

Roll No.

TDM-881

**B. TECH. (CSE/CLOUD COMPUTER, BIGDATA ANALYTICS
& CYBER SECURITY) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, March, 2024**

DISASTER MANAGEMENT

Time : 1½ Hours

Maximum Marks : 50

- Note :** (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each sub-question carries 10 marks.

1. (a) Define the terms Disaster, Hazard, Vulnerability, Resilience, Risks.
Provide examples for each. (CO1)

OR

- (b) List and describe the major categories of natural disasters discussed in the introduction, including Cloud bursts, Earthquakes, Tsunamis, Snow avalanches, Landslides, Forest fires and Floods. (CO1)

2. (a) Explain the differences between natural disasters and man-induced disasters. Provide examples of each type. (CO2)

OR

- (b) Discuss the concept of vulnerability in the context of natural disasters.
How does vulnerability contribute to the severity of disaster impacts ?

(CO2)

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3. (a) Compare and contrast the environmental impacts of different types of natural disasters, such as earthquakes and volcanic eruptions. (CO2)

OR

- (b) Critically analyze the socio-economic factors that influence the resilience of communities in the face of natural disasters. (CO2)

4. (a) Discuss the inter-relationship between disasters and development. How do development projects such as dams and embankments affect vulnerabilities to disasters ? (CO3)

OR

- (b) Describe the relevance of indigenous knowledge and appropriate technology in disaster mitigation and adaptation to climate change.

(CO3)

5. (a) Develop a comprehensive disaster risk reduction strategy for a region prone to multiple hazards, considering the impacts of development projects and climate change. (CO4)

OR

- (b) Design a sustainable development framework that prioritizes disaster resilience and incorporates the principles of equity and social justice.

(CO4)

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TCS-855

**B. TECH. (CSE) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, March, 2024**

AGILE SOFTWARE ENGINEERING

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) Explain *three* key principles of Agile testing and how they contribute to the Agile development process. (CO1)

OR

- (b) Describe the concept of Test-Driven Development (TDD) and its role in Agile testing. Provide an example scenario where applying TDD can enhance the development and testing process. (CO1)

2. (a) Describe the typical structure of a user story, including the role, goal and benefit components. Provide an example of a user story with clear role, goal and benefit statements. (CO1)

OR

- (b) A software engineer has found that the design and development process is going slower. The main reason behind this is lack of finding the bugs in the existing code. What is the best practice the developer should do in order to solve this ? Also explain, why ? (CO1)

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3. (a) What is relative estimation in Agile ? How does it differ from absolute estimation ? Explain the concept of story points. How are they used in relative estimation ? (CO1, CO2)

OR

- (b) Explain with an example the software development approach where the validation of the code is done using test cases. (CO1, CO2)

4. (a) What is Agile Velocity ? What is the use of Burndown chart ? Discuss its benefits. (CO2)

OR

- (b) Mention the key features of JIRA tools used in the Agile testing. (CO2)

5. (a) Describe the roles of the Product Owner, Scrum Master and Development Team in the Scrum framework. How does the collaboration between these roles contribute to the success of a Scrum project ? (CO2)

OR

- (b) Define about the Product Backlog in Agile development. Explain the primary purpose of maintaining a Product Backlog throughout the project. (CO2)

Roll No.

TCS-852

**B. TECH. (CSE) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, March, 2024**

PATTERN RECOGNITION

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) What is Machine perceptron ? Explain with the help of the illustrative example. (CO1)

OR

- (b) Consider a scenario where you're tasked with developing a system for recognizing hand-written digits. Discuss the various steps involved in the process of pattern recognition, starting from data acquisition to making predictions. (CO1)

2. (a) Explain the concept of discriminant functions in the context of pattern recognition. (CO2)

OR

- (b) Discuss the concept of the Normal density function. Describe the key characteristics of the Normal distribution and how they affect the shape of the density curve. Provide examples to illustrate your explanation.

(CO1 & CO2)

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3. (a) Explain the core concepts of Bayesian decision theory and its application in decision-making under uncertainty. (CO2 & CO3)

OR

- (b) What do you understand by Maximum Likelihood Estimation (MLE) ? Explain with the help of an example. (CO2 & CO3)

4. (a) Explain the concept of unsupervised learning and its application in clustering. (CO2 & CO3)

OR

- (b) What is K-means clustering ? Mention its key steps and how it works to partition a dataset into clusters. (CO2 & CO3)

5. (a) Discuss all the steps involved in Principal component analysis with the help of a illustrative diagram. (CO2 & CO3)

OR

- (b) What is the difference between linear component analysis and non-linear component analysis ? (CO2 & CO3)

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TCS-822

B. TECH. (CSE) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, March, 2024
MOBILE APPLICATIONS DEVELOPMENT

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) (i) How does the choice of Integrated Development Environment (IDE) influence the development process and what are some popular choices for Android development ?
(ii) Explain the role of software development kits (SDKs) in the Android development environment. (CO1)

OR

- (b) Provide an in-depth overview of the Android operating system and its key features for developers. (CO1)
2. (a) How does interaction occur among different activities in a mobile app and what are common strategies for managing this interaction ? (CO1)

OR

- (b) Discuss the advantages and limitations of on-device file I/O for managing data in mobile applications. (CO1)

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3. (a) Explain the concept of Activity in the context of Android development, including its states and life cycle. (CO2)

OR

- (b) (i) Explore the role of threads in mobile app development. How do they contribute to improving app performance ?

