F–0413	Sub. Code
	7BIT2C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Information Technology

PROGRAMMING IN C AND DATA STRUCTURES

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write any two features of C language.
2. What do you mean by bitwise operator?
3. Write the syntax to create an array in C.
4. List out any three operations on pointers.
5. Specify the uses of pointer.
6. Draw the syntax for a Structure.
7. Define Stack.
8. How do you create a linked list?
9. Give any two applications of a Tree.
10. What is binary tree?

Part B (5 × 5 = 25)

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

11. (a) What are the fundamental data types in C? Explain with examples.

Or

(b) Write a C program to implement nested if statement.

12. (a) How to pass an array to a function? Give a sample program.

Or

(b) Write a C program to swap two numbers using pointers.

13. (a) Write the differences between Union and Structure?

Or

(b) Write a C program to perform file operations.

14. (a) Write a short note on

(i) Infix (ii) Postfix.

Or

(b) Write a C program to implement the Stack operations.

15. (a) How do you represent a List? Explain with an example.

Or

(b) Write a C program to create a Binary Tree.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the various operator and expressions in C.

17. How to create an array of pointers? Give example.

18. Give a brief account on command line parameters.

19. Write the functions of Linked List with examples.

20. Describe the tree and its applications.

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F–0414	Sub. Code
	7BIT3C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Information Technology

JAVA PROGRAMMING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out any two benefits of OO programming.
2. What are the simple data types available in Java?
3. Mention any four mathematical functions.
4. Differentiable between break and continue statements?
5. Define Method Overloading.
6. Define array.
7. Write short note on packages.
8. What is synchronization?
9. What are applets?
10. Mention any two drawing methods of the graphics class.

Part B (5 × 5 = 25)

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

11. (a) Write a program to print whether a given number is prime or not.

Or

(b) Explain the features of JVM.

12. (a) Illustrate the concepts of 'If... else' statement with an example.

Or

(b) Write a note on while statement with suitable example.

13. (a) Explain the concept of constructor with an example.

Or

(b) Discuss the concept of Two Dimensional Arrays.

14. (a) Discuss the java API packages.

Or

(b) What do you mean by multithreading? Give a sample program.

15. (a) Write an Applet program to draw the different lines and rectangles.

Or

(b) Write a short note on drawing polygons.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain object oriented Concepts and their Benefits.

17. Describe different operators in Java with suitable examples.

18. Illustrate various methods of interface implementation with an example.

19. Explain in detail Exception handling in JAVA.

20. Elucidate Applet Life Cycle.

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F–0415	Sub. Code
	7BIT4C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fourth Semester

Information Technology

OPEN SOURCE SOFTWARE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Mention some applications of open source software
2. What is Cloning?
3. State mysqld
4. How to check the MySQL version?
5. What is LDAP?
6. List out the data types of PHP.
7. What are the numbers present in the python?
8. What is the difference between intermediate mode and script mode?
9. What is “grep” function in Perl?
10. Can we load binary extension dynamically?

Part B (5 × 5 = 25)

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

11. (a) List and explain the advantages of open source system.

Or

(b) Clarify the concept of kernel mode and user mode.

12. (a) How do you use the Date and time in MySQL? Explain with example

Or

(b) Write a short note on sorting query results in MySQL.

13. (a) Discuss the data types in PHP with proper examples.

Or

(b) How can you assign range of values to the array? Explain with an example.

14. (a) Write down the mechanism of accessing strings in python.

Or

(b) Give a brief account on Dictionaries.

15. (a) Clarify the concept of Variables.

Or

(b) Write short note on Data manipulation.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explicate the concept of Open source operating systems.

17. List and explain the tools that are available for managing sql server. Give examples.

18. Describe the basic types of abstract patterns in a regular expression.

19. Clarify the concept of Looping statements in python programming.

20. How do you working with files in Perl? Explain with examples.

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F–0416	Sub. Code
	7BIT5C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Information Technology

DATABASE MANAGEMENT SYSTEMS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Define Query.
2. What do you mean by weak-entity set?
3. List out the advantages of modeling temporal data.
4. Mention any two advantages of decomposition.
5. Differentiate Centralized and Client-Server model.
6. Mention any two purposes of distributed query processing.
7. What is meant by schema object?
8. Why do you need Indexes?
9. List out the uses of Triggers.
10. Define Cursors and its types.

Part B (5 × 5 = 25)

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

11. (a) Write the applications of Database Systems.

Or

(b) What are the advantages of DBMS?

12. (a) Write short note on the database design process.

Or

(b) Describe the procedures to decompose using functional dependencies.

13. (a) What are the advantages and disadvantages of parallel systems? Discuss it.

