D–1048

Sub. Code
41211

DISTANCE EDUCATION

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, MAY 2023.

First Semester

DIGITAL COMPUTER ORGANIZATION

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Define the term radix.

2. Convert $(10.25)_{10}=(?)_2$

3. What is mean by decoder?

4. Give the applications of demultiplexer.

5. Define instruction format.

6. What is mean by instruction cycle?

7. Comment on control word.

8. What is mean by asynchronous data transfer?

9. Define cache memory.

10. List the basic components of memory management.

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions choosing either (a) or (b)

11. (a) Convert $(101101.1101)_2$ to decimal and hexadecimal form.

Or

(b) Write the fundamental concepts of Boolean algebra.

12. (a) Explain the design procedure for combinatorial circuit.

Or

(b) Write a short note on fixed point representations.

13. (a) Discuss the various computer registers.

Or

(b) Explain the design of accumulator logic.

14. (a) Discuss about addressing modes with an example.

Or

(b) Summarize the concept of data transfer instruction.

15. (a) Write about memory hierarchy.

Or

(b) Interpret the concepts of auxiliary memory.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions

16. State the De Morgan's theorems and mention its uses.

17. Draw and explain the logic diagram for full adder.

18. Explain the various memory reference instructions.

19. Draw and explain about stack organization.

20. Discuss about read and write operations of associative memory.

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DISTANCE EDUCATION

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS EXAMINATION, MAY 2023.

First Semester

OBJECT ORIENTED PROGRAMMING WITH C++

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions

1. List any two features in C++

2. What is mean by object oriented paradigm?

3. Comment on inline function.

4. What is mean by dynamic object?

5. What are the visibility modes of inheritance?

6. Mention the needs virtual function.

7. What is mean by class template?

8. Write about sequential access file.

9. What will happen if thrown exception is not handled in C++?

10. Which keyword is used to handle an exception?

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions choosing either (a) or (b)

11. (a) How C++ is differing from C language? Explain.

Or

(b) Write a short note on predefined console streams.

12. (a) How to define and accessing member function? Explain.

Or

(b) Explain the role of destructor in C++.

13. (a) Describe the concept of multi level inheritance.

Or

(b) Elaborate note on abstract class.

14. (a) Explain function template with multiple arguments.

Or

(b) Explain about random access file.

15. (a) How do we handle exception in C++? Explain.

Or

(b) Write about exception in class template.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions

16. Discuss about unformatted input and output operations.

17. Explain default and parameterized constructor with an example.

18. Elaborate note on operator overloading.

19. Explain about file pointer and their manipulators.

20. What is user defined exception. Write down the scenario where we required user defined exception.

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41213

DISTANCE EDUCATION

P.G. DIPLOMA IN COMPUTER APPLICATIONS
EXAMINATION, MAY 2023.

First Semester

DATA STRUCTURES AND ALGORITHMS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. What is mean by linear data structure?

2. List out the array operations.

3. Define queue.

4. List the applications of stack.

5. Mention the operations of binary tree.

6. Define the term siblings.

7. State the operations of binary search tree.

8. Mention the need of searching.

9. State the main idea behind insertion sort.

10. Write the time complexity of tree sort.

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Classify the types of data structures.

Or

(b) Explain about various characteristics of array.

12. (a) Write an algorithm for insert and delete operations on queue.

Or

(b) Discuss about operations on stack.

13. (a) Write a short note on binary tree representations.

Or

(b) State the operations of binary search tree.

14. (a) Explain the linear search tree with example.

Or

(b) Explain the importance of searching.

15. (a) Discuss the space complexity of radix sort.

Or

(b) Explain quick sort with example.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the role of space complexity for measuring the performance of an algorithm.

