M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

First Semester

Computer Science

Elective – SOFTWARE ENGINEERING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What is embedded software ? Give Examples.

2. State the problems that are encountered when the waterfall model is applied.

3. Why requirements elicitation is difficult?

4. What is the purpose of interface traceability table?

5. State the four different approaches to the sizing problem by Putnam and Myers.

6. What is outsourcing?

7. Distinguish between verification and validation?

8. What is Alpha and Beta Testing?

9. Expand CORBA. What is the purpose of ORB?

10. What is CBSE?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the RAD Model and summarize its drawbacks.

Or

(b) Describe Spiral Model in Detail.

12. (a) Write short notes on QFD.

Or

(b) Write the basic guidelines to be followed under collaborative requirements gathering.

13. (a) What are the major categories of software engineering resources? Explain.

Or

(b) Describe process-based estimation with example.

14. (a) Discuss in brief about the software testing fundamentals.

Or

(b) Describe control structure testing methods in detail.

15. (a) Explain CBSE process in detail.

Or

(b) Explain object oriented and web engineering project metrics.

2   **F–0708**

Answer any **three** questions.

16. Describe evolutionary process models in detail.

17. Explain the functions of requirement engineering process in detail.

18. Describe empirical estimation models in detail.

19. Describe any two black box testing methods in detail.

20. Explain in detail about CBD.

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F–0708

F–0710	Sub. Code
	7MCE2C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Computer Science

.NET TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** the questions.

1. Define garbage collection.

2. What is the use of shadowed member?

3. How do you declare fixed length strings?

4. What are the properties used to display multiple hyperlinks in a single link label control?

5. List the properties of splitter objects.

6. Write a code for displaying text in a status bar.

7. How do you import namespaces in ASP.NET?

8. What is query string?

9. What are the two strategies used to add .NET security or personalize a website?

10. List out the problems with single value data binding.

Part B $(5 \times 5 = 25)$

Answer **all** the questions, choosing either (a) or (b).

11. (a) Explain the role of assemblies in .NET framework.

Or

(b) Explain the structures in VB.NET.

12. (a) Illustrate sub procedures vs. functions with suitable example.

Or

(b) Write the notes on Msgbox and Inputbox functions.

13. (a) Explain the properties of button object in VB.NET.

Or

(b) Elucidate the following :

(i) OpenFileDialog

(ii) SaveFileDialog.

14. (a) Describe the properties of HttpRequest class.

Or

(b) How will you create your own exceptions? Explain with example.

15. (a) Explain the members of form authentication class.

Or

(b) Explain the different types of SQL statements with suitable example.

2   **F–0710**

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail about the concepts of object oriented programming.

17. How do you create dialog boxes? Explain with example.

18. How do you create comboboxes in VB.NET? Explain.

19. Demonstrate how validation controls works in a webpage? Explain.

20. Explain how data binding controls working with databases.

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3   F–0710

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Second Semester

Computer Science

DISTRIBUTED OPERATING SYSTEM

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1.   What is meant by Access Transparency?

2.   Give the structure of a packet in IEEE Token Ring.

3.   What are the two basic interprocess communication paradigms?

4.   What is meant by closed group and open group?

5.   What is granularity?

6.   Define deadlock.

7.   Write down the types of transparencies in a distributed file system.

8.   Expand ACID.

9.   What is spoofing?

10. What is digital signature?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Briefly explain about DCE components.

Or

(b) Write short notes on

(i) Circuit switching

(ii) Packet switching

12. (a) Compare blocking and non blocking types of IPC.

Or

(b) Explain the many-to-many communication.

13. (a) What are the three main approaches for designing a DSM system?

Or

(b) Give a note on ring-based election algorithm.

14. (a) Define file system. Explain the services provided by the distributed file system.

Or

(b) What is meant by replicated file? Give its benefits.

15. (a) Discuss the important differences between computer viruses and worms.

Or

(b) What is cryptography? What are some of its common uses in a distributed system.

F–0711

Part C　　　　　　　　($3 \times 10 = 30$)

Answer any **three** questions.

16. Explain ATM technology in detail.

17. Explain buffering strategies used in interprocess communication.

18. Discuss the general architecture of DSM systems. Write down the advantages of DSM.

19. Explain the features of a good distributed file system.

20. What are the important design principles that should normally be used as a guideline to designing secure computer systems?