Or

(b) Write short note on homogeneous databases with an examples.

14. (a) How to create Sequence? Give an example.

Or

(b) List and explain the various DML commands with an example.

15. (a) How do you create the Triggers in SQL? Give an example.

Or

(b) Write short note on transaction and its various properties.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail the architecture of Database.

17. Discuss about Third Normal form with an example.

18. Write a brief note on Intra-query parallelism.

19. Describe the various user privileges and roles with an example.

20. How to create the stored procedures in SQL? Give a suitable example.

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F–0417	Sub. Code
	7BIT5C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Information Technology

VISUAL PROGRAMMING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define MSIL.
2. Write any TWO features of CLR.
3. Outline the term objects.
4. What is Constructors?
5. Write the use of Radio Button.
6. What is meant by Rich Text Box?
7. Write any TWO features of ASP.NET.
8. Define Lists in ASP.NET.
9. What is ADO.NET?
10. List out Four Connection Oriented Architecture.

Part B (5 × 5 = 25)

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

11. (a) Give an account on .NET Framework Libraries.

Or

(b) Describe the concept of CLR.

12. (a) Describe the key features of Delegates and events.

Or

(b) Give a brief notes on branching statements.

13. (a) Write a note on Timer control and Scroll bars.

Or

(b) Explicate the concepts of Panels and Group boxes.

14. (a) Explain the concept of ASP.NET Page Directives.

Or

(b) Give a brief account on Custom Controls.

15. (a) Illustrate the features of ADO.NET.

Or

(b) Write a short note on data management with ADO.NET.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Elaborate the concept of .NET framework with neat diagram.

17. Elucidate the concept of Inheritance with suitable Program.

18. Give a brief account on Handling dialog boxes with examples.

19. Explain the Validation server control and Rich web controls with examples.

20. How do you use the SQL server with ASP.NET with an example?

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F–0418	Sub. Code
	7BITE1A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Information Technology

Elective – DESIGN AND ANALYSIS OF ALGORITHMS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Define Algorithm.
2. List the applications of queues
3. What are the tasks performed during inorder traversal?
4. Define degree of the node
5. List out any four basic operations carried out in a linked list
6. What do you mean by shortest path?
7. Define merge sort
8. Define Backtracking.
9. What is the use of Dijkstra's algorithm?
10. What are the applications or examples of dynamic programming?

Part B (5 × 5 = 25)

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

11. (a) Write an algorithm to insert and delete an element from a simple Queue.

Or

(b) Explain Performance Analysis of the algorithms.

12. (a) Write a short note on Binary Tree Traversal.

Or

(b) Write a short note on Graphs.

13. (a) Explicate the operations of single linked list.

Or

(b) Write short note on traveling sales person problem.

14. (a) List out the Advantages and Disadvantages in Quick Sort.

Or

(b) What is Binary searching? Give example.

15. (a) Illustrate Huffman algorithm in details.

Or

(b) Write a Prim's algorithm with suitable examples.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. What is Stack? Why it is known as LIFO? Write algorithm of PUSH, POP, PEEP and CHANGE operation on Stack.

17. Elaborate the concept of Binary Trees.

18. Illustrate the operations on double linked linear list with algorithm.

19. Briefly explain the following:

    (a) Depth first search (5)

    (b) Breadth-first search. (5)

20. Illustrate the concept of Continuous Knapsack Problem with suitable examples.

F–0419	Sub. Code
	7BITE1B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Information Technology

Elective — COMPUTER GRAPHICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. List out any four Input devices.

2. What is DDA?

3. Write the uses of transformation symbol.

4. Define scaling 2D transformation.

5. What is line clipping?

6. Define the term Aspect Ratio.

7. What are inverse Transformations?

8. Write any two uses of 3D Rotation transformations.

9. What is control object?

10. What is JCL?

Part B (5 × 5 = 25)

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

11. (a) Write a short note on Line drawing algorithm.

Or

(b) Briefly explain the Circle Generation algorithm.

12. (a) Describe the Transformation principles.

Or

(b) Write a short note on the composition of 2D Transformations.

13. (a) Brief about point clipping.

Or

(b) Describe the Sitherland Hodgman algorithm.

14. (a) Elucidate the scaling of 3D Transformations.

Or

(b) Discuss about the matrix representation of 3D Transformations.

15. (a) Write a short note on the styles of command language.

Or

(b) Explain the information display.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Enumerate the various hard copy output devices.

17. Explain the Matrix Representation in two dimensional transformations.

18. Illustrate with an example the Convex polygon clipping.

19. Write a brief note on Rotation and Mirror Reflection.

20. Explain in detail the various components of user interface design.

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F–0420	Sub. Code
	7BITE2A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fifth Semester

Information Technology

Elective – COMPUTER NETWORKS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the uses of Computer Networks?

