F–9108

Sub. Code
7BCE1C1

B.Sc. DEGREE EXAMINATION, APRIL 2023

First Semester

Computer Science

PROGAMMING IN C

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. When an integer overflow occurs in C?
2. When an integer underflow occurs in C?
3. How to write a character in C?
4. Give the syntax for formatted input.
5. Declare two – dimensional array of float type.
6. Give the syntax for declaring string in C.
7. Define union in C.
8. Give the syntax of function declaration.
9. What is file pointer?
10. How to access value of a variable through pointers?

Part B (5 × 5 = 25)

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

11. (a) Explain conditional and bitwise operators in C.

Or

(b) Write a short note on evaluation of expression.

12. (a) Write C program to find greatest of three numbers using ?: operator.

Or

(b) Explain about while loop with appropriate program.

13. (a) Write a short note on multi – dimensional array with example.

Or

(b) Discuss about any five string functions.

14. (a) What is recursive function? Write a C program using recursive function to find factorial of a number.

Or

(b) How arrays are passed to functions as parameters? Discuss with an example.

15. (a) How to use pointers as function arguments? Discuss

Or

(b) Explain any five file operators

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write a C program to find roots of a quadratic equation.

17. Explain about for loop in detail and using for loop sum the numbers from 1 to 20 and print the output.

18. Explain about 10 different string functions in C.

19. Explain about call by value and call by reference in detail with an example.

20. Write a C program using pointers to count the vowels in the given sentence.

———————

F–9109	Sub. Code
	7BCE2C1

B.Sc. DEGREE EXAMINATION, APRIL 2023.

Second Semester

Computer Science

OBJECT ORIENTED PROGRAMMING WITH C++

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Define tokens in C++.

2. Can we use int as variable name in C++? Give reasons for your answer.

3. Define constructors in C++.

4. What is the significance of static data members in class?

5. Why we need inheritance?

6. Define virtual class?

7. Define pointers in C++.

8. What is virtual function?

9. Define file pointers

10. What is buffered output in C++?

Part B (5 × 5 = 25)

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

11. (a) Write a C++ program to find greatest of three numbers.

Or

(b) Explain in detail any three applications of OOP.

12. (a) What are inline functions? Explain in detail.

Or

(b) Explain the importance of static member functions in C++ with appropriate code.

13. (a) Explain in detail the rules for operator overloading.

Or

(b) What is multilevel inheritance? Explain it with suitable code.

14. (a) Explain the abstract class in C++.

Or

(b) Write a short note on stream classes in C++.

15. (a) Write a C++ code to read a file content and print the same.

Or

(b) Explain about file pointers and their manipulations.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about various OOPs concept.

17. Explain the importance of friend function with appropriate code.

18. Write a C++ code to overload '++' and '*' operator.

19. Differentiate virtual and pure virtual function with suitable code.

20. Explain in detail about class and function templates.

———————

F–9110	Sub. Code
	7BCE3C1

B.Sc. DEGREE EXAMINATION, APRIL 2023.

Third Semester

Computer Science

DATA STRUCTURES AND COMPUTER ALGORITHMS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Why we need data structures?

2. List the advantages of circular linked list.

3. Define Stack

4. What data structure you will use to evaluate the algebraic expression? State reasons.

5. Define binary tree?

6. What is expression tree? Give an example.

7. What is an algorithm?

8. Define worst case of an algorithm.

9. What is optimal storage on tapes?

10. Define greedy method? Give examples.

Part B (5 × 5 = 25)

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

11. (a) Give the data structure for single linked list and explain it in detail.

Or

(b) Compare and contrast the arrays with linked list. Give examples wherever necessary.

12. (a) What are the two operations of stack? Give their codes.

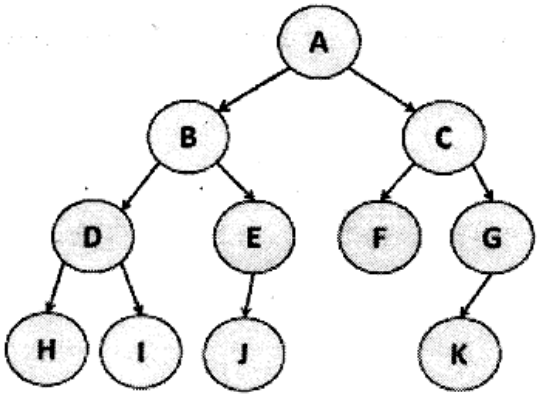
Or

(b) Can we implement linked list as stack? If so brief in detail.

