(DMSIT21)

ASSIGNMENT-1

M.Sc. DEGREE EXAMINATION, MAY/JUNE -2025

Second Year

Information Technology

SOFTWARE ENGINEERING
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Explain about spiral model and win-win spiral model in detail.

2. Write the importance of software specification of requirements. Explain a typical SRS structure and its parts.

3. Explain in detail the design issues while designing User Interface.

4. Explain the integration testing process and system testing process and also describe their outcomes.

5. Discuss COCOMO model with an illustrative example.

6. Outline the software development life cycle.

7. Describe the benefits of proto typing.

8. What are functional and non - functional software requirements?

9. What is Relationship? Explain Cardinality and Modality with Examples.

ASSIGNMENT-2

M.Sc. DEGREE EXAMINATION, MAY/JUNE -2025

Second Year

Information Technology

SOFTWARE ENGINEERING
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Draw DFD level–0 and DFD Level–l for Library Management System.
2. What are different levels of testing and the goals of the different levels?
3. What is verification and validation criteria for a software
4. What is Risk? Explain various categories of it.
5. What are the merits of incremental model?
6. Define Behavioral Modeling.
7. Distinguish between horizontal and vertical partitioning?
8. Define cohesion.
9. Define cyclomatic complexity.

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DMSIT22

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY/JUNE- 2025.

Second Year

PROGRAMMING WITH C++

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain the features of object programming language?

Q2) Discuss various control structures used in C++ with suitable example.

Q3) Explain about function overloading with example.
Illustrate friend function with suitable example.

Q4) What is advantages of inheritance? Explain single, multiple, multilevel and hierarchical inheritance.

Q5) What is an Exception? Explain about try, throw and catch with example?

Q6) Differentiate between user defined data types and derived data types.

Q7) Write a C ++ program to find reverse of the string and concatenation of two strings.

Q8) What is syntax of class declaration? How does it accomplish data biding?

Q9) Write a C++ program to overload increment and decrement operators (++ and – –)

Q10) What is Copy Constructor? Give an example.

DMSIT22

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY/JUNE- 2025.

Second Year

PROGRAMMING WITH C++

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain about user defined manipulators.

Q2) What is Virtual function? What are the rules for Virtual functions?

Q3) How to create class template? Explain.

Q4) What is use of new and delete operators?

Q5) What is an array?

Q6) What is meant by function prototyping?

Q7) What is static binding?

Q8) Define container class.

DMSIT23

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY/JUNE- 2025.

Second Year

INFORMATION TECHNOLOGY

TCP/IP

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain about classful internet addresses in detail.

Q2) Explain about internet datagram and its options in detail.

Q3) Explain about distance vector rooting and link - state rooting.

Q4) Explain about TCP/IP over ATM networks.

Q5) Explain about Client - server model.

Q6) Explain about asynchronous transfer mode.

Q7) Discuss about interconnection through IP rooters.

Q8) Explain about address resolution through direct mapping.

Q9) Explain about reverse address resolution protocol.

Q10) Explain about establishing a TCP connection.

DMSIT23

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY/JUNE- 2025.

Second Year

INFORMATION TECHNOLOGY

TCP/IP

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Discuss about UDP encapsulation and protocol layering.

Q2) Explain about IP address manipulation routines.

Q3) Explain about the need of dynamic configuration and dynamic host configuration.

Q4) What are weaknesses in internet addressing?

Q5) What is ARP cache timeout?

Q6) What is the need for stream delivery?

Q7) What are socket library calls?

Q8) What are alternatives to the Client - server Model?

(DMSIT24)

ASSIGNMENT-1

M.Sc. DEGREE EXAMINATION, MAY/JUNE -2025

Second Year

Information Technology

DATA MINING AND TECHNIQUES
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Discuss in detail about various data mining tasks.

2. What is classification? How to construct decision tree for classification using CART algorithm.

3. (a) Explain the score function for descriptive models.

   (b) Write about gradient based methods for optimizing the smooth functions.

