F–8568	Sub. Code
	7MCE2C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Second Semester

Computer Science

COMPUTER SYSTEM ARCHITECTURE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. How is effective address calculated for Indirect Addressing Mode instructions?

2. Write the PUSH and POP operations of Memory Stack.

3. Name any four registers in a basic computer and list their purposes.

4. How does arithmetic shift differ from other types of shift operations?

5. What is the purpose of pipeline register?

6. What is the difference between a microprocessor and a microprogram?

7. What is the basic idea behind Cache Memory organization?

8. How is Handshaking method of data transfer better than strobe method?

9. What is meant by Parallel Processing? What is the purpose of Parallel Processing?

10. What is meant by Vector Processing?

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

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

11. (a) Discuss General Register Organization with required block diagram.

Or

(b) Explain how Status register bits are set for executing various Program control instructions.

12. (a) Explain Interrupt cycle.

Or

(b) Explain 4-bit arithmetic circuit with necessary block diagram.

13. (a) Define the following and give an example for each

(i) Microoperation

(ii) Microinstruction

(iii) Microprogram

(iv) Microcode

Or

(b) Explain Microprogram sequencer with a block diagram.

14. (a) Explain the match logic of Associative Memory.

Or

(b) Explain LOP.

15. (a) What is meant by Pipelining? Explain Arithmetic pipeline?

Or

(b) Discuss the major difficulties faced in Instruction pipeline and the measures taken to overcome them.

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

Answer any **three** questions.

16. Write a program to evaluate the arithmetic statement:

X=(A-B+C*(D* E-F)) / (G+H * K)

(a) Using a general register computer with three address instructions.

(b) Using a general register computer with two address instructions.

(c) Using an accumulator type computer with one address instructions.

(d) Using a stack organized computer with zero-address operation instructions.

17. Explain the steps involved in instruction cycle.

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

19. What is a Priority interrupt? How are Parallel priority interrupts handled?

20. Explain any four interconnection structures for multiprocessors.

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F–8569	Sub. Code
	7MCE2E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Second Semester

Computer Science

Elective – MOBILE COMPUTING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write the benefits of wireless technologies.

2. Write the parts of IP address.

3. List out the four dimensions of multiplexing.

4. State any two advantages of cellular systems.

5. Write message format of Router Advertisement.

6. What is home agent discovery?

7. What do you meant by tunneling?

8. What is multicast routing?

9. Expand DHCP.

10. What is Ingress filtering?

Part B (5 × 5 = 25)

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

11. (a) Summarize the difference between mobility and portability.

Or

(b) Describe the procedure for routing.

12. (a) Explain the overview of frequency spectrum.

Or

(b) Discuss about different types of handover in GSM.

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

Or

(b) Write the procedure for registration request and registration reply.

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

Or

(b) Discuss the procedure for multicast datagram routing.

15. (a) Write a note on home agent processing.

Or

(b) Discuss about Lazy Cell Switching and Eager Cell Switching.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give detailed note on role of IETF in mobile networking.

17. Write in detail about GSM architecture.

18. Describe foreign agent registration action.

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

20. Discuss about smooth handoffs.

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F–8570

Sub. Code
7MCE2E6

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

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. What is meant by spatial and intensity resolution?

3. Define average and median filters.

4. What is meant by intensity-level slicing?

5. State sampling theorem.

6. Define Fourier spectrum and phase angle.

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

8. Define the PDF of a gaussian noise.

9. State the purpose of digital image watermarking?

10. What is meant by color image compression?

Part B (5 × 5 = 25)

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

11. (a) Explain the representation of digital images.

Or

(b) Write short notes on Gamma-Ray imaging and X-Ray imaging.

12. (a) Explain how histogram statistics are used for image enhancement.

Or

(b) Discuss the basic five steps used to implement a fuzzy-rule based system.

13. (a) Explain Image Sharpening using frequency domain filters in detail.

Or

(b) Write briefly about Homomorphic filtering.

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

Or

(b) Explain in detail about the model of the image degradation/restoration process.

15. (a) Explain in brief about the image compression fundamentals.

Or

(b) Write briefly about the color models.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe in detail about the mathematical tools used in digital image processing.

17. Explain how to use fuzzy sets for intensity transformation.

18. Discuss in detail about Image Smoothing using frequency domain filters.

19. Discuss in detail about the problem of reconstructing an image from a series of projections.

20. Describe in detail about the color transformations.

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F–8571	Sub. Code
	7MCE3C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

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. Mention pervasive security mechanisms

2. What are Threats and Attacks?

3. What is meant by diffusion and confusion?

4. Define Guaranteed Avalanche (GA) criterion

5. What are the roles of the public key and private key?

6. Mention the purpose of Diffie-Hellman Key Exchange.

7. What is meant by weak collision resistance and strong collision resistance?

8. Define Message Authentication code.

9. What is S/MIME?

10. What protocols comprise SSL?

Part B (5 × 5 = 25)

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

11. (a) Elaborate on various types of Passive and Active Attacks.