- (ii) What is the purpose of Async Tasks and how do they handle background processes in mobile apps ? (CO2)

4. (a) Discuss the concept of services in Android, including their states, life cycle and use cases in mobile app development. (CO1)

OR

- (b) Explore the integration of Telephony and SMS APIs in mobile app development, highlighting their functionalities and potential use cases.

(CO1)

5. (a) Explain the key stages in the life cycle of an Android Activity. How does the ‘onSaveInstanceState’ method help in preserving the state of an Activity during configuration changes ? Provide a Java code example illustrating the explicit use of an Intent to transition from one Activity to another. (CO2)

OR

- (b) Discuss the advantages of using SQLite for mobile databases and provide examples of scenarios, where it is well-suited. (CO2)

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TCS-851

**B. TECH. (CSE) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, March, 2024**

STORAGE NETWORKS

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. A hospital uses an application that stores patient X-ray data in the form of large binary objects in an Oracle database. The application is hosted on a UNIX server, and the hospital staff accesses the X-ray records through a Gigabit Ethernet backbone. Storage array provides storage to the UNIX server, which has 6 terabytes of usable capacity. (CO1)
(a) Explain the core elements of a data center.

OR

- (b) Design an Information Life Cycle (ILM) and describe how the value of this patient data might change over time. (CO1)
2. (a) Write notes on the following : (CO2)
 - (i) Linear Tape Technology
 - (ii) Helical Tape Technology
 - (iii) Scan Tape Technology

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(2)

OR

- (b) Compare and contrast storage centric architecture and server centric architecture. (CO2)
3. (a) Explain RAID. Illustrate the benefits of using RAID3 in a backup application. (CO3)

OR

- (b) "DAS provides an economically viable alternatives to other storage networking solutions." Justify this statement. (CO3)
4. (a) Discuss and differentiate the working structure of RAID 1+0 and RAID 0+1 with suitable diagram. What are the benefits of RAID 1+0 over RAID 0+1 ? (CO3)
- OR
- (b) What would you consider while choosing serial or parallel data transfer in a DAS implementation ? Explain your answer and justify your choice. (CO3)
5. (a) Explain the process of data recovery in case of a drive failure in RAID 5. (CO3)

OR

- (b) Why is RAID 0 not an option for Data Protection and High Availability ? (CO3)

Roll No.

TCS-826

**B. TECH. (CSE) (EIGHTH SEMESTER)
MID SEMESTER EXAMINATION, March, 2024**

UNIX SYSTEMS PROGRAMMING

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) Write a code in which the main() function creates five threads that simultaneously run a function thread_func() while the main() function waits. Each thread increments a global variable 10000 times so that at the end the global variable contains value of 50000. Note that a thread may need multiple time slices before it could finish incrementing the variable 10000. (CO2)

OR

- (b) What is the difference between the POSIX functions pthread_join() and pthread_create(). Explain with the help of suitable examples. (CO2)
2. (a) In Unix programs with inter-process communication, what is the use of key and how is it created using ftok() function ? Explain with the help of small code. (CO2)

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(2)

OR

- (b) Write a program in which a parent process and a child process communicate through message queue IPC. The child process writes a string to the message queue and the parent process reads the string and prints it on the screen. (CO2)

3. (a) Implement the following Unix pipeline in C : (CO3)

cat | more

OR

- (b) Write a C code in which parent process writes "hi" string to a pipe and its child process reads it from the pipe and prints it on the screen. (CO3)

4. (a) "A mutual exclusion lock differs from binary semaphore." Explain this statement. (CO2)

OR

- (b) What are FCFS and RR scheduling in Linux ? In what situations are they used ? Write a code to illustrate working of FCFS scheduling.

(CO2)

5. (a) How does Unix shell run a command using fork/exec ? Illustrate with the help of a suitable diagram. (CO1)

OR

- (b) What mechanism does Unix use to improve the performance of normal fork() system call ? Explain. (CO1)

Roll No.

TCS-821

**B. TECH. (CSE) (EIGHT SEMESTER)
MID SEMESTER EXAMINATION, March, 2024**

SOFT COMPUTING

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) Compare and contrast biological neuron and artificial neural network.

