

A-9065

Sub. Code

4MCE1C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

First Semester

Computer Science

DATA STRUCTURES AND ALGORITHMS

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define algorithm.
2. Minimum number of queues needed to implement the priority queue?
3. What is divide and conquer method?
4. What are the two main classifications of sorting based on the source of data?
5. What is a balance factor in AVL trees?
6. What is a spanning Tree?
7. What are the applications of binary tree?
8. Define pre-order traversal?
9. Define DFS and BES?
10. What are the conditions for a graph to become a tree.

Part B**(5 × 5 = 25)**Answer **all** questions, choosing either (a) or (b).

11. (a) Write a short note on abstract data type.

Or

- (b) Explain the properties of Algorithm.

12. (a) Write a Short note on Skip List.

Or

- (b) Discuss in detail about quick sort Algorithm?

13. (a) Write a program to find the minimum cost of a spanning tree.

Or

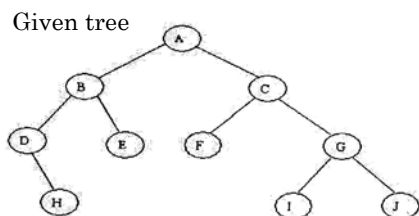
- (b) Describe about the shortest path Algorithm.

14. (a) How to destroy a binary search tree?

Or

- (b) Illustrate the flow of shop scheduling.

15. (a) Traverse the given tree using Inorder, Preorder and Postorder traversals.



Or

- (b) Explain about multistage graph with diagram.

Part C $(3 \times 10 = 30)$ Answer any **three** questions.

16. Define priority queue? Explain the basic heap operation with an example?
 17. Write a routine to implement the basic binary search tree operations.
 18. What is a pattern? Explain the optimal merge patterns.
 19. Explain on how to decrease time and space in dynamic programming problems.
 20. Explain the DFS with suitable example and also write the DFS Algorithm.
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Sub. Code

4MCE2C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Second Semester

Computer Science

.NET TECHNOLOGY

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What you meant by CLR?
2. List out various basic terminology in .Net frame work.
3. Define MDI.
4. Differentiate between status bars and progress bars.
5. List out the basic web controls.
6. What is Tracing?
7. Define class.
8. Differentiate between multiple and multilevel inheritance.
9. What is Data object?
10. Define Dataset.

Part B**(5 × 5 = 25)**Answer **all** questions.

11. (a) Write short notes on uses of Assemblies.

Or

- (b) Discuss the main objectives of .Net Garbage Collection.

12. (a) List out the various data types in VB. Net.

Or

- (b) Write short notes on Docking controls.

13. (a) Explain the purpose of AJAX files.

Or

- (b) Write short notes on Error Handling.

14. (a) Explain the concept of object oriented programming.

Or

- (b) What is the purpose of overriding? Explain

15. (a) Explain the uses of Repeater.

Or

- (b) What is meant by SQL? Explain its significance.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain and detail about components of .Net Frame work.
 17. Describe about conditional looping statement in Visual basic.Net
 18. Explain the various types of controls in ASP.Net.
 19. Discuss and detail about different types of security models.
 20. Explain the Following
 - (a) Data objects
 - (b) Data Namespace
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Sub. Code

4MCE2C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Second Semester

Computer Science

OPERATING SYSTEM

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define an operating system. Differentiate between on-line and off-line operations.
2. What is spooling?
3. What are the different types of multiprocessing?
4. What is a process state and mention the various states of a process?
5. Define busy waiting and spin lock.
6. What are conditions under which a deadlock situation may arise?
7. What is logical address space and physical address space?
8. What is the main function of the memory-management unit?

9. List the various file attributes.
10. Why is the protection needed in file sharing system?

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Describe the user's view of the operating system.
Or
(b) Write short notes on virtual machines.
12. (a) What is a process state and mention the various states of a process?
Or
(b) Define a thread. State the major advantages of threads.
13. (a) Give two hardware instructions and their definitions which can be used for implementing mutual exclusion.
Or
(b) What are the four necessary conditions a system should possess in order to be termed deadlock?
14. (a) What is virtual memory? Explain.
Or
(b) Describe the basic approach of page replacement.
15. (a) How free-space is managed using bit vector implementation?
Or
(b) Mention the importance of swap-space management.