2. What is an ATM?

3. Mention any two design issues of data link layer.

4. What is ALOHA?

5. Define Tunneling.

6. List out the different types of switching.

7. How to perform crash recovery?

8. Expand the terms UDP and TCP.

9. What is Network Security?

10. What is Multimedia?

Part B (5 × 5 = 25)

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

11. (a) Illustrate the requirements of Network Hardware and Software.

Or

(b) Explicate the concepts of Guided Transmission Media.

12. (a) Illustrate the mechanisms of any two Sliding Window Protocols.

Or

(b) Write a short note on Collision free Protocols.

13. (a) Illuminate any two Routing algorithms.

Or

(b) Describe the functions of Firewall.

14. (a) How to define and find the IP address? Explain with an example.

Or

(b) Elaborate the steps to evaluate the performance of a network.

15. (a) Give a brief account on Cryptography.

Or

(b) What is Data Compression? Explain its any two techniques.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the concept of Broadband and Narrowband ISDN.

17. How to specify and verify the data link layer protocols.

18. What is Fragmentation? How to perform fragmentation?

19. Describe the functions of any Transport layer protocols.

20. Give a brief account on E-mail privacy.

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F–0421	Sub. Code
	7BITE2B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Fifth Semester

Information Technology

Elective : SECURITY IN COMPUTING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. State computer Intrusion.

2. Give any four names of substitution techniques.

3. What are the Kinds of Malicious Code?

4. List the types of flaws.

5. What is sensitive data?

6. Define commit flag in database.

7. Define Firewalls.

8. Outline SSH Encryption.

9. State Privacy preserving.

10. Define Data mining.

Part B (5 × 5 = 25)

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

11. (a) List out the characteristics of computer Intrusion.

Or

(b) What is Public key encryption? Explain briefly.

12. (a) Describe the concepts of Controls against Program Threats in detail.

Or

(b) Discuss about the concepts of secure programming.

13. (a) Deliberate the security policies in trusted operating system.

Or

(b) Why concurrency control is needed? Explain the Concurrency control mechanisms with an example.

14. (a) Give a brief account on Threats in network security.

Or

(b) Explain in detail about operation of Secure Socket Layer in detail.

15. (a) How do you secure E-mail? Explain briefly.

Or

(b) Give a brief account on privacy on web.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Compare DES with AES Encryption algorithm with example.

17. Explain various methods of user authentication mechanisms with an example.

18. What is meant by database security? List and discuss the different issues related to database security.

19. Identify a few malicious programs that need a host program for their existence.

20. What is privacy preserving? Explain its principles and policies.

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F–0422	Sub. Code
	7BIT6C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Sixth Semester

Information Technology

SOFTWARE ENGINEERING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Software Engineering.
2. What are the two types of software products?
3. Specify any two formal specification techniques.
4. What is meant by software requirements?
5. Define Modularization.
6. What are the structure coding techniques?
7. Define Software Testing.
8. Name any two Software maintenance tools.
9. Specify the uses of Software Quality Assurance.
10. What is ISO 9000 standards?

Part B (5 × 5 = 25)

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

11. (a) Describe the various managerial issues in detail.

Or

(b) Discuss the phases involved in planning the software project.

12. (a) Elucidate the different software cost factors.

Or

(b) Give a brief note on software requirements specification.

13. (a) Illustrate the fundamental design concepts.

Or

(b) Give an account on Distributed System Design.

14. (a) Differentiate unite testing and integration testing.

Or

(b) Write a brief note on Configuration Management.

15. (a) Discuss the various quality concepts.

Or

(b) Describe the ISO 9000 quality standards.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Elucidate the quality and productivity factors.

17. Discuss the various Software Cost Estimation techniques in detail.

18. Give a brief account on Structured Coding techniques.

19. Explain the activities involved in Software Maintenance.

20. Describe the formal technical reviews in detail.

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F–0423	Sub. Code
	7BIT6C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Sixth Semester

Information Technology

OPERATING SYSTEM AND SYSTEM SOFTWARE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Define the term Operating systems.

2. Write the uses of Read Only Memory.

3. Differentiate process and processor.

4. What are the four necessary conditions for deadlock?

5. What do you meant by segmentation?

6. List out the uses of free space management.

7. Mention the features of machine independent assemblers.

8. Differentiate one pass assemblers and multi pass assemblers.

9. Write any two uses of dynamic linking.

10. List out the uses of automatic library search.

Part B (5 × 5 = 25)

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

11. (a) Write short notes on Direct Memory Access.