13. (a) Explain in detail the threaded binary trees.

Or

(b) Give the in-order, pre-order and post-order for the tree given below:



14. (a) Explain the algorithm for binary search with an example.

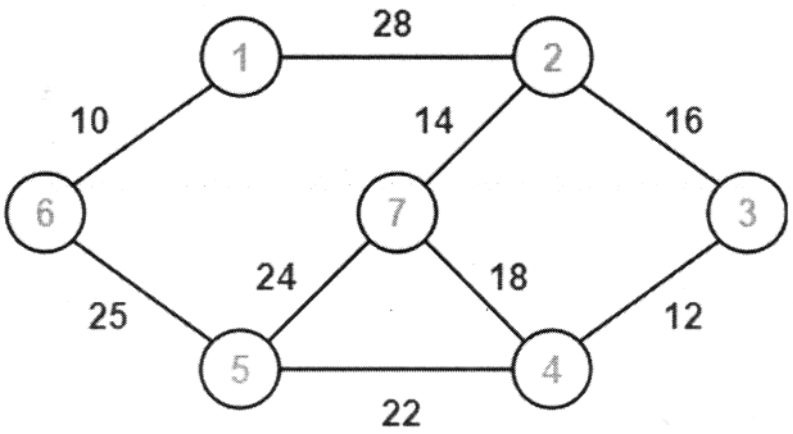
Or

(b) Describe in detail about the selection sort algorithm with an example.

15. (a) Describe the Knapsack problem in detail.

Or

(b) Solve the following for minimum cost spanning tree using Prim's algorithm:



Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail the algorithm of insert, delete and traversal operations of doubly linked list. Give pseudocode wherever necessary.

17. Describe in detail about the implementation of queue using linked list with suitable pseudocode.

18. Give the algorithm with and without recursion for traversal in binary trees?

19. Explain the quick sort algorithm and sort the given number step by step using quick sort: 29,8,45,98,32,4,76,11,20,17,2,33,57

20. Discuss in detail about the travelling salesman problem

F–9111	Sub. Code
	7BCE4C1

B.Sc. DEGREE EXAMINATION, APRIL 2023.

Fourth Semester

Computer Science

JAVA PROGRAMMING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is type casting? How will you convert the float variable to integer variable?

2. How will you give command line arguments in Java?

3. How will you declare strings in Java?

4. What is ternary operator?

5. Give syntax for declaration of 2 dimensional array

6. What will happen for declare a class as final in Java?

7. Why we need threads in Java?

8. Why we use 'throws' keyword in Java?

9. Give syntax in applet for displaying image.

10. What are control loops in Java?

Part B (5 × 5 = 25)

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

11. (a) Explain in detail how Java programs are executed?

Or

(b) Write a short note on type casting in Java.

12. (a) Write a Java program using do-while loop to find factorial of a number.

Or

(b) Write a Java program to find greatest of three numbers.

13. (a) How multiple inheritance is handled in Java?

Or

(b) Why we need abstract class in Java? How it will behave in inheritance?

14. (a) Write a short note on thread priority and synchronization.

Or

(b) Write a Java program with proper exception handling for reading and writing a file?

15. (a) Write a Java program to draw a circle using applet.

Or

(b) How bar charts are drawn in applet? Give detailed steps.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe in detail the features of Java.

17. Explain in detail about various operators in Java with examples.

18. Explain in detail various kind of inheritance with neat diagram wherever possible.

19. Explain thread life cycle in detail with diagram.

20. Discuss applet life cycle in detail with diagram.

———————

F–9112

Sub. Code
7BCE5C1

B.Sc. DEGREE EXAMINATION, APRIL 2023

Fifth Semester

Computer Science

OPERATING SYSTEM

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is Interrupt?
2. What is Trap?
3. Define critical section problem.
4. Why we need concurrency in operating system?
5. Why we need to schedule a processor?
6. What will happen if the time quantum allotted is large for the round robin scheduling algorithm?
7. Define segmentation.
8. What is internal fragmentation?
9. What is the main purpose of access control?
10. What is rotational latency in disk scheduling algorithm?