Or

(b) Explain the basic principle of Rotor Machines with illustration.

12. (a) Describe differential cryptanalysis and linear cryptanalysis.

Or

(b) Explain the critical aspects of Block Cipher Design.

13. (a) Summarize the important aspects of Conventional and Public-key encryption Explain.

Or

(b) Describe the Linear Congruential method for Pseudorandom Number Generation.

14. (a) Describe the Digital Signature algorithm in detail.

Or

(b) Describe Birthday Attacks and Block Chaining techniques used for message authentication.

15. (a) Mention the PGP Services. Explain.

Or

(b) Summarize the Applications and Benefits of IPSec.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss in detail about various Substitution Ciphers.

17. Describe the DES Encryption and DES Decryption algorithms

18. Explain the RSA algorithm along with its computational aspects.

19. Describe Schnorr Signature Scheme with example.

20. Describe Secure Socket Layer Architecture in brief.

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F–8572	Sub. Code
	7MCE3C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Computer Science

PROGRAMMING IN PHP

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write the strength of PHP?

2. Write the syntax of switch statement.

3. What is an associative array? Give example.

4. List out date and time library functions.

5. Write the syntax to open a file for reading, writing and appending operations.

6. Write any four global variables.

7. Differentiate object properties and object methods.

8. Define a cookie.

9. Write any two environment variables.

10. What is AJAX?

Part B (5 × 5 = 25)

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

11. (a) Discuss about data types with example.

Or

(b) Explain how strings are handled in PHP.

12. (a) Explain 'for' and 'for-each' loop with example.

Or

(b) Discuss how to define user defined function with parameter and without parameters.

13. (a) Write a PHP program to write a couple of names into a new file called newfile.txt" and open it for read mode to display its contents.

Or

(b) Create a simple HMTL contact form that allows users to enter their comment and feedback then displays it to the browser using PHP.

14. (a) Explain how to define class and object in PHP with suitable example.

Or

(b) Write a procedure to create a database in MYSQL.

15. (a) Discuss about file upload and file download operations with example.

Or

(b) Write a brief note on applications of AJAX in web application.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give detailed note on all forms of 'if' statement with example.

17. Write in detail about single and multidimensional arrays with example.

18. Write a script to acquire user input and accessing in PHP.

19. Explain inheritance and abstract class with suitable example in PHP.

20. Explain how to start a session and working with session variables. Give suitable example.

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F–8573	Sub. Code
	7MCE3C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

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. What is data reduction? What are the strategies for data reduction?

2. Define Outliers. Give example.

3. What is a Data Warehouse?

4. What is OLAP and OLTP?

5. State Apriori Property.

6. Define Information Gain and Gini Index.

7. Mention various categories of clustering methods.

8. What is the difference between Agglomerative and hierarchical clustering methods?

9. What are the issues related to web mining?

10. What is Multimedia Data Mining?

Part B (5 × 5 = 25)

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

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

Or

(b) Outline briefly the major issues in Data Mining.

12. (a) Explain in detail about the three-tier data warehousing architecture.

Or

(b) Discuss in detail about Data warehouse models.

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

Or

(b) Explain how to improve the efficiency of Apriori algorithm.

14. (a) Summarize the categorization of basic clustering methods in detail.

Or

(b) Write short notes on Outlier Analysis.

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

Or

(b) Discuss about the challenges in web mining.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail about the methods of data transformation.

17. Explain in detail about Online Analytical Mining.

18. Describe the Back propagation Algorithm in detail.

19. Discuss in detail about the Grid-based clustering methods.

20. Discuss briefly about data mining applications.

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F–8574	Sub. Code
	7MCE3E1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Third Semester

Computer Science

Elective: SOFT COMPUTING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Artificial Neural Network.

2. What is single-layer feed -forward Network?

3. How to find the Net input of Hidden Adaline unit?

4. Define Hebb rule.

5. Find the Cardinality and power set of the given set A. A={1,3,5,7,9}

6. What is Fuzzification?

7. Perform the Max and Min operations over the given interval. $\widetilde{F} = [5, 6]$ and $\widetilde{G} = [9, 2]$

8. Write the different methods of FLC system.

9. What is Stochastic Hill climbing?

10. List the operators involved in Genetic Algorithm.

Part B (5 × 5 = 25)

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

11. (a) Discuss the difference between soft computing and hard computing.

