F–9463	Sub. Code
	7MCE2C1

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Second Semester

Computer Science

COMPUTER SYSTEM ARCHITECTURE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is the purpose of Addressing modes?

2. What are the three types of Interrupts? How are they different from one another?

3. Define Microoperation? Give an example.

4. Write the purpose of PC and AR?

5. What is meant by a control word?

6. List out any two advantages of microprogrammed control unit.

7. Define Virtual memory.

8. Compare Isolated I/O with Memory mapped I/O.

9. What is a multiprocessor system? How is it different from multicomputer system?

10. What is an Arithmetic pipeline?

Part B (5 × 5 = 25)

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

11. (a) Explain any five addressing modes with examples.

Or

(b) Define Stack and its operations. Explain any one application of Stack.

12. (a) What is the difference between direct and indirect address instruction? How many references to memory are needed for each type of instruction to bring an operand into a processor register?

Or

(b) Draw and explain the flowchart for interrupt cycle.

13. (a) Explain with a block diagram functioning of microprogrammed control organization.

Or

(b) What is a microinstruction? Explain microinstruction format.

14. (a) Solve the following:

(i) How many 128 × 8 RAM chips are needed to provide a memory capacity of 2048 bytes?

(ii) How many lines of the address bus must be used to access 2048 bytes of memory? How many of these lines will be common to all chips?

(iii) How many lines must be decoded for chip select? Specify the size of the decoders.

Or

(b) What is a Priority interrupt? How is it handled through Daisy Chain method?

15. (a) Explain Instruction pipeline. List any two difficulties faced in Instruction pipeline.

Or

(b) Explain Array Processor.

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

Answer any **three** questions.

16. A bus organized CPU has 16 registers with 32 bits in each, an ALU and a destination decoded

(a) How many multiplexers are there in the A bus, and what is the size of each multiplexer?

(b) How many selection inputs are needed for MUX A and MUX B?

(c) How many inputs and outputs are there in the decoder?

(d) How many inputs and outputs are there in the ALU data, including input and output carries?

(e) Formulate a control word for the system assuming that the ALU has 35 operations.

17. Discuss one state of arithmetic logic shift unit with required block diagrams.

18. Explain address sequencing in control memory with a block diagram.

19. What is a Cache memory? Discuss any two mapping procedures of Cache memory.

20. Discuss RISC architecture.

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F–9464

Sub. Code
7MCE2C2

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Computer Science

.NET TECHNOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** the questions.

1. What is the role of CLR?

2. Define inheritance.

3. What is the use of preserve keyword?

4. Write the syntax of Msgbox function.

5. Write a code for determining how many items are in a Listbox.

6. What is GDI?

7. List out the file types in ASP.NET.

8. How do you retrieve the log information?

9. List out the names of default built in windows roles.

10. What are the controls used to create a template?

Part B (5 × 5 = 25)

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

11. (a) Explain the various namespaces used in VB.NET.

Or

(b) Explain the difference between overloading and overriding members.

12. (a) Write about the string handling functions.

Or

(b) Explain how to create multiple form applications.

13. (a) How do you add form controls to panels? Explain with suitable code.

Or

(b) Illustrate the Tree view vs. List view with suitable example.

14. (a) What are the validation controls used to verify the user input in ASP.NET? Explain.

Or

(b) What is query string? Explain with example code.

15. (a) Explain the characteristics of ADO.NET.

Or

(b) Outline how data binding works?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. How do you create classes and objects? Explain with an example.

17. Elucidate the looping statements in .NET with suitable example.

18. Discuss about the built–in dialog boxes.

19. Explain any five HTML server controls with its members.

20. What are the steps involved to implement a form based security? Explain the form authentication.

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F–9465	Sub. Code
	7MCE2C3

M.Sc. DEGREE EXAMINATION, APRIL 2023.

Second Semester

Computer Science

DISTRIBUTED OPERATING SYSTEM

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is loosely coupled systems?

2. List out the advantages of using Token King Protocol.

3. Expand IPC and RPC.

4. Name the types of group communication.

5. Mention the two basic paradigms for interprocess communication and write its basic primitives.

6. Name the synchronization related issues.

7. State the two main purposes of using files.

8. What is meant by stable storage?

9. What is Trojan horse program?

10. State the difference between identification and verification.

Part B (5 × 5 = 25)

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

11. (a) Write short notes on Workstation Server Model.

Or

(b) Draw the architecture of the OSI model and explain briefly.

12. (a) Discuss some of the important issues need to be considered for designing a message passing system.

Or

(b) Explain what is meant by absolute ordering, consistent ordering and casual ordering of messages.

13. (a) Write the important issues involved in the design and implementation of DSM systems.

Or

(b) What are the ways used in a system to recover from a deadlock and write the important issues in the recovery action.

14. (a) Write any five features of a good distributed file system.

Or

(b) State the general principles for designing distributed file systems.

15. (a) List the common goals of computer security. Explain about internal and external securities.

Or

(b) Write short notes on passive attacks.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. What is distributed operating system? Explain the major issues in designing a distributed operating system.

17. Explain the role of synchronization in distributed system message passing.

18. Explain the approaches used to implement the mutual exclusion.

19. Describe the file-caching scheme for a distributed file system.

20. What is Cryptography? Explain how symmetric and asymmetric Crypto systems work.

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F–9466	Sub. Code
	7MCE2E1

M.Sc. DEGREE EXAMINATION, APRIL 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 protocols used to support the portable mode of operation for mobile computers.