17. Explain the different operations on doubly linked list.

18. Discuss the various types of binary trees.

19. Describe the insertion and deletion operations on linear search tree.

20. Apply the selection sort on the following elements 21,11,5,78,49,54,72,88.

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DISTANCE EDUCATION

P.G. DIPLOMA IN COMPUTER APPLICATIONS
EXAMINATION, MAY 2023.

Second Semester

SOFTWARE ENGINEERING

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Define software engineering.

2. Mention the advantages of incremental model.

3. What is known as SRS review?

4. List out the elements of analysis model.

5. What is software architecture?

6. Why interface analysis is critical in UI development?

7. Distinguish between the verification and validation.

8. Comment on software quality.

9. Define software reliability.

10. What is risk projection?

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Write a brief note on unified process.

Or

(b) Explain the fundamental activities of a software process.

12. (a) Compare functional and behavioral model.

Or

(b) Elucidate the requirements engineering tasks.

13. (a) What are the characteristics of good design? Explain.

Or

(b) Explain the software quality guidelines.

14. (a) Justify the importance of testing process.

Or

(b) Differentiate between the black box and white box testing.

15. (a) Elaborate note on software reviews.

Or

(b) Illustrate the concept of ISO 900 quality standards.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain about evolutionary process model.

17. Describe the concept of validations requirements.

18. Explain the importance of user interface design in sale of software.

19. Discuss the metrics for software quality and software process.

20. Write a brief note on reactive vs. proactive risk strategies.

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DISTANCE EDUCATION

P.G. DIPLOMA IN COMPUTER APPLICATIONS
EXAMINATION, MAY 2023.

Second Semester

RELATIONAL DATABASE MANAGEMENT SYSTEMS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. What is database?

2. Define entity sets.

3. How to rename the table?

4. Comment on relational model.

5. What is mean by trigger?

6. Mention the need of normalization.

7. What is transaction?

8. List the advanced recovery systems.

9. What is indexing?

10. What is the need of external storage?

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Explain the evaluation of database system.

Or

(b) Write about DML and DDL.

12. (a) Discuss about integrity constraint with example.

Or

(b) How to alter the table? Explain with an example.

13. (a) Explain comparison operators with example.

Or

(b) Write a short note on *null values*.

14. (a) Explain about testing for serializability.

Or

(b) Illustrate the concept of validation based protocols.

15. (a) Explain B+ trees with example.

Or

(b) Describe the dynamic index structure.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the various data models of database systems.

17. Discuss about tuple relational calculus.

18. Describe the concept of 1NF, 2NF and 3NF.

19. Explain about lock based protocols.

20. What are the different types of indexing? Explain.

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DISTANCE EDUCATION

P.G. DIPLOMA IN COMPUTER APPLICATIONS
EXAMINATION, MAY 2023.

Second Semester

COMPUTER GRAPHICS

(CBCS 2018 – 2019 Academic Year Onwards)

Time : Three hours Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL the questions.

1. Define the term computer graphics.

2. What is an output primitive?

3. Define viewport.

4. What is composite transformation?

5. What is polygon surface?

6. Comment on RGB color model.

7. Write the matrix for 3'D translations.

8. What do you mean by view plan?

9. Define animation.

10. What is key frame?

SECTION B — (5 × 5 = 25 marks)

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

11. (a) Explain about random scan systems.

Or

(b) Discuss in detail about the DAA line drawing algorithm.

12. (a) Write a short note on basic 2'D scaling.

Or

(b) Explain about Sutherland-hodgeman polygon clipping algorithm.

13. (a) Write a short note on Bezier curve.

Or

(b) Examine the polygon rendering methods.

14. (a) What are the steps involved in 3'D transformation? Explain.

Or

(b) Explain 3'D viewing.

15. (a) What is visible surface detection in computer graphics? Explain.

Or

(b) Explain back face detection in computer graphics

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the various input devices.

17. Explain cohen-sutherland line clipping algorithm with an example.

18. Categorize the 3'D object representation.

19. Write a brief note on reflection and shear transformation.

20. Describe the basic computer animation functions.

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