is a neural network? What characteristics of it make it a good classifier? Explain with illustrations. 12M

**OR**

4. a) Explain crossover and mutation operators. 6M  
b) What is meant by defuzzification? Explain with example. 6M

**UNIT-III**

5. a) Explain CLIQUE approach for clustering. 8M  
b) Define neighborhood and density reachable terms. 4M

**OR**

6. a) Discuss the challenges in high dimensional data clustering. 6M  
b) What is sparsest cut? Explain with illustrations. 6M

**UNIT-IV**

7. What is meant by web usage mining? What is its importance and applications? Briefly explain any two approaches for web usage mining. 12M

**OR**

8. a) Discuss various types of text databases. 5M  
b) Briefly explain episode rule discovery. 7M

**UNIT-V**

9. a) Write and explain GSP algorithm. 7M  
b) What is the significance of sequence mining? Discuss appropriate examples. 5M

**OR**

10. Can a spatial data warehouse be constructed? Justify your answer. What is the content of a spatial cube? Discuss spatial clustering briefly. 12M

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**Code: 4P3112***M.Tech. I Semester Regular & Supplementary Examinations Feb/Mar 2016***Advanced Data Structures and Algorithms**

(Computer Science &amp; Engineering)

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 12 = 60 Marks )

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**UNIT-I**

1. a) Define operator overloading? Explain how to overload unary operator and binary operator. 6M  
 b) Give a programming example that overloads == operator with its use 6M

**OR**

2. a) How are stacks used in evaluating a given numerical expression 6M  
 b) Discuss the basic operations performed on queues 6M

**UNIT-II**

3. a) What is priority Queue? Give the uses of Priority Queues 4M  
 b) Give An ADT for Priority Queue 10M

**OR**

4. a) Compare quadratic probing and double hashing? 6M  
 b) Explain different methods for detecting collisions and overflows in the hash table 6M

**UNIT-III**

5. a) What is a Binary Search Tree (BST)? Make a BST for the following sequence of numbers 45, 36, 76, 23, 89, 115, 98, 39, 41, 56, 69, 48 8M  
 b) Write an algorithm to delete a node from an AVL Tree 6M

**OR**

6. a) What is a height balanced tree? Explain how the height is balanced after addition/deletion of nodes in it? 8M  
 b) Give the Control Abstraction of Divide and Conquer Method 6M

**UNIT-IV**

7. Explain with example how to find the articulation points and bi- connected components of a given graph 12M

**OR**

8. a) Write the control abstraction for greedy method. 4M  
 b) Explain Prim's algorithm to construct Minimum cost spanning tree 8M

**UNIT-V**

9. a) Explain N-Queens problem using Backtracking. 8M  
 b) Compare and contrast LC-BB and FIFO BB. 4M

**OR**

10. a) What is branch and bound? Explain detail. 4M  
 b) Discuss the solution for knapsack problem using branch bound techniques 8M

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**Code: 4P3113***M.Tech. I Semester Regular & Supplementary Examinations Feb/Mar 2016***Advanced Databases**

(Computer Science &amp; Engineering)

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 12 = 60 Marks )

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**UNIT-I**

1. What is Distributed database system? What are the different problem areas in it? Explain. 12M

**OR**

2. What is normalization? Explain in details. 12M

**UNIT-II**

3. Explain in detail about fragmentation in DDBMSs. 12M

**OR**

4. Explain in detail about DDBMS design issues. 12M

**UNIT-III**

5. What is localization of distributed data? Explain. 12M

**OR**

6. a) Explain about the characterization of query processors. 6M  
b) Explain about layers of query processing. 6M

**UNIT-IV**

7. Explain in details about any two distributed query optimization algorithms 12M

**OR**

8. a) Explain about centralized 2PL 6M  
b) What are the properties of transaction? Explain 6M

**UNIT-V**

9. Explain about fault-tolerance in distributed systems 12M

**OR**

10. Explain about local and distributed reliability protocols 12M

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**Code: 4P3114***M.Tech. I Semester Regular & Supplementary Examinations Feb/Mar 2016***Advanced Computer Architecture**

(Computer Science &amp; Engineering)

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 12 = 60 Marks )

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**UNIT-I**

1. a) Distinguish between multiprocessors and multi computers based on their structures, resource sharing, and inter processor communication.
- b) What are static connection networks? How are they constructed?

**OR**

2. a) Give the various conditions to implement parallelism
- b) Explain the applicability and restrictions involved in using Amdahl's law to estimate the speedup performance of a n-processor system compared with that of a single-processor system.