2. What is source routing?

3. List out the different frequency bands.

4. What is GSM?

5. Write one byte padding extension format.

6. What is meant by mobility binding?

7. What is encapsulation?

8. Differentiate unicast and broadcast.

9. State the purpose of IPv6.

10. Expand LCS.

Part B (5 × 5 = 25)

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

11. (a) Give a brief note on IP addresses.

Or

(b) Describe the architecture model of the IETF protocol.

12. (a) Differentiate Amplitude Shift Keying and Frequency Shift Keying.

Or

(b) Write advantages and disadvantages of cellular systems.

13. (a) Discuss the method of agent discovery.

Or

(b) Explain how to receive registration request by foreign agent.

14. (a) Write a brief note on tunnel management.

Or

(b) How to establish registration keys for route optimization.

15. (a) Explain mobility support in IPv6.

Or

(b) Write a note on operations on localizing registrations.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about routing.

17. Summarize the four dimensions of multiplexing.

18. Describe home agent procedure for registration.

19. Discuss about unicast datagram routing.

20. Describe DHCP option handling.

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F–9467

Sub. Code
7MCE2E3

M.Sc. DEGREE EXAMINATION, APRIL 2023

Second Semester

Computer Science

Elective – COMPUTER GRAPHICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Define Morphing and Resolution.

2. What is Refresh CRT?

3. Define Shear and Reflection.

4. Write the 2D transformation matrix for scaling with respect to fixed position

5. What is meant by window and viewport?

6. Define text clipping?

7. What is surface rendering?

8. Write the transformation matrix for x-axis rotation.

9. List out the various visible-surface detection methods

10. Define cabinet projection and cavalier projection?

Part B (5 × 5 = 25)

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

11. (a) Explain the basic techniques for producing color displays with CRT.

Or

(b) Describe the Bresenham's Line drawing algorithm in detail.

12. (a) Discuss the raster methods for transformation.

Or

(b) Explain briefly about Two-Dimensional Basic Transformations.

13. (a) Explain window-to-viewport transformation.

Or

(b) Enlighten about the physical input devices.

14. (a) Write short notes on three dimensional coordinate systems and graphics packages.

Or

(b) Explain three dimensional rotation about an arbitrary axis.

15. (a) Explain back-face detection for identifying the back faces of a polygon.

Or

(b) Describe scan line method in detail.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explicate the Mid-Point Circle Generation algorithm in detail.

17. Discuss briefly about Character attributes and Bundled attributes.

18. Enlighten about interactive picture-construction techniques.

19. Explain three-dimensional display techniques in detail.

20. Describe depth-buffer method in detail.

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F–9469	Sub. Code
	7MCE2E6

M.Sc. DEGREE EXAMINATION, APRIL 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** the questions.

1. What is image interpolation?

2. Define image sampling and quantization.

3. What is meant by contrast stretching?

4. Define fuzzification and defuzzification?

5. Define power spectrum.

6. State 2-D Convolution theorem.

7. Define the model of image degradation and restoration process.

8. What is meant by blind deconvolution?

9. What is meant by full-color and pseudocolor image processing?

10. Define Run-length encoding.

Part B (5 × 5 = 25)

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

11. (a) Explain in brief about the adjacency, connectivity and distance measures.

Or

(b) Write short notes on Representation of Digital Images.

12. (a) Write short notes on histogram processing.

Or

(b) Explain Smoothing Spatial filters.

13. (a) Explain Image Smoothing using frequency domain filters.

Or

(b) Write briefly about Selective filtering.

14. (a) Write short notes on Inverse Filtering.

Or

(b) Describe in detail about the image reconstruction from projections.

15. (a) Discuss in detail about color models.

Or

(b) Enlighten about digital image watermarking.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss briefly about the mathematical tools used in digital image processing.

17. Describe the basic intensity transformation functions in detail.

18. Describe the properties of the 2-D Discrete Fourier Transform.

19. Explain how to estimate the degradation function in detail.

20. Describe in detail about any four basic image compression methods.

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F–9470	Sub. Code
	7MCE3C1

M.Sc. DEGREE EXAMINATION, APRIL 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. Define Playfair Cipher.

2. What is Steganography?

3. What is the purpose of S-boxes in DES?

4. State the purpose of state array?

5. Classify the use of public-key cryptosystems.

6. Mention the four possible approaches of attack the RSA algorithm.

7. Give examples of replay attacks.

8. What is Digital signature and mention its properties?

9. Summarize the applications of IPSec.

10. What is PGP and list out its services?

Part B (5 × 5 = 25)

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

11. (a) Summarize the categories of Security Services and Explain.

Or

(b) Discuss the model for network security in detail.

12. (a) What is the strength of DES? Explain in detail.

Or

(b) Describe AES key Expansion Algorithm.

13. (a) Explain the two approaches used in Elliptic Curve Cryptography.

Or

(b) Describe Diffie-Hellman Key Exchange algorithm.

14. (a) Explain how Brute-force attacks differ for Hash functions and MACs.

Or

(b) Describe the ElGamal digital signature scheme with example.

15. (a) Write a brief note on Encapsulating Security Payload.

Or

(b) Explain Alert and Handshake Protocols in detail.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about the OSI Security Architecture.

17. Discuss briefly on the Evaluation criteria for AES.

18. Discuss in detail about the techniques used for the distribution of public keys.

19. Describe the various types of functions used to produce and authenticator.

20. Discuss in detail about PGP Services.

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