(DMSIT21)

ASSIGNMENT - 1

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

SOFTWARE ENGINEERING

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain about Incremental and Waterfall Software Process Models.
2. Explain about data and architectural design concepts for a software?
3. Discuss different analysis modelling approaches in requirement engineering.
4. Discuss the outcomes of integration testing process and system testing process.
5. Discuss different metrics in process and project domains.
6. Justify “Software Engineering as a Layered Technology”
7. Describe functional and non — functional requirements.
8. Define Coupling and Cohesion. What is the difference between cohesion and coupling?
9. Write a short note on Component-Based Software Engineering.

(DMSIT21)

ASSIGNMENT - 2

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

SOFTWARE ENGINEERING

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain black box testing methods and its advantages.
2. Describe verification and validation criteria for a software.
3. Write about metrics for software quality.
4. State and explain about decomposition techniques.
5. Define software process.
6. What is meant by software prototyping?
7. Define Unit testing.
8. How the requirements are collected for user interface of software?
9. What is significance of state diagram?

(DMSIT22)

ASSIGNMENT - 1

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

PROGRAMMING WITH C++

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. (a) What are the Operators in C++? Explain with examples.

   (b) What are the major advantages of object oriented programming paradigm?

2. (a) What is a destructor? Illustrate memory allocation to an object using destructor.

   (b) Illustrate overload the binary operators with example.

3. What are the methods used to pass an argument to a function? Explain with examples.

4. What is inheritance? Discuss different types of inheritance supported by C++.

5. (a) What is Template? What is the need of Template? Declare a Template class.

   (b) What is Virtual-function? What are the rules for Virtual functions?

6. Explain how a inline function differ from a preprocessor macro?

7. What are the characteristics of the static member variable and static member function?

8. List of the rules for overloading operators.

9. What are different types of containers?

(DMSIT22)

ASSIGNMENT - 2

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

PROGRAMMING WITH C++

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain about Nested classes.
2. Explain about virtual base class?
3. What is copy constructor? Explain with example.
4. Write about early binding and late binding.
5. What is use of new and delete operators?
6. Define polymorphism.
7. What is a stream?
8. Define overriding.
9. List out different access specifies.

(DMSIT23)

ASSIGNMENT - 1

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

TCP/IP

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain about the Asynchronous Transfer Mode in detail.

2. Explain about the Address Resolution Problem and discuss about the two Types Of Physical Addresses.

3. Explain about the Properties Of The Reliable Delivery Service in detail.

4. Explain about BGP.

5. Explain about Mobile IP.

6. Explain about the Two Approaches to Network Communication in detail.

7. Discuss about Subnet And Supernet Extensions.

8. Explain about ARP Cache Timeout

9. Discuss about Error Reporting vs. Error Correction.

(DMSIT23)

ASSIGNMENT - 2

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

TCP/IP

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Explain UDP Multiplexing, Demultiplexing, and Ports
2. Explain about Gateway-to-Gateway protocol.
3. Explain how to send data through a socket.
4. Explain about DHCP message formate.
5. What is loopback Address?
6. What is a virtual network?
7. What is out of band data.
8. What is a hidden network.
9. What is a socket.

(DMSIT24)

ASSIGNMENT - 1

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

DATA MINING AND TECHNIQUES

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Define the term "Data Mining". With the help of a suitable 'diagram explain the process of knowledge discovery from databases.

2. What is the need of data preprocessing? Write note on data cleaning process for missing values and noisy data treatment.

3. Explain CART Algorithm for Building Tree classifiers with suitable example.

4. Describe k-means algorithm. Cluster the following points into three clusters using *k*—means algorithm. (Assume Distance function is Euclidean):
   {16, 2, 4, 10, 12, 3, 20, 9, 30, 11, 25, 30, 28, 19}.

5. Illustrate ANN (Artificial Neural Networks) classification with example.

6. What is OLAP? Give the difference between OLAP and OLTP.

7. Write about Linear Discriminants for classifiers.

8. Describe various kinds of association rules.

9. What are the features of predictive modeling for regression?

(DMSIT24)

ASSIGNMENT - 2

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

DATA MINING AND TECHNIQUES

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Describe about multi dimensional data model with example.
2. Explain BUC algorithm for the Computation of Sparse or Iceberg Cube.
3. Write about EM algorithm with example.
4. Write about Nearest Neighbor classification method.
5. Define regression.
6. Define support and confidence.
7. State Bayesian rule.
8. Define data cube.
9. What is density based clustering?

(DMSIT25)

ASSIGNMENT - 1

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

CRYPTOGRAPHY AND NETWORK SECURITY

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. (a) Determine the security services required to counter various types of Active and Passive attacks.

   (b) Give an account on different block cipher modes of operation.

2. Explain DES algorithm with suitable examples. Discuss its advantages and limitations.

3. P and Q are two prime numbers. P = 7 and Q = l7. Take public key E = 5. If plain text value is 6, then what will be cipher text value according to RSA algorithm? Explain in detail.

4. Describe the process involved in digital signatures. Explain about different digital signatures.

5. What is Intrusion? Discuss Intrusion detection system with neat diagram.

What is the difference between mono alphabetic and poly alphabetic cipher?

6. Using Hill Cipher to encipher the message "we live in a insecure world". Use the key $\begin{bmatrix} 3 & 2 \\ 5 & 7 \end{bmatrix}$.

7. Mention the values of Multiplication modulo 7 from 0 to 6.

8. What are the attacks that are possible on RSA?

9. What is symmetric key cryptography? Discuss its advantages and limitations.

(DMSIT25)

ASSIGNMENT - 2

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

CRYPTOGRAPHY AND NETWORK SECURITY

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. What is message authentication? How is it different from message integrity?
2. What are the content types provided by S/MIME?
3. What is Birthday Attack on Digital Signatures?
4. What are the principles of security?
5. Define Stream ciphers.
6. What are the limitations of firewalls?
7. Define MAC.
8. Define Avalanche Effect.

(DMSIT26)

ASSIGNMENT - 1

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

ARTIFICIAL INTELLIGENCE

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. (a) State Tic-Tac-Toe problem? Construct state space tree for this problem and also count the number of feasible states in the state space of this game

   (b) Discuss various application areas of Artificial intelligence.

2. Write about hill climbing technique? What are the limitations of hill climbing? When does simulated annealing algorithm behave like hill climbing?

3. What is matching? Discuss different matching techniques with example.

4. Explain Justification Truth Maintenance System with suitable example.

5. What is an expert system? Briefly describe five major components of an expert system. Using a suitable query, explain the working of an inference engine in a rule based expert system.

6. State and explain unification algorithm with suitable example.

7. Differentiate DFS and BFS algorithm.

8. Explain Generate - and - test algorithm with example.

9. Write a procedure to convert well-formed formula into clause form.

(DMSIT26)

ASSIGNMENT - 2

M.Sc. DEGREE EXAMINATION, MARCH 2023

Second Year

Information Technology

ARTIFICIAL INTELLIGENCE

MAXIMUM : 30 MARKS

ANSWER ALL QUESTIONS

1. Write about procedural and declarative knowledge.
2. What is augmented problem solver? Explain it with suitable example.
3. Illustrate partitioned semantic net with example.
4. What is Script? Describe different components of script.
5. Define state space approach.
6. Define resolution.
7. Define common sense reasoning.
8. Define Inferential adequacy.
9. Define AND - OR graph.