K22U 3583

Reg. No. : .....

Name : .....

Third Semester B.C.A. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, November 2022
(2019 Admission Onwards)
GENERAL AWARENESS COURSE
3A12BCA : Data Structures

Time : 3 Hours Max. Marks : 40

PART – A
(Short Answer)

Answer **all** questions. **(6×1=6)**

1. Name the data structure used to implement recursion.
2. List any two applications of binary tree.
3. Evaluate the postfix expression : 2 4 + 4 6 + *
4. Define full binary tree.
5. What is the time complexity to search an element in a singly linked list ?
6. The linked list in which none of the nodes contains the NULL pointer is _____.

PART – B
(Short Essay)

Answer **any 6** questions. **(6×2=12)**

7. Differentiate between linear and non-linear data structures.
8. What do you mean by priority queue ?
9. *Differentiate between linear and binary search.*
10. List the advantages of linked list over arrays.
11. Differentiate between linear and circular queue.
12. What are the advantages of a doubly linked list ?
13. Discuss the array representation of binary tree.
14. What is the time complexity to search a key in a binary search tree ? Justify your answer.

P.T.O.

PART – C

(Essay)

Answer **any 4** questions. **(4×3=12)**

15. Discuss the representation of a two-dimensional array in memory.
16. Explain binary search algorithm with its complexity.
17. Discuss any three applications of stack.
18. What do you mean by singly linked list ? Write an algorithm to reverse any given linked list.
19. Create a binary search tree for the following numbers start from an empty binary search tree. 45, 26, 10, 60, 70, 30, 40 Delete keys 10, 60 and 45 one after the other and show the trees at each stage.
20. Discuss Huffman tree with its application.

PART – D

(Long Essay)

Answer **any 2** questions. **(2×5=10)**

21. What do you mean by sparse matrix ? Write an algorithm to add two sparse matrices.
22. Explain quick-sort algorithm with an example.
23. Detail on linked representation of queue with algorithms for its primitive operations.
24. Discuss in detail, stack data structure and implement the same using array.

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Third Semester B.C.A. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, November 2022
(2019 Admission Onwards)
GENERAL AWARENESS COURSE
3A13BCA : Database Management System

Time : 3 Hours Max. Marks : 40

PART – A **(Short Answer)**

Answer **all** questions. **(6×1=6)**

1. What are the different types of users in DBMS ?
2. What is Relational Data Model ?
3. How do you delete an existing table using SQL query ?
4. What is a candidate key ?
5. What is the use of SQL between clause ?
6. What is meant by weak entity set ?

PART – B **(Short Essay)**

Answer **any 6** questions. **(6×2=12)**

7. Describe the advantages of using DBMS.
8. What is the function of MySQL CHECK constraint ?
9. Differentiate between Union and Intersection operations.
10. What are the types of triggers in MySQL ?
11. Explain Cartesian product in Relational Algebra.

P.T.O.

12. Briefly describe 'where' clause in MySQL.

13. What are different types of integrity constraints in DBMS ?

14. Define trigger which invoked during every insert operation.

PART – C **(Essay)**

Answer **any 4** questions. **(4×3=12)**

15. Describe various Datatypes available in SQL.

16. Explain the various types of attributes present on ER model with examples.

17. What is a relational model ? Explain with an example.

18. Explain the types of Relational Calculus. Define the basic operations of relational algebra with an example each.

19. What are different mapping constraints defined while designing an ER diagram ?

20. Define a view. Explain how views are different from tables.

PART – D **(Long Essay)**

Answer **any 2** questions. **(2×5=10)**

21. Define Join. Explain its types with examples.

22. Illustrate ER Model. Explain ER design issues and various symbols used to draw an ER diagram.

23. Illustrate DML commands with syntax and example.

24. Explain in brief ACID properties in Transaction Management.

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Third Semester B.C.A. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, November 2022
(2019 Admission Onwards)
Core Course
3B06BCA : INTRODUCTION TO MICROPROCESSORS

Time : 3 Hours Max. Marks : 40

SECTION – A

Answer **all** the questions. **(6×1=6)**

1. Define Bus.
2. _____ is a DMA Controller chip.
3. The length of 8086 memory address is _____ bits.
4. Zero flag is set when
5. Name the register that part of ALU.
6. The BSA instruction is

SECTION – B

(Short Essay)

Answer **any 6** questions. **(6×2=12)**

7. What are assembler directives ?
8. What are interrupt service routines ?
9. What are the flag manipulation instructions in 8086 Microprocessor ?
10. Give an account of the following :
    a) MOV C,D
    b) MOV B,D
    c) HLT.