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M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Computer Science

Elective – MOBILE COMPUTING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1.   Write the benefits of Laptop computing.

2.   Write the parts of IP address.

3.   What is multi-path propagation?

4.   What are the four different types of handover in the GSM system?

5.   Write one byte padding extension format.

6.   What is home agent discovery?

7.   What do you meant by tunneling?

8.   What is decapsulation?

9.   Expand DHCP.

10. What is reverse tunneling?

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Differentiate mobility and portability.

Or

(b) Describe the procedure for routing.

12. (a) Discuss the features of different types of multiplexing.

Or

(b) Write advantages and disadvantages of cellular systems.

13. (a) Describe the operation of mobile agent.

Or

(b) Summarize the procedure for mobile node registration.

14. (a) Write a note on minimal encapsulation.

Or

(b) Compare unicast, broadcast and multicast data gram routing.

15. (a) Write a note on smooth hand off.

Or

(b) Compare Lazy Cell Switching and Eager Cell Switching.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the role of IETF in mobile networking.

17. Explain GSM architecture.

F–0712

18. Give a brief note on router discovery protocol.

19. Discuss the types of message format for route optimization.

20. Discuss the importance of Ingress filtering.

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F–0712

F–0713	Sub. Code
	7MCE2E3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Computer Science

Elective – COMPUTER GRAPHICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define Persistence and Aspect Ratio.

2. What is meant by horizontal retrace and vertical retrace?

3. State the three possible methods for smoothly joining thick line segments?

4. What is meant by rigid body transformation matrix?

5. Define clipping.

6. What is the role of different input modes?

7. What is parallel projection?

8. What is the purpose of exploded and cutaway views?

9. Define view reference point and projection reference point.

10. What is vanishing point?

Part B $(5 \times 5 = 25)$

Answer **all** the questions, choosing either (a) or (b).

11. (a) Discuss briefly about interactive input devices.

    Or

    (b) Explain in detail about DDA Line Drawing algorithm.

12. (a) Write short notes on bundled attributes.

    Or

    (b) Explain 2D Shear and 2D Reflection transformations.

13. (a) Explain in detail segment attributes.

    Or

    (b) Write short notes on input functions.

14. (a) Explain 3D Reflection and 3D Shear transformation.

    Or

    (b) Describe in detail about three dimensional display techniques.

15. (a) Explain scan line method in detail.

    Or

    (b) Describe back face removal method in detail.

F–0713

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Summarize the applications of computer graphics in detail.

17. Discuss briefly about Line Styles, Color and Intensity level options.

18. Describe Cohen-Sutherland Line Clipping algorithm.

19. Explain three-dimensional transformations in detail.

20. Discuss in detail about the implementation of viewing operations.

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F–0713

F–0714	Sub. Code
	7MCE2E6

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Computer Science

Elective – DIGITAL IMAGE PROCESSING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What are the different imaging modalities?

2. How cons and rods are distributed in retina?

3. What is meant by bit plane slicing?

4. Difference between correlation and convolution.

5. What is the need of transform?

6. Define ideal high pass filter.

7. What are the various types of noise models?

8. What is inverse filtering?

9. What is meant by color model?

10. What is Digital Watermarking?

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) How an X-Ray Image produced? Explain.

Or

(b) Discuss the relationship between the pixels of a digital image.

12. (a) Explain how the median and average filter works? Give an example.

Or

(b) Write short notes on Smoothing Filters in spatial domain.

13. (a) Write short notes on Discrete Fourier Transform of one variable.

Or

(b) Write a note on Gaussian Highpass Filter.

14. (a) Discuss about the Linear Position-Invariant Degradations.

Or

(b) What is the use of Wiener Filter in image restoration? Explain.

15. (a) Discuss about the RGB Color Model.

Or

(b) Write short notes on Huffman coding.

2 **F–0714**

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the principle of Sampling and Quantization.

17. Explain in detail about histogram processing.

18. Explain the properties of 2D Fourier Transform.

19. Explain about the various types of optimum notch filtering approach in frequency domain filtering.

20. Discuss about color transformation in detail.

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       F–0714

F–0715	Sub. Code
	7MCE3C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Computer Science

CRYPTOGRAPHY AND NETWORK SECURITY

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. What is meant by Traffic padding?

