

**D-1046**

**Sub. Code**

**41211**

DISTANCE EDUCATION

P.G.D.C.A EXAMINATION, DECEMBER 2021.

First Semester

DIGITAL COMPUTER ORGANIZATION

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Why binary number system is used in digital computers?
2. Find the 9's complement of decimal number  $(567)_{10}$ ?
3. Draw the logic diagram of Half adder.
4. Define sequential logic circuit.
5. What is the use of Memory Address Register (MAR)?
6. List the causes of Input / Output interruption.
7. List some commonly used flags in storing registers?
8. Write short note on Program Control Instructions.
9. Define cache memory.
10. What is the purpose of I/O processor?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) How do you perform subtraction operation using 1's complement and 2's complement? Illustrate with example.

Or

- (b) Discuss the laws and rules of Boolean algebra.

12. (a) Draw and explain the logic diagram of octal to binary encoder.

Or

- (b) How will you obtain T flipflop from JK flipflop?

13. (a) Write short note on: Timing and Control.

Or

- (b) What is an I/O interrupt? Briefly Explain.

14. (a) Briefly explain about various human-interactive I/O devices with neat diagram.

Or

- (b) Discuss about serial communication with neat diagram and example.

15. (a) Describe five levels of memory hierarchy with diagram.

Or

- (b) What do you understand by associative memory? Explain its general structure.

PART C — ( $3 \times 10 = 30$  marks)

Answer any THREE questions.

16. Explain Quine McCluskey Method for simplification of Boolean expression with suitable example.
  17. What is Hamming code? Explain the Hamming code method of error detection and correction.
  18. Explain in detail about the representation of computer instructions.
  19. Write short notes on: (a) Direct addressing (b) Relative addressing (c) Stack addressing
  20. Explain the process of address translation in virtual memory with neat diagram.
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**D-1047**

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**41212**

DISTANCE EDUCATION

P.G.D.C.A EXAMINATION, DECEMBER 2021.

First Semester

OBJECT ORIENTED PROGRAMMING WITH C++

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. List any two structured programming languages?
2. What are keywords in C? Given an example.
3. What are Constructors?
4. Define String. Give example.
5. What is the use of Scope resolution operator?
6. What is the use of final keyword?
7. Define class template.
8. What are the operators for pointers? List them.
9. List any two error handling functions in C++.
10. What is an user defined exception?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) What is the use of 'static' keyword in C++? Give an example.

Or

- (b) Illustrate with an example, how the '*cin*' and '*cout*' are used.

12. (a) Narrate the use of inline function? Explain with example.

Or

- (b) Write the difference of using private and protected member function.

13. (a) How will you define and access members of multilevel inheritance? Explain.

Or

- (b) Write a C++ program Binary operator overloading.

14. (a) Write a program to illustrate function template.

Or

- (b) Discuss briefly about hierarchy of file stream classes.

15. (a) How will you handle uncaught exceptions? Give example.

Or

- (b) Briefly explain about exceptions in constructors and destructors.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss about the evolution of Object Oriented Programming. Compare with Procedure Oriented Programming.
17. Explain the following:
  - (a) Return by reference.
  - (b) Function prototyping.
  - (c) Function overloading.
18. What is overloading? Explain in detail about unary operator overloading. Give example.
19. Elucidate about various file stream classes with suitable example.
20. Write a C++ program to catch Arithmetic Exception.

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**Sub. Code**

**41213**

DISTANCE EDUCATION

P.G.D.C.A EXAMINATION, DECEMBER 2021.

First Semester

Computer Applications

DATA STRUCTURES AND ALGORITHMS

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Differentiate between Data type and Data structure.
2. What are Primary Data structures?
3. Define Linked List
4. List the basic operations carried out in Linked List.
5. Define a path in a tree.
6. What is mean complete binary tree?
7. Define Linear Search.
8. Mention the types of searching.
9. Define selection sort
10. What are the advantages of Radix sort?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) What are the various operations that can be performed on different Data Structures?

Or

- (b) How is an Array different from Linked List?

12. (a) What is a Queue, how it is different from stack and how is it implemented?

Or

- (b) What are Infix, Prefix, Postfix notations? Explain with example.

13. (a) Give a basic algorithm for searching a binary search tree.

Or

- (b) Give a brief account on Applications of Binary Tree.

14. (a) How to use the Linear search algorithm? Explain.

Or

- (b) Write a note on Sequential Search.

