I/II M.Tech. DEGREE EXAMINATIONS, March-2024
(Model Question Paper)
First Semester
COMPUTER SCIENCE & ENGINEERING
Advanced Data Structures & Algorithms

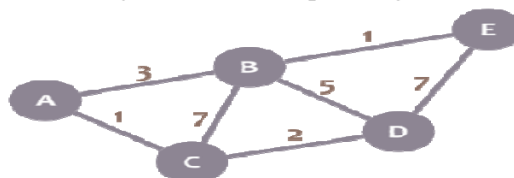Time: **Three Hours**   Maximum: **60 Marks**

Answer any FIVE Questions.
All Questions carry equal marks.

5 x 12 = 60 M

1. What is Hashing? Discuss with example two of the schemes, Hashing by division and Hashing by multiplication.

2. What is a Binary Search Tree (BST) and specify the steps showing the construction of a BST for the following data 10, 08, 15, 12, 13, 07, 09, 17, 20, 18, 04, 05?

3. What is a B-Tree? Specify its properties and describe the construction of a B-Tree for the following elements 5, 2, 13, 3, 45, 72, 4, 6, 9, 22?

4. What is a Red-Black tree? Specify the Properties of Red-Black trees? Discuss with example the Rotations of Red-Black trees.

5. a).   Explain Breadth-First Search with example and write its algorithm.

   b).   Explain the Krushkal's Algorithm. Construct a minimum cost spanning tree for the following graph using Kruskal's Algorithm.
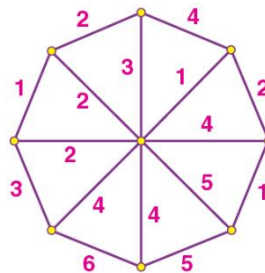
6. Consider E as source vertex. Find the shortest path to all other vertices using Dijkstra's Algorithm.

7. a).   Construct an algorithm for Longest Common Subsequence and find the longest common subsequence of S1 and S2 using Dynamic Programming?

   S1 = <ABCDAF>   and   S2 = <ACBCF>

   b).   Write short notes on elements of Dynamic Programming.

8. a). Write short notes on elements of the Greedy Strategy.

   b). Explain the Naive String-matching algorithm

[Total no of Questions: 8]   [Total no. of Paper: 1]

I/II M.Tech. DEGREE EXAMINATIONS, March-2024
(Model Question Paper)
First Semester
COMPUTER SCIENCE & ENGINEERING
Principles of Cloud Computing

Time: **Three Hours**   Maximum: **60 Marks**

Answer any FIVE Questions.
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5 x 12 = 60 M

1. a). Explain Cloud computing reference model.

   b). What is the vision of Cloud computing?

2. a). What are the challenges of Cloud computing?

   b). Explain utility Oriented computing.

3. a). Explain taxonomy of Virtualized environments.

   b). Write about pros and cons of Virtualization.

4. a). Write about Computing platforms and technologies.

   b). Explain i) Amazon web services. ii) Microsoft azure.

5. a). Explain Cloud computing architecture.

   b). What are public, private, hybrid Clouds.

6. a). Explain parallelism in Single machine computation.

   b). What is Functional decomposition?

7. a). What is Data intensive computing?

   b). What are the challenges in it?

8. a). Write about cloud platforms in Industry.

   b). Write about cloud applications in Health care.

[Total no of Questions: 8]   [Total no. of Paper: 1]

I/II M.Tech. DEGREE EXAMINATIONS, March-2024
(Model Question Paper)
First Semester
COMPUTER SCIENCE & ENGINEERING
Data Analytics

Time: **Three Hours**   Maximum: **60 Marks**

Answer any FIVE Questions.
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5 x 12 = 60 M

1. a). Explain about different types of Big data.

    b). Explain about Typical Analytical Architecture for a data scientist.

2. Explain in detailed about Data Analytic Life Cycle.

3. a). Explain about Type – I, II Errors.

    b). Compare Discrete Probability distribution and Continuous Probability distribution.

4. Explain about following in Predictive Analysis.
    a). Simple Linear Regression with Excel
    b). Testing Hypothesis for Regression Coefficients

5. Explain the following
    a). Forecasting Models for Time Series with a Linear Trend.
    b). Forecasting Time Series with Seasonality

6. Explain about the following methods in Time Series Analysis
    a). ARIMA Model – Autocorrelation Function (ACF)
    b). Autoregressive Models.