Or

(b) State the terminologies in Artificial Neural Network.

12. (a) List down the Learning factors of Back propagation Network.

Or

(b) Give the brief note on Boltzmann machine.

13. (a) Explain how the membership assignment is performed using intuition.

Or

(b) Write the operations on Crispy set.

14. (a) Mention the measures of Fuzziness.

Or

(b) Write the applications of Fuzzy logic Control System.

15. (a) Write the various Selection process in GA.

Or

(b) Explain in detail on Adaptive Genetic Algorithm.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. What are the Basic models of Artificial Neural Network? Explain.

17. Explain the Hard ware model of Continuous Hopfield Network.

18. Explain the methods of Defuzzification.

19. What is Expert system? How the Fuzzy expert system formed?

20. Draw a neat flow chart and explain the operations of Genetic Algorithm.

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F–8576	Sub. Code
	7MCE3E3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Third Semester

Computer Science

Elective — MULTIMEDIA SYSTEM

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is multimedia?

2. List the components of multimedia toolkit.

3. Define frame rate.

4. Define the term quantization.

5. How quantization differs from analog tape hiss?

6. What is Huffman coding?

7. Define MIME.

8. Write any 5 real-time multimedia applications.

9. List the elements of generic VR system.

10. How VR used in submarine design?

Part B (5 × 5 = 25)

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

11. (a) List the multimedia computer components.

Or

(b) Write the applications of multimedia.

12. (a) Discuss the text operations in detail.

Or

(b) Write the methods of encoding in digital audio representation.

13. (a) Write in detail on MIDI protocol.

Or

(b) Draw the architecture of JPEG and explain its operations.

14. (a) Write a note on video tele conferencing.

Or

(b) Explain the process of integrated rapid story boarding.

15. (a) List the modelling toolkit features of VR software.

Or

(b) What is meant by the Acoustic hardware supported by VR?

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write in detail on multimedia standards.

17. Explain the file formats of digital video.

18. Discuss the various types of digital audio signal processing.

19. List the applications of multimedia with case studies.

20. Draw the architecture and explain the VR system.

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F–8578	Sub. Code
	7MCE3E5

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Third Semester

Computer Science

Elective : CLOUD COMPUTING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What are the key properties of cloud computing?

2. Write any two advantages of cloud.

3. Write the use of API.

4. List out the companies offering on demand computing and storage.

5. State any three web based email services.

6. Write any two online presentation programs.

7. What types of calenders can you create with Google calender?

8. What are the features of ZohoCRM.

9. Write the names of web mail providers.

10. List out tools in online Groupware.

Part B (5 × 5 = 25)

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

11. (a) Distinguish between client / server computing and peer -to-peer computing in detail.

Or

(b) Summarize the disadvantages of cloud computing.

12. (a) Describe the advantages of cloud development.

Or

(b) Discuss the types of cloud service development.

13. (a) How to collabrate on schedules and To-Do lists.

Or

(b) How to manage contact lists and projects.

14. (a) Explain any 5 web based word processors.

Or

(b) Discuss the modules in conference.com event management applications.

15. (a) Summarise the features in web conferencing service.

Or

(b) Explain different types of social network sites.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give brief note on cloud Architecture.

17. Explain any two providers and its services of cloud.

18. Summarize the role of cloud computing for the corporation.

19. Describe project management applications.

20. Explain blogs with suitable example.

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F–8579	Sub. Code
	7MCE3E6

M.Sc. DEGREE EXAMINATION, NOVEMBER 2022

Third Semester

Computer Science

Elective – WAP AND XML

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is meant by WTA?
2. What are the software products available for WAP?
3. Define WAP.
4. Write the syntax to format the text.
5. What is meant by WML script?
6. List out the types of operators in WML.
7. Expand XML and XSL.
8. What is style sheet?
9. What is meant by element?
10. What is the use of web scripts?

Part B (5 × 5 = 25)

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

11. (a) Write the internal structure of WAP.

Or

(b) What is the use of WAP resources? Discuss.

12. (a) Discuss about the functionality of WAP gateway.

Or

(b) Write a note on Extensible Markup Language.

13. (a) What is the need for WML script?

Or

(b) What is the use of standard libraries? Discuss.

14. (a) Discuss about the advantages of the XML format.

Or

(b) How the XML data is organized? Explain.

15. (a) Write a note on XSL.

Or

(b) Write the procedure to write XML Unicode.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain about the architecture of WAP application.

17. Briefly explain about the WML structure with example.

18. Explain about the function of WML script control statements with example.

19. Briefly explain about XML applications.

20. Explain in detail about legacy character set.

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