(DMSIT21)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Second Year

Information Technology

SOFTWARE ENGINEERING

Time : Three hours   Maximum : 70 marks

SECTION A — (3 × 15 = 45 marks)

Answer any THREE questions

1.   Explain the features of Spiral model and also describe working of Prototyping model with its diagram.

2.   Illustrate functional and non-functional requirements for software with example.

3.   (a)   Describe golden rules of User Interface Design.

     (b)   Explain context diagram and data flow diagram (DFD) with suitable example.

4.   What are the various testing strategies to software testing? Discuss them briefly.

5.   Discuss metrics for analysis and metrics for design model.

SECTION B — (5 × 4 = 20 marks)

Answer any FIVE questions

6. Describe the fundamental activities of software process.

7. Compare Prototype and RAD Process Model.

8. Write about requirement elicitation and analysis process.

9. Write about cohesion and coupling.

10. What is software prototyping? Explain its significance in software engineering with example.

11. Write about alpha and beta testing.

12. Describe verification and validation criteria for software.

13. Describe various metrics for software quality.

SECTION C — (5 × 1 = 5 marks)

Answer ALL questions

14. What is data dictionary?

15. Define integration testing.

16. Define Behavioral Modeling.

17. Distinguish between process and methods.

18. Define cyclomatic complexity.

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(DMSIT 22)

M.Sc. DEGREE EXAMINATION,
NOVEMBER 2021.

Second Year

Information Technology

PROGRAMMING WITH C++

Time : Three hours   Maximum : 70 marks

SECTION A — (3 × 15 = 45 marks)

Answer any THREE questions.

1. Discuss about the structure of C++ program. What is the use of Manipulators in C++? Give some Pre-define manipulators.

2. What are the constructor and destructors? Explain the different types of Constructors with suitable program segments.

3. Explain different forms of inheritance.Illustrate with an example each type with an example.

4. (a) What is function overloading? What are the principles of function overloading?

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

5. (a) Explain formatted console I/O operations with examples.

   (b) Explain about container classes.

SECTION B — (5 × 4 = 20 marks)

Answer any FIVE questions.

6. What are the major advantages of object oriented programming paradigm?

7. How to declare and access the elements from two dimensional arrays?

8. How to declare a nested class? Give an example.

9. State any four string handling functions with syntax.

10. Illustrate the use of scope access operator and comma operator.

11. What is operator overloading? List of the rules for overloading operators.

12. What is meant by function prototyping? Explain the importance of call by value.

13. What is the importance of static keyword? Give examples.

SECTION C — (5 × 1 = 5 marks)

Answer ALL questions.

14. Define inline function.

15. Define type casting.

16. What is late binding?

17. What is stream?

18. What is the use of scope resolution operator?

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M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Second Year

Information Technology

TCP/IP

Time : Three hours   Maximum : 70 marks

SECTION A — (3 × 15 = 45 marks)

Answer any THREE questions from the following.

1. Explain about the Application – Level Interconnection and Network – Level Interconnection in detail.

2. Explain about the Reverse Address Resolution Protocol.

3. Explain about an Exterior Gateway Protocol.

4. Explain about TCP/IP networks.

5. Explain about Socket interface model.

SECTION B — (5 × 4 = 20 marks)

Answer any FIVE questions from the following.

6.   Explain about Very High Speed Backbone.

7.   Discuss about Properties Of The Internet.

8.   Explain about the ARP Encapsulation And Identification.

9.   Explain about Connectionless Delivery System.

10.   What is the chief advantage of using preassigned UDP port numbers? The chief disadvantage?

11.   Explain about the Core Routers.

12.   Explain about the Logical View Of An ATM Network.

13.   Explain about the Complexity of Sewers.

SECTION C — (5 × 1 = 5 marks)

Answer ALL questions.

14.   What are the advantages of doing reassembly at the ultimate destination instead of doing it after the datagram travels across one network?

15.   What is How many IP addresses would be needed to assign a unique IP address to every house in your country? the world? Is the IP address space sufficient?