P.T.O.

11. How does branch instruction differ from loop instruction ?

12. What is the use of SIM instruction ?

13. What is memory mapped I/O ?

14. What is the function of programmable interrupt controller ?

SECTION – C

(Essay)

Answer **any 4** questions. **(4×3=12)**

15. Differentiate Maskable and Non Maskable interrupts.

16. Write a note on Bus Organization of 8085.

17. Compare 8085 with 8086 Microprocessors.

18. Write a note on various data transfer instructions.

19. How does DMA controller work ?

20. Enumerate various flag registers used in 8086.

SECTION – D

(Long Essay)

Answer **any 2** questions. **(2×5=10)**

21. Explain the features of 8086 Microprocessor.

22. Detail on the various addressing modes in 8086 Microprocessor.

23. Explain the features and architecture of programmable interrupt controller 8259A.

24. With the help of a neat diagram, explain the architecture and features of 8255 Microprocessor.

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Third Semester B.C.A. Degree (CBCSS – OBE – Regular /Supplementary/ Improvement) Examination, November 2022
(2019 Admission Onwards)
Core Course
3B07BCA : JAVA PROGRAMMING

Time : 3 Hours Max. Marks : 40

SECTION – A

Answer **all** the questions. **(6×1=6)**

1. Explain the use of 'new' operator with example.
2. What is a constructor ?
3. What is the difference between static method and instance method ?
4. What is an identifier ? Write the syntax to declare and initialize a string identifier.
5. Differentiate between thread and process in Java.
6. Define the keyword 'super'.

SECTION – B

Write short notes on **any six** of the following questions. **(6×2=12)**

7. Explain the types of casting in Java with example.
8. Explain the contexts where the keyword final is used.
9. Write a short note on applet life cycle.
10. Differentiate between method overloading and method overriding.
11. Explain the decision-making statements in Java with syntax and example.

P.T.O.

12. Explain the use of 'this' keyword in Java with an example.

13. Differentiate between byte stream and character stream in Java.

14. What do you mean by nested class? Illustrate with example.

SECTION – C

Answer **any four** of the following question. **(4×3=12)**

15. What is an abstract class ? Illustrate through an example.

16. With the help of program snippet, define the steps to create and import a user defined package in Java.

17. Explain break and continue statements with example.

18. What is inheritance ? Explain different types of inheritance in Java with example.

19. Java Development is best for enterprise applications. Justify the statement.

20. What are the different states in life cycle of thread in Java ?

SECTION – D

Answer **any two** of the following question. **(2×5=10)**

21. What is exception ? How are expectations handled in Java ? Explain with suitable example.

22. Explain input-output streams in Java with example.

23. What is multilevel inheritance ? Write a program to illustrate multilevel inheritance.

24. Write a program to copy the contents of a file to another.

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Third Semester B.C.A. Degree (CBCSS – Supplementary) Examination, November 2022
(2016 – 18 Admissions)
General Course
3A12BCA : DATA STRUCTURE

Time : 3 Hours Max. Marks : 40

SECTION – A

1. **One** word answer. **(8×0.5=4)**
   a) Collection of _____ is known as a Linked list.
   b) What is best case complexity of linear search ?
   c) Queue is also known as
   d) Write an example for linear data structure.
   e) Name the data structure which allows deletion at both ends of the list but insertion at only one end.
   f) The right subtree can be empty of a binary tree. True/False.
   g) What are the operations of a data structure ?
   h) _____ is the pointer used in stack.

SECTION – B

Write short notes on **any seven** of the following questions. **(7×2=14)**

2. Define worst case of an algorithm. Give example.
3. Write an algorithm for array insertion.
4. Define linear search.
5. What is sparse matrix ?

P.T.O.

6. Define stack. Give example.
7. What is Dequeue ?
8. Write an algorithm for traversal of a linked list.
9. Give advantage of linked list.
10. Explain post-order traversal of a tree.
11. Write an example for adding an element in BST.

SECTION – C

Answer **any four** of the following questions. **(4×3=12)**

12. Explain polynomial addition using arrays.
13. Explain merge sort.
14. Write down any one application of queue.
15. Explain doubly linked list.
16. What is complete binary tree ? Explain.
17. Convert the following expression to postfix and prefix : A + B / C – (D * E)/F – G.

SECTION – D

Write an essay on **any two** of the following questions. **(2×5=10)**

18. What is time and space complexity of an algorithm ? Define Asymptotic notations.
19. Explain quick sort with example.
20. Explain postfix expression evaluation.
21. Compare Linked list and Arrays with example.

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