4. Discuss about partition - based clustering algorithms.

5. Explain about data warehousing and online analytical processing (OLAP)

6. What are the interacting the roles of statistics and data mining?

7. Briefly explain about principle component analysis.

8. How to select variables for high–dimensional data.

9. Briefly explain about patterns for strings.

(DMSIT24)

ASSIGNMENT-2

M.Sc. DEGREE EXAMINATION, MAY/JUNE -2025

Second Year

Information Technology

DATA MINING AND TECHNIQUES
MAXIMUM MARKS :30
ANSWER ALL QUESTIONS

1. Write the features of EM algorithm.

2. Describe joint distributions for categorical data.

3. Explain feature selection for classification in High Dimensions.

4. Write about multidimensional indexing.

5. Define sampling.

6. What is data visualization?

7. Give any two data distance measures.

8. Define regression.

9. Define association rule mining.

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DMSIT25

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY/JUNE- 2025.

Second Year

INFORMATION TECHNOLOGY

Cryptography and Network Security

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Write briefly the categories of attacks. What are the x.800 listed attacks?

Q2) What is the structure of AES? Explain how Encryption/Decryption is done in AES.

Q3) Explain single round DES with block diagram and also specify its limitations.

Q4) Explain in detail about Elgamal Cryptosystem and Chinese Remainder theorem.

Q5) Describe the steps in finding the message digest using SHA - 512 algorithm. What is the order of finding two messages having the same message digest?

Q6) Briefly explain about the mono alphabetic cipher.

Q7) What are Confusion and Diffusion properties of Modern Ciphers?

Q8) Determine the Numbers which are relatively Prime to 21 by using Euler Totient function.

Q9) How is GCD calculated with Euclid's algorithm?

Q10) What are the principal elements of public - key cryptosystem?

DMSIT25

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY/JUNE- 2025.

Second Year

INFORMATION TECHNOLOGY

Cryptography and Network Security

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain the functions provided by S/MIME.

Q2) What are the properties of hashing functions?

Q3) Explain packet filtering router in case of fire wall.

Q4) Define Avalanche Effect.

Q5) What is Public key cryptography?

Q6) What is RSA crypto system?

Q7) What is digital certificate?

Q8) List two goals of fire wall.

DMSIT26

ASSIGNMENT 1

M.Sc. DEGREE EXAMINATION, MAY/JUNE- 2025.

Second Year

Artificial Intelligence

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) State Tic - Tac - Toe problem? Construct state space tree for this problem.

What is Intelligence? Discuss types of problems requiring Intelligence to solve it.

Q2) What is Hill Climbing? Explain Simple Hill Climbing and Steepest - Ascent Hill Climbing and also mention limitations of hill climbing.

Q3) Represent the following statements into predicate form:

i) Roses are red and Violets are Blue
ii) All dogs are Mammals.
iii) Some program has Bugs.
iv) All pompeians died when the volcano erupted in 79 A.D.
v) All the indoor games are easy.

Write about resolution algorithm in predicate logic.

Q4) What is matching? Describe different matching techniques.

Q5) What is an expert system? Briefly describe five major components of an expert system.

Q6) Describe various AI techniques.

Q7) Explain about generate and test algorithm with example.

Q8) Explain the Means - ends analysis with robot navigation problem.

Q9) Differentiate forward and backward reasoning.

Q10) Write about unification theorem in predicate logic.

DMSIT26

ASSIGNMENT 2

M.Sc. DEGREE EXAMINATION, MAY/JUNE- 2025.

Second Year

Artificial Intelligence

MAXIMUM MARKS :30

ANSWER ALL QUESTIONS

Q1) Explain about dependency directed backtracking with suitable example.

Q2) Explain about Dempster - Safer theory with suitable example.

Q3) Briefly explain about common sense ontologies.

Q4) Define state space search.

Q5) What is AND - OR graph?

Q6) Define clause form.

Q7) What is procedural knowledge?

Q8) Define monotonic reasoning.