16.   What is the two-Crossing Problem?

17.   What are socket library calls?

18.   What is Dynamic IP Address Assignment?

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(DMSIT 24)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Second Year

Information Technology

DATA MINING TECHNIQUES

Time : Three hours   Maximum : 70 marks

SECTION A — (3 × 15 = 45 marks)

Answer any THREE question from the following.

1.   Discuss about various data mining tasks.

2.   Describe desirable properties of estimators and also discuss about Maximum Likelihood Estimation

3.   Explain about Apriori Algorithm for Association Rule Learning

4.   Discuss different Parameter Optimization Methods

5.   Explain about partitioned based clustering algorithms.

SECTION B — (5 × 4 = 20 marks)

Answer any FIVE questions from the following.

6.   State and explain different distance measures.

7.   Write about Bayesian estimation.

8.   Describe Multilayer Perceptron's for Regression.

9.   Write about Joint Distributions for Unordered Categorical Data.

10. Explain State-Space Formulation for Search in Data Mining.

11. Write note on online and Single-Scan Algorithms.

12. State and explain about Naive Bayes classification model.

13. What is OLAP? Describe the data structures for OLAP.

SECTION C — (5 × 1 = 5 marks)

Answer ALL questions.

14. What is linear regression?

15. What is multidimensional data model?

16. What are the metrics for association rule mining?

17. What is meant by missing data?

18. What is clustering?

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M.Sc. DEGREE EXAMINATION, NOVEMBER 2021.

Second Year

Information Technology

CRYPTOGRAPHY AND NETWORK SECURITY

Time : Three hours   Maximum : 70 marks

SECTION A — (3 × 15 = 45 marks)

Answer any THREE questions.

1. What are the different transposition techniques? Explain.

2. Explain about confidentiality using symmetric encryption.

3. P and Q are two prime numbers. P = 7, and Q = 17. 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. Explain Data Encryption standard (DES) in detail.

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

SECTION B — (5 × 4 = 20 marks)

Answer any FIVE questions.

6. Write briefly the categories of attacks.

7. Write short notes on steganography.

8. How is GCD calculated with Euclid's algorithm? Calculate the GCD of (270, 192).

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

10. What are the properties of hashing functions?

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

12. What is digital signature? Explain its use with the help of example.

13. State different types of firewalls.

SECTION C — (5 × 1 = 5 marks)

Answer ALL questions.

14. Compare block ciphers with stream ciphers.

15. What are the advantages of public key cryptography?

16. How many keys are used in triple encryption?

17. Define Stream ciphers.

18. What is message authentication?

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(DMSIT 26)

M.Sc. DEGREE EXAMINATION,
NOVEMBER 2021.

Second Year

Information Technology

ARTIFICIAL INTELLIGENCE

Time : Three hours   Maximum : 70 marks

SECTION A – (3 × 15 = 45 marks)

Answer any THREE questions.

1.   (a)   Describe the state space for 8 - puzzle problem.

     (b)   Write about production system characteristics.

2.   (a)   Explain about simple and steepest hill climbing approaches.

     (b)   Explain crypt arithmetic problem with suitable example.

3.   (a)   Explain the different issues in Knowledge representation.

     (b)   Illustrate RETE matching algorithm with example.

4.   (a)   Explain about Bayesian network with suitable example.

     (b)   Write about augmented problem solver.

5.   Discuss the architectural components of expert system with neat diagram.

SECTION B – (5 × 4 = 20 marks)

Answer any FIVE questions.

6. Describe different AI techniques.

7. Explain about AND — OR graphs with suitable example.

8. Write about DFS algorithm with example and give its limitations.

9. Assume the facts:
   (a) Steve only likes easy courses
   (b) Science courses are hard
   (c) All courses in the arts department are easy
   (d) TL -301 is an arts department course.
       Use resolution to answer the question which course would Steve like?

10. Differentiate procedural knowledge and declarative knowledge.

11. Write about certainty factors and rule based system.

12. Explain semantic net with proper example.

13. Write about knowledge acquisition.

SECTION C – (5 × 1 = 5 marks)

Answer ALL questions.

14. What is Turing test?

15. Inferential adequacy.

16. Translate the sentence "All the indoor games are easy" into Predicate from.'

17. Define Well — formed formula.

18. What is an expert system?

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