Or

(b) Describe the objectives and functions of operating systems.

12. (a) What is Semaphores? Discuss it.

Or

(b) Illustrate the inter process communication.

13. (a) Write short note on thrashing.

Or

(b) What is demand paging? Write its advantages.

14. (a) Describe the features of machine dependent assembler.

Or

(b) What is symbols and expression in assemblers?

15. (a) Write short notes on relocation and program linking.

Or

(b) Discuss about linkage editors.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about the system calls.

17. Discuss about critical section problem with an example.

18. Write brief note on any two directory structure.

19. Describe about various addressing modes.

20. Explain in detail about the algorithms and data structures for lining loaders.

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F–0424	Sub. Code
	7BIT6C3

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Sixth Semester

Information Technology

PRINCIPLES OF MULTIMEDIA

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Hypermedia.
2. What are the data elements of Multimedia?
3. What is the difference between Input and Output?
4. Justify the term processor.
5. Expand: MIDI
6. What is meant by Navigation?
7. Define Frame Rate.
8. Name the classes of products.
9. Outline the term Authoring Tools
10. What is HTML?

Part B (5 × 5 = 25)

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

11. (a) Discuss about multimedia copyright issues.

Or

(b) How the developers will evaluate the project? Explain.

12. (a) Neatly sketch the standards of computer architecture.

Or

(b) Write a short note on Graphical Interface.

13. (a) Discuss about the concept of graphics file and application formats.

Or

(b) Clarify the concept of digital audio systems.

14. (a) Write down the mechanism of digital audio and video.

Or

(b) Give a brief account on storyboarding.

15. (a) List and explain the features of multimedia tool.

Or

(b) Write short note on HTML and web authoring.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Briefly explain the available resources of multimedia developers.

17. Explicate the concept of Multimedia computer architecture.

18. How can you use the images and color? Explain with an example.

19. Clarify the concept of Digital video data sizing.

20. Elucidate the categories of authoring tools with necessary explanations.

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F–0425

Sub. Code
7BITE3A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Sixth Semester

Information Technology

Elective — MOBILE COMMUNICATION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Signal.

2. Specify the uses of antennas.

3. What is the use of SDMA?

4. What are the components of UMTS?

5. Write any two advantages of radio transmission.

6. List the major elements of UMTS system architecture.

7. Specify the uses of Mobile IP.

8. Differentiate tunneling and reverse tunneling.

9. Specify the use of HTML.

10. Define Mobility.

Part B (5 × 5 = 25)

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

11. (a) Explain the spread spectrum technologies.

Or

(b) Illustrate the various frequencies of radio transmission.

12. (a) Compare S/T/F/CDMA technologies.

Or

(b) Explain the concepts of Handover.

13. (a) Briefly discuss the IEEE 802.11 Architecture.

Or

(b) Write a short note on Bluetooth Security.

14. (a) Explain in detail about mobile network layer.

Or

(b) Give a brief note on Transaction Oriented TCP.

15. (a) Elucidate the HTTP methods.

Or

(b) Depict the File System Consistency.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Describe the different types of modulation techniques.

17. Give a brief account on Satellite system.

18. Discuss the Location Management in detail.

19. Give a brief account on following concepts :

    (a) Snooping TCP (5)

    (b) Indirect TCP (5)

20. Elucidate the concepts of Wireless Application Protocol.

F–0426	Sub. Code
	7BITE3B

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Sixth Semester

Information Technology

Elective – E-COMMERCE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. Define E-Commerce.
2. What is an Internet?
3. Name any two Electronic Payment Systems.
4. Mention the purpose of a Debit Card?
5. What is Electronic Data Interchange?
6. Give any two examples for message transport protocol.
7. Write the purpose of E-market research.
8. What is an electronic catalog?
9. Specify the uses of computer based training.
10. What is software agent?

Part B (5 × 5 = 25)

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

11. (a) Describe the electronic commerce consumer applications.

Or

(b) Write the short note on Internet Society.

12. (a) What are the different types of electronic payment systems? Explain.

Or

(b) Explicate the mechanisms of digital token based electronic payment system.

13. (a) Illustrate the EDI applications in business.

Or

(b) Give a brief note on Internal Information Systems.

14. (a) Elaborate the concepts of Information based Marketing.

Or

(b) Explain about the data interface.

15. (a) Illuminate the pros and cons of digital copyrights.

Or

(b) Describe the history of software agents.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Briefly explain the electronic commerce organization applications.

17. Explicate the mechanisms of hypertext publishing.

18. Describe the standardization and EDI.

19. Discuss the concepts of information filtering

20. Elaborate the properties of software agents.

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