**UNIT-II**

3. a) How to you optimize the capacity of a memory hierarchy subject to a const constraint in terms of Hit Ratios, Effective Access Time, Hierarchy optimization.
- b) What is Interleaved Memory Organization? Explain in brief various interleaving.

**OR**

4. Explain the Hierarchical Memory technology in detail.

**UNIT-III**

5. a) Explain how dynamic instruction scheduling is performed in pipelining and superscalar techniques.
- b) Give the various message-routing schemes of messaging passing mechanisms.

**OR**

6. Explain the following terms as applied to communication patterns in a message passing networks:
  - (i) Channel Bandwidth
  - (ii) Communication Latency
  - (iii) Network partitioning for multicasting communications.

**UNIT-IV**

7. a) Write short notes on Multi-vector processors.
- b) From scalability point of view, why is fine-grain parallelism more appealing than medium-grain or coarse-grain parallelism for building MPP systems? Explain.

**OR**

8. a) Give the network architecture of the Connection Machine CM-5, its building blocks and the application paradigms.
- b) What are the principles of multithreading? Explain.

**UNIT-V**

9. a) Explain in brief the meaning of alias analysis as applied to runtime memory addresses.
- b) Explain How Parallel Algorithms are useful in implementing Parallelism. Give any of the Parallel Algorithm

**OR**

10. a) Give the model of a typical processor and Explain it.
- b) Write a short note on semi conductor technology.

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**Code: 4P3115***M.Tech. I Semester Regular & Supplementary Examinations Feb/Mar 2016***Advanced Software Engineering**

(Computer Science &amp; Engineering)

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 12 = 60 Marks )

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**UNIT-I**

1. a) Is software a layered technology? Explain how. 6M  
 b) Explain about process technology, process and product. 6M

**OR**

2. a) List the principles to achieve agility. 4M  
 b) What is PSP? Also explain what is TSP? Discuss their benefits. 8M

**UNIT-II**

3. a) Discuss The Reuse Landscape. Mention the Benefits and Problems with Reuse 6M  
 b) Illustrate differences between the processes of safety specification and security specification. 6M

**OR**

4. a) Explain the following 8M  
 i. COTS product reuse  
 ii. Software product lines  
 b) What are the three principal types of critical system? 4M

**UNIT-III**

5. a) Specify characteristics of components. Design a model of a data collector component. 6M  
 b) Illustrate differences between a join point and a pointcut? Explain generic aspect-oriented design process 6M

**OR**

6. Explain in detail about software evolution process. 12M

**UNIT-IV**

7. Briefly explain about the process of product measurement. 12M

**OR**

8. Write a short notes on  
 a) Quality Planning 4M  
 b) Quality control 4M  
 c) Product metrics 4M

**UNIT-V**

9. a) Discuss about the principal stages of process improvement and also specify its process characteristics. 6M  
 b) Mention the factors that affect product quality with neat diagram. 6M

**OR**

10. Explain in detail about CMMI process improvement framework. 12M

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**Code: 4P3116***M.Tech. I Semester Regular & Supplementary Examinations Feb/Mar 2016***Advanced Computer Networks**

(Computer Science &amp; Engineering)

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 12 = 60 Marks )

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**UNIT-I**

1. a) Discuss the Delay and Loss in Packet switching network. 6M  
 b) Explain Routing in Data Networks. 6M

**OR**

2. a) Discuss Backbones, NAPs and ISPs. 6M  
 b) Discuss Protocol stack and PDU. 6M

**UNIT-II**

3. a) Write about error detection techniques in data link layer. 6M  
 b) Write about error correction techniques in data link layer. 6M

**OR**

4. a) Write about Ethernet. 8M  
 b) Discuss about Link Virtualization. 4M

**UNIT-III**

5. a) Write about  
 (i) Tree based multicast routing.  
 (ii) Boolean splitting multicast routing. 8M  
 b) Explain about security provided in network layer. 4M

**OR**

6. a) Discuss about Intra domain Multicast Protocols and Inter-domain Multicast Protocols. 8M  
 b) Write about Node-Level Multicast algorithms. 4M

**UNIT-IV**

7. a) Write about DNS in networks. 4M  
 b) Write about  
 (i) TCP congestion control  
 (ii) TCP segment format. 8M

**OR**

8. a) Discuss about Mobile Transport Protocols. 6M  
 b) Explain about Building a Simple Web Server. 6M

**UNIT-V**

9. a) Write about Cellular Networks and Mobile IP. 8M  
 b) Discuss IEEE 802.11 Wireless Standard. 4M

**OR**

10. a) Discuss Wireless LAN Technologies, Wireless Mesh Networks (WMNs). 6M  
 b) Write about Infrastructure of Wireless Networks. 6M

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