2. What is meant by Cryptanalysis?

3. Define Block Cipher with example.

4. State Strict Avalanche Criterion (SAC).

5. Write any one difference between conventional encryption and public-key encryption.

6. What is blinding?

7. What is Message authentication code?

8. Define Digital signature standard.

9. Mention the two important concepts of SSL.

10. What is RFC-822?

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain in detail about OSI security architecture.

Or

(b) What is Steganography? Explain its merits and demerits.

12. (a) Write in detail about the strength of DES.

Or

(b) Describe AES key Expansion in detail.

13. (a) Explain the key exchange protocol of Diffie- Hellman Key exchange algorithm with a neat diagram.

Or

(b) Explain the five rules of addition over an elliptic curve.

14. (a) Give a detail description about simple Hash function.

Or

(b) Explain direct digital signature in detail.

15. (a) Explain the Pseudorandom function of Transport layer security in detail.

Or

(b) Explain the principles of pretty good privacy in detail.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about Security mechanisms.

17. Describe the AES implementation on detail.

2 | **F–0715**

18. Explain the principles of Public-key cryptosystems in detail.

19. Give a detail description about Message authentication code.

20. Explain in detail about Transport layer security.

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F–0715

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Third Semester

Computer Science

DATA MINING AND DATA WAREHOUSING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A   (10 × 2 = 20)

Answer **all** questions.

1. Mention the factors comprising data quality.

2. State the steps in the process of Knowledge Discovery.

3. What is Data Warehouse?.

4. What is a Data Cube?

5. State the measures used for attribute selection.

6. Mention the techniques used to improve the efficiency of the Apriori algorithm.

7. Distinguish between Agglomerative and Hierarchical clustering methods.

8. What are Outliers and Mention the categories of Outliers.

9. Define Text Mining.

10. What is web content mining and web usage mining?

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain What kinds of data can be mined? Explain with examples.

        Or

    (b) Discuss briefly about the major issues in data mining.

12. (a) Explain the major distinguishing features of OLTP and OLAP.

        Or

    (b) Discuss in detail about Data Warehouse Models.

13. (a) Explain the strength of Genetic Algorithm, Rough Sets and Fuzzy Sets towards Classification.

        Or

    (b) What is Lazy Learner? Explain K-Nearest Neighbor and Case Based Reasoning Classification.

14. (a) Discuss briefly about the categorization of clustering methods and their general characteristics in detail.

        Or

    (b) Explain BIRCH hierarchical clustering method in detail.

15. (a) Explain the concept and applications of spatial data mining.

        Or

    (b) Discuss about Multimedia data mining.

                    2   **F–0716**

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe in detail about the Data Cleaning methods.

17. Explain in detail about Online Analytical Mining

18. Describe Rule-Based Classification in detail.

19. Explain in detail about the Partitioning clustering methods.

20. Discuss in detail about Data Mining Trends.

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F–0716

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Computer Science

Elective : SOFT COMPUTING

(CBCS – 2017 onwards)

Time : 3 Hours   Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1.   Define ANN.

2.   What is Connection matrix?

3.   What is meant by building blocks of Perceptron?

4.   Write the activation function that uses Maxnet.

5.   Define Crisp set.

6.   List the two types of Fuzzy composition techniques.

7.   Given the two intervals are $E_1 = [2, 4]$, $E_2 = [-4, 5]$. Perform the Max and Min operations over the intervals.

8.   List the two methods of fuzzy Inference system.

9.   Define GA.

10. What are the various types of Crossover?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss the learning process in ANN.

Or

(b) Write in detail about Mc Culloch–Pitts neuron model.

12. (a) List the learning factors of Back-propagation network.

Or

(b) Discuss in detail on full counter propagation net.

13. (a) Mention the properties of Fuzzy set.

Or

(b) Write down the methods of Defuzzification techniques.

14. (a) Mention the types of fuzzy propositions.

Or

(b) Discuss the importance of multiobjective and multiperson decision making.

15. (a) Explain the types of Encoding process in genetic algorithm.

Or

(b) Discuss the applications of Genetic Algorithm.

2 **F–0717**

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the architecture of Artificial Neural Network.

17. Write the training algorithm for Multiple Adaptive Linear Neuron with its diagram.

18. Discuss the fuzzy equivalence and tolerance relation.

19. Describe the overview of Fuzzy Expert system.

20. Write down the process of crossover and its types in detail.

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3 **F–0717**