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

Answer any **three** questions.

16. Explain how protection is provided for the hardware resources by the operating system.
 17. Explain the various threading issues.
 18. Give a detailed description about deadlocks and its characterization.
 19. Explain Contiguous and Non contiguous memory allocation with example.
 20. List and discuss the various methods for implementing a directory.
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Sub. Code

4MCE2E3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Second Semester

Computer Science

Elective – COMPUTER GRAPHICS

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What you meant by CAD?
2. Differentiate between Computer art and Computer animation.
3. Define intensity.
4. What is bundled line attributes.
5. List out any four interactive input devices.
6. Define window and viewport
7. Differentiate between Sealing and rotation,
8. List out any four transformation commands.
9. Define Viewing Transformation
10. What are the steps involved in 3D transformation?

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

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

11. (a) Write short notes on Point and lines.

Or

- (b) Explain the various types of Graphics Software.

12. (a) Write short notes on Area Filling.

Or

- (b) Explain the raster method for Transformation.

13. (a) Explain the various physical input devices.

Or

- (b) Write short notes on Segments.

14. (a) Explain the various Elements of 3D display Techniques.

Or

- (b) Describe the Three Dimensional Coordinate Systems.

15. (a) Explain the concept of Depth buffer method.

Or

- (b) What is meant by Hidden surface? Explain its significance.

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

Answer any **three** questions.

16. Explain and detail about Line drawing algorithm.
17. Describe about Two Dimensional Transformation

18. Explain the concept Windowing Algorithm.
 19. Discuss and detail about three dimensional Graphics packages.
 20. Explain the Parallel Projections in detail.
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Sub. Code

4MCE3C1

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Third Semester

Computer Science

CRYPTOGRAPHY AND NETWORK SECURITY

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Name the types of attacks on encrypted message.
2. List out different security services available.
3. Compare stream cipher and block cipher with example.
4. What are the two types of encryption algorithm?
5. Mention any one technique of attacking RSA.
6. What is the role of session key in public key schemes?
7. Define weak collision property of a hash function.
8. List the properties a digital signature should possess.
9. Expand the terms S/MIME and PGP.
10. How IPsec does offer the authentication and confidentiality services?

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

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

11. (a) Describe the substitution Techniques in detail.

Or

- (b) Explain classical encryption techniques with symmetric cipher model.

12. (a) Briefly explain design principles of block cipher.

Or

- (b) Describe Triple DES and its applications.

13. (a) Explain in detail about Blowfish.

Or

- (b) What are elliptic curves? Summarize how the elliptic curves are useful for Cryptography?

14. (a) Describe HMAC algorithm in detail.

Or

- (b) Explain ElGamal Digital signature scheme.

15. (a) Differentiate between transport modes vs. tunnel mode encryption in IPsec.

Or

- (b) Describe the importance of RADIX-64 conversion.

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

Answer any **three** questions.

16. What is Steganography? Briefly explain any two techniques.

17. Explain the single round of DES algorithm and the sub key generation process.

18. Discuss in detail RSA algorithm, highlighting its computational aspects and security.
 19. Briefly explain Diffie-Hellman key exchange with an example.
 20. Explain Secure Electronic Transaction with neat diagram.
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A-9070

Sub. Code

4MCE3C2

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Third Semester

Computer Science

PROGRAMMING IN PHP

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. List the datatypes supported by PHP.
2. What are the differences between PHP constants and variables?
3. What are the functions available to sort an array in the reverse order?
4. Give the syntax and purpose of explode function.
5. How can you close a file in PHP?
6. Give the syntax to validate the Email address.
7. How will you connect a MySQL database using PHP?
8. What is a query string?
9. How will you access the content type of the uploaded file in PHP?
10. How will you send an email using PHP?

Part B**(5 × 5 = 25)**Answer **all** questions

11. (a) What are the hardware and software requirements to work with PHP? Explain the PHP installation procedure.