Part B (5 × 5 = 25)

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

11. (a) Write a short note on inter-process communication.

Or

(b) Explain in detail process control block and context switch.

12. (a) Explain concurrent programming.

Or

(b) Discuss types of semaphore their pros and cons.

13. (a) How we can avoid deadlock? Explain.

Or

(b) Define Turn around time, waiting time and burst time.

14. (a) What is belady's anomaly? Explain in detail where does it occurs?

Or

(b) Discuss the pros and cons of contiguous and non-contiguous memory allocation.

15. (a) Explain the three main ways to allocate disk space to files in operating system.

Or

(b) Write a short note on file attributes and file types.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe various components of operating system with diagram.

17. Describe on various hardware solution to handle mutual exclusion.

18. Find response time, waiting time, turnaround time for the problem given below:

Process	Burst Time	Arrival Time	Priority
P1	4	0	3
P2	2	1	1
P3	5	2	2

(a) First come first serve

(b) Shortest job first both pre-emptive and non-pre-emptive

(c) Round Robin time quantum = 1

19. Consider the page references 7,0,1,2,0,3,0,4,2,3,0,3,2, with 3 page frame. Find number of page fault using first in first out, least recently used algorithm, optimal page replacement algorithm.

20. Discuss about various disk scheduling algorithms.

———————

F–9113

Sub. Code
7BCE5C2

B.Sc. DEGREE EXAMINATION, APRIL 2023

Fifth Semester

Computer Science

RELATIONAL DATABASE MANAGEMENT SYSTEMS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Relational Databases?
2. Define primary key with example.
3. Why we need normalization?
4. Define temporal database.
5. Why we need client-server architecture?
6. Define interquery parallelism.
7. What is the use of force option in views?
8. What are the operations that can be done on views?
9. Define LOB in PL/SQL.
10. Differentiate ROWID and UROWID.

Part B (5 × 5 = 25)

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

11. (a) Write a short note on history of database systems.

Or

(b) Describe various components of ER diagram.

12. (a) Explain the difference between 3rd Normal form and BCNF with an example.

Or

(b) What is functional dependency? Explain in brief.

13. (a) Compare and contrast parallel system and distributed system.

Or

(b) Explain in detail about distributed query processing.

14. (a) Write a short note on synonymns in dbms.

Or

(b) Differentiate NEXTVAL and CURRVAL.

15. (a) Discuss the parameter modes in PL/SQL programs.

Or

(b) Explain cursor in detail with its syntax.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Construct ER diagram for hospital management system and in the diagram clearly mention about primary key, candidate key and super key.

17. Describe various normal forms in detail with example.

18. Describe in detail about distributed transactions.

19. Explain how tables are created and maintained and also discuss about indexes.

20. Write a short note on stored procedures and functions in PL/SQL.

———————

F–9114

Sub. Code
7BCEE1B

B.Sc. DEGREE EXAMINATION, APRIL 2023

Fifth Semester

Computer Science

Elective — WEB DESIGN

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Emphasis tag?

2. What is the purpose of small text tag?

3. What is CSS?

4. List four link states in CSS.

5. Why we need client-side scripting?

6. Give the syntax for single line and multi-line comments in Java script.

7. Why we need functions in java script?

8. How will you create array in Java script?

9. Define HTML DOM.

10. How will you find HTML element by CSS Selectors?

Part B (5 × 5 = 25)

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

11. (a) Write the HTML code to create web page with text box, combo box and list box and submit button.

Or

(b) Write short note on formatting text in HTML.

12. (a) Explain in brief about CSS Selectors.

Or

(b) Describe in detail how CSS can be used for border style.

13. (a) Explain the condition statement in Java script.

Or

(b) Describe about switch statement structure in java script.

14. (a) Write a short note on recursion functions and iteration in Java script.

Or

(b) How will you create array and access elements in Java script?

15. (a) Write a short note on XML vocabularies.

Or

(b) Write a html code which on clicking button should display todays date.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write HTML code to draw a table as shown below:

First name	Last name	Age
Priya	Sharma	24
Arun	Singh	32
Sam	Watson	41

17. Write a short note on embedded style sheet and external style sheet with appropriate code and give their pros and cons.