7. a). Explain about Term Frequency Inverse Document Frequency (TFIDF) in text analysis.

    b). Explain about Translating Model information into Mathematical Expression in Prescriptive Analytics.

8. a). Explain about applications of Linear Optimization.

    b). Explain about Decision strategies without Outcome Probabilities and Decision Strategies with Outcome Probabilities.

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[Total no of Questions: 8]   [Total no. of Paper: 1]

I/II M.Tech. DEGREE EXAMINATIONS, March-2024

(Model Question Paper)

First Semester

COMPUTER SCIENCE & ENGINEERING

Mobile Communications

Time: **Three Hours**   Maximum: **60 Marks**

Answer any FIVE Questions.
All Questions carry equal marks.

5 x 12 = 60 M

1. a). Define Multiplexing. Explain Multiplexing Schemes.

   b). Explain about Motivation for specialized MAC.

2. a). Explain about Signal propagation ranges and its effects in detail.

   b). Explain about Frequency Hopping Spread Spectrum. Explain its variants in detail.

3. a). Explain about GSM system architecture with a neat diagram.

   b). Write short notes on types of handovers in GSM.

4. a). How the IP packet can be delivers from and to the mobile node.?

   b). Write short notes on Dynamic host configuration protocol.

5. a). Explain about Snooping TCP with a neat diagram.

   b). Explain about Transaction-oriented TCP in detail.

6. a). Explain about Data base hoarding techniques.

   b). Explain about 3-tier client server architecture in computing.

7. Classify the data delivery mechanism in mobile systems.

8. a). Explain about IEEE802.11 system architecture with a neat diagram.

   b). Write short notes on mobile file systems.

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[Total no of Questions: 8]   [Total no. of Paper: 1]

I/II M.Tech. DEGREE EXAMINATIONS, March-2024
(Model Question Paper)
First Semester
COMPUTER SCIENCE & ENGINEERING
Information Security

Time: **Three Hours**   Maximum: **60 Marks**

Answer any FIVE Questions.
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5 x 12 = 60 M

1. a). Explain in detail about CNSS Security model.

   b). Describe how to balance information security and access.

2. a). Explain the need for security according to business needs.

   b). Explain about Secure SDLC.

3. a). Explain how to identify, assess the risk and specify risk control strategies.

   b). Define Firewall. Explain Firewall architectures.

4. a). Describe IDPS detection methods and measures to prevent it.

   b). Explain SET protocol for secure communications.

5. a). Describe Honey pots and Honey nets.

   b). Explain Digital signatures and certificates.

6. a). Explain the need for project management.

   b). Describe about NIST Security Life cycle Approach.

7. Explain PGP for e-mail security.

8. Describe Digital forensics methodology.

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I/II M.Tech. DEGREE EXAMINATIONS, March-2024
(Model Question Paper)
First Semester
COMPUTER SCIENCE & ENGINEERING
Mobile Application Development

Time: **Three Hours**   Maximum: **60 Marks**

Answer any FIVE Questions.
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5 x 12 = 60 M

1. a).   What is Framework? Explain Android framework with figure.

    b).   What is Dalvik Virtual Machine? Explain.

2. How to create a First Android Project? Explain it by defining XML and Action code through Java with a neat example?

3. a).   Explain about Linear Layout with example.

    b).   Explain Table Layout with Example.

4. a).   Write a Code for hide and display the Action Bar on Android Emulator.

    b).   How to create User Interface Programmatically? Explain.

5. a).   Explain about Date Picker with example.

    b).   Explain TextView and attributes of TextView control.

6. a).   Write a Program to Display One Item at a Time using Spinner Control.

    b).   Explain about Preference Fragment with Neat Code.

7. a).   How to Save Data using the Shared Preferences Object? Explain.

    b).   How to Store and Retrieve all contacts from the Table Using Database Programmatically? Explain.

8. a).   Name the permissions you need to declare in your AndroidManifest.xml file for sending and receiving SMS messages.

    b).   How the communication was establishing between a service &activity? Explain.