Or

- (b) Explain if, else, and elseif statements of PHP with syntax and example.
12. (a) Explain following functions with examples
- (i) current()
 - (ii) next()
 - (iii) prev()
 - (iv) end()
 - (v) reset()

Or

- (b) How do you create your own functions in PHP? Write a function to find min and max elements from a set of numbers.
13. (a) Explain the functions available to navigate and determine the attributes of a file.

Or

- (b) How will you acquire user input and pass data from a form to a PHP script? Explain.
14. (a) How do you create class and objects in PHP? Explain with example.

Or

- (b) Write the code to create two cookies name and age so that these cookies will be expired after one hour, and to access all the cookies.
15. (a) Explain encoding and decoding of session data.

Or

- (b) Describe XML Http Request object methods.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain various operators supported by PHP.
17. Explain various looping statements of PHP with syntax and example.
18. Write the code for the following:
- (a) Create a new text file then write a short text inside it.
- (b) After closing the file check its existence.
- (c) Open the file and read the content of the file.
19. Explain how to create, list, review, delete, and alter MySQL database tables.
20. Create a simple XML Http Request, and retrieve data from a TXT file.
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A-9071

Sub. Code

4MCE3C3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Third Semester

Computer Science

DATA MINING AND DATA WAREHOUSING

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Data Mining.
2. Name any two Classification Techniques.
3. What is OLAP?
4. Name the components of Data Warehousing.
5. Write about Lazy Learners.
6. Give some list of Classification Methods.
7. What is the need for Outlier Detection?
8. List various types of Cluster Analysis.
9. What is Text Mining?
10. Why do we need Data Mining?

Part B

(5 × 5 = 25)

Answer **all** questions.

11. (a) Explain briefly the Functionalities of Data Mining.

Or

- (b) List and Write briefly the various Issues of data Mining.

12. (a) Discuss about the Data Warehousing Architecture.

Or

- (b) Write the activities of Data Warehousing in Data Mining.

13. (a) Describe the role of Apriori Algorithm.

Or

- (b) Explain the working principle of Hybrid Classification Techniques.

14. (a) Write and Compare the types of Data in Cluster Analysis.

Or

- (b) Explain in detail about the Partitioning Methods.

15. (a) Briefly explain the Web Mining.

Or

- (b) Discuss and Compare the various Data Mining Tools.

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

Answer any **three** questions.

16. Explain in detail the Steps involved in Data Mining.
 17. Discuss the concepts of OLAP and its benefits.
 18. Give a detailed note on Classification by Decision Tree Induction.
 19. Describe the Categorizations of Clustering Techniques in detail.
 20. Write in detail about the Spatial Data Mining and Text Mining.
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A-9072

Sub. Code

4MCE3E3

M.Sc. DEGREE EXAMINATION, NOVEMBER 2019

Third Semester

Computer Science

Elective — MULTIMEDIA SYSTEM

(CBCS – 2014 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define multimedia.
2. List some multimedia software.
3. What is shadowing?
4. Mention the operating systems support for multimedia.
5. Define sampling.
6. What is meant by compression?
7. Write the purpose of MIME.
8. Write the advantages of multimedia presentation.
9. What is virtual database?
10. List the VR software.

Part B**(5 × 5 = 25)**Answer **all** questions.

11. (a) Discuss the applications of multimedia.

Or

- (b) Briefly explain about the multimedia standards.

12. (a) How to perform positioning capture and converting graphics?

Or

- (b) Briefly explain about triggering and hyper picture.

13. (a) Write short notes on speech recognition and synthesis.

Or

- (b) Briefly discuss about various file storage.

14. (a) How to embed a multimedia files on websites using HTML? Explain.

Or

- (b) Discuss the issues that are arrived while using multimedia in internet.

15. (a) Write short notes on technology of Virtual reality.

Or

- (b) Discuss about the applications of Virtual reality.

Part C $(3 \times 10 = 30)$ Answer any **three** questions.

16. Discuss in detail about the computer components that are used for multimedia.
 17. Explain the following :
 - (a) Digital Audio (5)
 - (b) CD-ROM Format (5)
 18. Briefly discuss about MPEG motion video compression standards.
 19. Discuss in detail about the voice mail and video conferencing.
 20. Describe in detail about the functions of hardware used for virtual reality.
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