18. Explain about do-while loop, for loop and break continue statement in java script.

19. How will you pass array as parameter in functions? Write java script code to sort array elements.

20. Describe about W3C XML schema documents.

———————

F–9115

Sub. Code
7BCEE2A

B.Sc. DEGREE EXAMINATION, APRIL 2023

Fifth Semester

Computer Science

Elective : DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. Convert $(10011011)_2$ to hexadecimal.
2. Draw NAND logic gate.
3. What is multiplexer?
4. Define combinational circuits.
5. Draw the circuit of half-adder.
6. List the uses of 2's Complement Binary Numbers
7. What is the function of stack pointer?
8. What is the role of control memory?
9. What are the modes of I/O data transfer?
10. What is pipelining?

Part B (5 × 5 = 25)

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

11. (a) Derive the basic logic gates from NOR gate alone.

Or

(b) What is excess-3-code and list all its advantages.

12. (a) Explain parity checker and its types.

Or

(b) Write the steps used in product of sum simplification.

13. (a) Discuss in detail about binary subtractor

Or

(b) Do the following using 2's complement

(i) Add 353 and -121

(ii) Add -43 and 39

14. (a) Write a short note on selection of address for control memory.

Or

(b) Explain common bus system in detail.

15. (a) Write a short note on data manipulation instructions.

Or

(b) Explain about memory hierarchy.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about ASCII code and Gray code.

17. Simplify the following using sum of products. Draw the simplified logic circuit

$$F(A, B, C, D) = \sum_m (3,7,11,12,13,14,15)$$

18. Explain in detail about binary adder and subtractor.

19. Describe address sequencing in detail.

20. Explain various types of data transfer and manipulation instructions.

———————

F–9116	Sub. Code
	7BCE6C1

B.Sc. DEGREE EXAMINATION, APRIL 2023.

Sixth Semester

Computer Science

COMPUTER NETWORKS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List four applications of computer networks
2. What are all the advantages of layered architecture.
3. What is multiplexing?
4. Why is coaxial cable is superior to twisted pair cable?
5. Why we need data link layer?
6. Write short note on Ethernet?
7. What is congestion?
8. What factors will lead to congestion?
9. What is cryptology?
10. List the service provided by application layer.

Part B (5 × 5 = 25)

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

11. (a) Explain half-duplex and full duplex communications.

Or

(b) What is topology? Explain with diagrams the four basic network topology.

12. (a) Explain the different categories of multiplexing in brief.

Or

(b) Explain the goals of computer networks.

13. (a) Discuss different types of framing methods.

Or

(b) Explain hamming code method with your own example.

14. (a) Explain leaky bucket algorithm in detail.

Or

(b) Explain the services that are provided by transport layer.

15. (a) Explain the five basics functions of email system.

Or

(b) Explain world wide web architecture in brief.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain with diagram the TCP/IP reference model.

17. Describe the packet switching and its type in detail.

18. Explain piggybacking and pipelining techniques.

19. Discuss in detail IP protocol.

20. Explain public key Algorithm.

———————

F–9117

Sub. Code
7BCE6C2

B.Sc. DEGREE EXAMINATION, APRIL 2023.

Sixth Semester

Computer Science

COMPUTER GRAPHICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

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

Answer **all** questions.

1. What is a frame buffer?

2. Define antialiasing.

3. What does display file interpreter contain?

4. What is a polygon? Give examples for polygons.

5. Define scaling.

6. What is a segment table?

7. What is a viewport?

8. What is meant by windowing?

9. State the role of locator.

10. What is an event? Give examples for events.

Part B (5 × 5 = 25)

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

11. (a) Explain the process of vector generation.

Or

(b) Explain the attributes related to character generations.

12. (a) Describe the display file structure.

Or

(b) Explain the Inside – outside test.

13. (a) Describe rotation about an arbitrary point.

Or

(b) Explain the operations carried out on segments.

14. (a) Describe the window to viewport transformation.

Or

(b) Explain the procedure for polygon clipping.