15. (a) How does a selection sort work for an array?

Or

- (b) Write a short note on Radix Sort.



PART C — ( $3 \times 10 = 30$  marks)

Answer any THREE questions.

16. Describe the different kind of Asymptotic Notations used in Time and Space complexity of an algorithm.
17. What is a Linked List and what are its types? Explain with example.
18. Elucidate the concept of Operations on Binary Tree.
19. Briefly explain the technique of Binary Search.
20. Write an algorithm for Quick Sort and explain with example.

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**Sub. Code**

**41221**

DISTANCE EDUCATION

P.G.D.C.A. EXAMINATION, DECEMBER 2021.

Second Semester

SOFTWARE ENGINEERING

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define Software.
2. What are the various CMM levels?
3. What is validation?
4. Write down the requirements engineering tasks.
5. Write any four software design concepts.
6. Define user interface.
7. Why software testing is more important?
8. What is meant by debugging?
9. Define quality control.
10. Expand RMMM.

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Discuss CMMI.

Or

- (b) Write a brief note on the spiral model. With diagram.

12. (a) What is the importance of requirement analysis?

Or

- (b) Discuss about flow — oriented modeling.

13. (a) Write about software design evaluation.

Or

- (b) Write a short note on data-centered architecture.

14. (a) Describe Goal-oriented software measurement.

Or

- (b) Describe on black box and white box testing.

15. (a) Discuss on software risks.

Or

- (b) Write about software quality assurance.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the RAD model in detail.  
17. Discuss in detail about object oriented analysis.

18. What do you mean by software architecture? Explain the importance of architecture.
  19. Write about any four testing strategies.
  20. What are the steps involved in software risk projection? Discuss in detail.
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**41222**

DISTANCE EDUCATION

P.G.D.C.A EXAMINATION, DECEMBER 2021.

Second Semester

Computer Application

RELATION DATABASE MANAGEMENT SYSTEMS

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define Instances.
2. What do you mean by RDBMS? Give examples.
3. How will you define Integrity Constraints?
4. Define Data Independence.
5. What is Projection operation?
6. Define Multi valued dependency.
7. What are the benefits of using Normal Forms?
8. What is Recoverability?
9. What are ACID properties?
10. What are B+ Trees?

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write a brief note on Relationships.

Or

- (b) Explain DDL commands with examples.

12. (a) Explain about Logical Database Design.

Or

- (b) Discuss Renaming Operation in brief.

13. (a) Explain Decomposition.

Or

- (b) Discuss about Third Normal Form with examples.

14. (a) Explain Durability.

Or

- (b) Discuss about aggregation operations.

15. (a) Write about Primary Indexes.

Or

- (b) Explain ISAM.

PART C — ( $3 \times 10 = 30$  marks)

Answer any THREE questions.

16. Write in detail about Storage manager and Query processor.
  17. Discuss about Domain Relational Calculus.
  18. Explain about various Join operations in detail.
  19. Describe about Protocols used in Transaction.
  20. Explain Tree Based Indexing in detail.
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**41223**

DISTANCE EDUCATION

P.G.D.C.A. EXAMINATION, DECEMBER 2021.

Second Semester

COMPUTER GRAPHICS

(CBCS 2018 – 19 Academic Year Onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are the graphics software standards? Give example.
2. What is a raster scan system? Give example
3. What do you mean by scan conversion?
4. What is reflection?
5. Distinguish between Window and Viewport.
6. What are the different types of line clipping algorithm?
7. Define affine transformation.
8. What are the important properties of Bezier Curve?
9. Define Projection. What are its types?
10. Define Animation.



PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Explain various applications of computer graphics.

Or

- (b) Explain any two output devices with neat diagram.

12. (a) Explain about 2D composite transformation with example.

Or

- (b) Briefly explain about 2D Translation with neat diagram.

13. (a) Discuss about Polygon surfaces.

Or

- (b) Explain in detail about Bezier curve.

14. (a) Write short notes on viewing coordinates.

Or

- (b) Explain in detail about RGB color model.

15. (a) Explain Back face detection method and Depth buffer method.

Or

- (b) Discuss about computer animation languages.

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the line DDA line algorithm and derive the expression.

17. Explain in detail about Cohen-Sutherland Line clipping algorithm with neat sketch.

18. Discuss about Hermite curves with examples.
  19. Write notes on 3D shearing transformation with neat diagram.
  20. Discuss about various computer animation techniques.
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