(CO1)

OR

- (b) Indicate the difference between excitatory and inhibitory weighted interconnection. **(CO1)**

2. (a) Differentiate between supervised learning and unsupervised learning.

(CO2, CO3)

OR

- (b) What is the necessity of activation function ? List the commonly used activation functions ? **(CO2, CO3)**

3. (a) Why is the McCulloch-Pitts neuron widely used in logical functions.

(CO4, CO2)

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OR

(b) Justify XOR function is non-linearly separable. (CO4, CO2)

4. (a) Implement AND function using McCulloch-Pitts neuron (Take binary data) (CO3)

OR

(b) In what ways is bipolar representation better than binary representation ?

(CO3)

5. (a) What is Soft Computing ? Write few differences between Hard Computing and Soft Computing. (CO5)

OR

(b) State the training algorithm used for the Hebb network. (CO5)

Roll No.

TOE-811

B. TECH. (CSE) (EIGHTH SEMESTER) MID SEMESTER EXAMINATION, March, 2024

MOBILE COMPUTING

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) What are the most important challenges facing mobile computing today ? Discuss each of them in detail. (CO1)

OR

- (b) Signal strength varied in mobile communication due to various reasons. State its reasons in detail with suitable diagram and describe about handoff and handoff region. (CO1)

2. (a) What is a MSC ? What are the functions of MSC in network and switching subsystem ? (CO1)

OR

- (b) Demonstrate the working concept of GSM with suitable diagram and MSC database for supporting MS mobility using concept of HLR/VLR. (CO1)

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3. (a) How do you compare hybrid with fixed channel allocation ? Which one would you prefer and why ? (CO1)

OR

- (b) Explain Bluetooth and its architecture. Also explain different frame formats of Bluetooth. (CO2)

4. (a) What is the task of MAC layer ? How many protocols are there to provide the services ? (CO2)

OR

- (b) Why does the CSMA/CD scheme fail in wireless networks ? (CO2)

5. (a) Discuss about TCP/IP protocol suite with suitable example of protocol defined at each and every layer. (CO2)

OR

- (b) What are challenges in data management ? Discuss about Rumor Replicated File System. (CO3)

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TOE-803

B. TECH. (CSE) (EIGHTH SEMESTER) MID SEMESTER EXAMINATION, March, 2024

CORPORATE LEADERSHIP

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) Elaborate about leadership with its types.

(CO1)

OR

- (b) Explain about the various factors affecting the leadership style. (CO2)
2. (a) Elaborate about the leadership development. Why should organizations invest in leadership development ? (CO1)

OR

- (b) Describe the different values associated with leadership. (CO2)
3. (a) What are the benefits of leadership development ? How to develop a leadership development plan ? (CO1)

OR

- (b) Discuss the different qualities of leadership and outline strategies for improving *five* essential leadership skills. (CO3)

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4. (a) What are the top skills that a leadership development plan should target ? (CO2)

OR

- (b) Provide a concise overview of different leadership theories. (CO1)

5. (a) Describe the concept of the leadership strategy map. (CO3)

OR

- (b) What attributes should one look for in a leadership development partner ? (CO2)

Roll No.

TOE-806

B. TECH. (CSE/CE/CST/AI & DS) (EIGHTH SEMESTER) MID SEMESTER EXAMINATION, March, 2024

MOBILE ADHOC NETWORKS

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.
(ii) Each question carries 10 marks.

1. (a) Compare in detail Cellular and Adhoc Networks. (CO1)

OR

- (b) Explain in detail the various classifications of MAC Protocols for Adhoc Networks. (CO1)

2. (a) Explain in detail the various design goals of MAC protocols for MANET Adhoc Networks. (CO2)

OR

- (b) Explain Dual Busy Tone Multiple Access Protocol (DBTMA). (CO2)

3. (a) Explain Distributed Packet Reservation Multiple Access Protocol.

(CO2)

OR

- (b) Explain Collision Avoidance Time Allocation Protocol. (CO2)

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4. (a) What are the disadvantages of binary exponential back-off mechanism used in MACA ? How are they overcome in MACAW ? (CO1)

OR

- (b) Explain Distributed Priority Scheduling Protocol. (CO2)

5. (a) Discuss the hidden and exposed terminal problems in designing a routing protocol for adhoc wireless sensor networks. (CO2)

OR

- (b) Explain the destination sequenced distance-vector routing protocol (DSDV). (CO2)

Roll No.

TOE-811

B. TECH. (CSE) (EIGHTH SEMESTER) MID SEMESTER EXAMINATION, March, 2024

MOBILE COMPUTING

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

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OR

- (b) Signal strength varied in mobile communication due to various reasons. State its reasons in detail with suitable diagram and describe about handoff and handoff region. (CO1)

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(2)

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