15. (a) Discuss the salient features of any two input devices used for interaction

Or

(b) Explain echoing.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain Bresenham's Algorithm

17. Explain the algrorithms for filling polygons.

18. Describe the various transformations with necessary equations and matrices.

19. Explain Cohen – Sutherland algorithm.

20. Describe event handling in interactive applications.

———————

F–9118

Sub. Code
7BCE6C3

B.Sc. DEGREE EXAMINATION, APRIL 2023

Sixth Semester

Computer Science

SOFTWARE ENGINEERING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the Primary goal of Software Engineering?
2. What are the tasks to be performed in the organizational structure?
3. Define the term Reliability.
4. What are the major aspects of PSL Systems?
5. Write the Design Notations in the Function Oriented Design.
6. Define test plan.
7. Define validation with example.
8. What is semaphore?
9. What is Software Reverse Engineering?
10. What are the types of maintenance?

Part B (5 × 5 = 25)

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

11. (a) Identify and discuss important management problems.

Or

(b) Discuss about the cost model of the Software life cycle.

12. (a) Explain the Software requirement specification.

Or

(b) Write short notes on Structured System Analysis (SSA).

13. (a) Discuss in detail about the various top-Down techniques.

Or

(b) Write a short note on Structured Flowcharts.

14. (a) Explain in detail about software quality assurance's plan and function.

Or

(b) Write a short note on Structured Coding Techniques

15. (a) Discuss about enhance the Software maintainability.

Or

(b) Write a short note on source code metrics.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the size categories for Software product.

17. Explain in detail about Cost Estimation techniques of software.

18. Discuss in detail about the various design notations.

19. Explain in detail about good coding style.

20. Describe the managerial aspects of software maintenance.

———————

F–9119	Sub. Code
	7BCEE3A

B.Sc. DEGREE EXAMINATION, APRIL 2023.

Sixth Semester

Computer Science

Elective - VB.NET AND ASP.NET PROGRAMMING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is label control?
2. How to declare variable? Give an example
3. Difference between Textbox and Rich textbox.
4. What is the purpose of dialog box?
5. Define polymorphism.
6. What is file stream class?
7. How to import the namespaces? Give an example
8. Write any four HTML control event.
9. List out the basic operations in database.
10. What is Data binding?

Part B (5 × 5 = 25)

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

11. (a) Discuss the Element of VB.Net with example.

Or

(b) What is exception and exception handling?

12. (a) Write a short notes on any two Form Inputs?

Or

(b) Explain about the status and progress bars.

13. (a) Explain the Graphic class.

Or

(b) Discuss about the file class.

14. (a) Explain code – behind in ASP.Net.

Or

(b) Briefly explain Html Controls in the applications.

15. (a) Explain about the Data providers in ADO.Net.

Or

(b) Explain in detail about Data Binding with example.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write short notes on
    (a) Variable and Constant (6)
    (b) Type Conversion (4)

17. Write a simple program window form for user signup form.

18. Discuss about File Stream Class with example

19. Write a program using basic asp.net web controls.

20. Explain in detail about SQL Data Insertion Statement, updating Statement, Selection Statement and Deleting Statement with example.

———————

F–9120	Sub. Code
	7BCEE3B

B.Sc. DEGREE EXAMINATION, APRIL 2023

Sixth Semester

Computer Science

Elective - PROGRAMMING WITH LINUX, APACHE, MYSQL AND PHP (LAMP)

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is Web service?

2. What are the various data types to be used in PHP programming?

3. Define function.

4. What is inheritance?

5. What is user defined array?

6. Write a short note on session.

7. Define directories.

8. How to create images using scripts?

9. Write a my SQL query to create simple students table.

10. Give the advantages of MY SQL.

Part B (5 × 5 = 25)

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

11. (a) How to install and configure the Apache web server on windows?

Or

(b) Write a short notes on various looping statements.

12. (a) What are the function and what are the various operation used in the function?

Or

(b) What is inheritance and its types?

13. (a) Write a simple form for student enrollment using PHP station.

Or

(b) Write a simple form for access the various inputs.

14. (a) How to create file and validation file?

Or

(b) How to draw a pie chart using PHP?

15. (a) Write any five my SQL command and explain it.

Or

(b) Write a short note on my SQL function.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain about PHP code block and browser output.

17. What is sting? Give the various operation of sting with example.

18. What is cookies? Discuss about the cookies process in browser side scripting.

19. Explain about directory and their functions.

20. Explain in detail about transaction and storage processes in my SQL.

———————