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8037 – B22 – IIS BCA – S – 21

SECOND SEMESTER B.C.A. DEGREE EXAMINATION, SEPTEMBER 2021

DATA STRUCTURES USING C

Time : 3 Hours] [Max. Marks : 80

Answer any **five** *full questions.*

I. a) Discuss classification of data structures with example.

b) What are the advantages of data structures?

c) Differentiate malloc( ) with Calloc( ) function. 8 + 4 + 4 = 16

II. a) Explain formatted and unformatted I/O functions related to files with syntax and example.

b) Define recursion. Explain recursive algorithm to find factorial of a given number with example. 10 + 6 = 16

III. a) What is searching? Write recursive algorithm for Binary search.

b) List the advantages of Binary search over sequential search.

c) What is file? 8 + 6 + 2 = 16

IV. a) Explain merge sort technique using the following example.

50 35 25 30 40 60 20 15

b) Write a program to sort an array of elements using insertion sort. 8 + 8 = 16

V. a) Define stack. Write an algorithm to convert Infix to postfix expression.

b) Convert and evaluate the following Infix to Postfix expression using the values of

a = 2, b = 6, c = 2, d = 2, e = 2 and f = 4

i) a * b / (c +d + e)

ii) a^b*c / (d + e) *f. 8 + 8 = 16

VI. a) Write an algorithm for circular queue with all operation.

b) Explain priority queue with example and algorithm. 8 + 8 = 16

VII. a) What is doubly linked list?

b) Write an algorithm for doubly linked list with insertion, deletion and display operation.

c) What are the advantages of linked list? 2 + 10 + 4 = 16

VIII. Write short notes on any **four**:

a) Pointer.

b) File Error Handling functions.

c) Sequential search.

d) Tree traversal techniques.

e) Singly linked list. 4 × 4 = 16

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4038 – B22 – IIS BCA(R) – S – 20

SECOND SEMESTER B.C.A. DEGREE EXAMINATION, SEPTEMBER 2020

(Revised)

DATA STRUCTURE USING C

Time : 3 Hours] [Max. Marks : 80

Answer any **five** *full questions.*

1. a) Discuss different types of data structure with example.
   b) Mention operations performed on data structure.
   c) How to declare and initialisation of pointer variable? 8 + 4 + 4 = 16
2. a) Explain calloc() and realloc() functions with syntax and example.
   b) Define file. Write the syntax of fopen(), fclose(), fprintf() and fscanf() functions. 8 + 8 = 16
3. a) Explain recursive function's working principle with suitable example.
   b) Write a recursive program for sequential search. 8 + 8 = 16
4. a) Differentiate sequential search with binary search. 4 + 8 + 4 = 16
   b) Explain merge sort algorithm.
   c) Discuss selection sort using the following example:
   10 5 8 9 3 7 6 2
5. a) Write an algorithm to convert infix to postfix expression. 8 + 8 = 16
   b) Convert the following prefix exp to postfix exp.
      i) – * / + a b c d e
      ii) / * a + – b c d e
6. a) What are the applications of stack? 4 + 8 + 4 = 16
   b) Define Queue. Write a program for circular queue with insertion, deletion and display operations.
   c) What are the advantages of circular queue with ordinary queue?
7. a) Write an algorithm for circular singly linked list.
   b) Explain pre order, in order and post order traversing techniques with algorithm. 8 + 8 = 16
8. Write short notes on any **four**:
   a) Malloc() and free().
   b) Unformated file I - O functions.
   c) Bubble sort.
   d) Binary and Complete binary tree.
   e) Stack. 4 + 4 + 4 + 4 = 16

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052BCA011 – S – 23 – 2308

SECOND SEMESTER B.C.A. (NEP) DEGREE EXAMINATION,
AUGUST/SEPTEMBER 2023
DATA STRUCTURES (DSC – 1)
Theory

Time : 2 Hours] [Max. Marks : 60

Instructions : 1) Answer ***any five*** questions from Part – ***A***.
2) Answer ***any four*** questions from Part – ***B***.
3) Answer ***any three*** questions from Part – ***C***.

PART – A

Answer **any five** questions, **each** carries **two** marks.

1. Define structure with syntax.
2. What is sorting ?
3. List the operation of double ended queue.
4. Give a pictorial representation of singly linked list.
5. What is binary tree ? Give example.
6. Write any two difference of static and dynamic memory. **(5×2=10)**

PART – B

Answer **any four** questions, **each** carries **five** marks.

7. Define data structures. Explain classification of data structures.
8. Write a program to search an element in an array using binary search technique.
9. Explain quick sort technique with example.
10. What is queue ? Explain all the operation of ordinary queue with example and diagram.

[P.T.O.

11. Convert the following infix expression into postfix expression.
    i) (a + b)*c – d/e
    ii) a*b/(c – d)$e

(4×5=20)

PART – C

Answer **any three full** questions, **each** carries **ten** marks.

12. a) Explain all dynamic memory allocation functions with syntax.
    b) Explain pass by reference mechanism with example.

(6+4=10)

13. a) Write a algorithm for sequential search technique.
    b) Write a program to sort an array of elements using bubble sort technique.

(4+6=10)

14. a) What is stack ? Explain push, pop and display operations with example.
    b) Explain circular queue with example.

(6+4=10)

15. Explain creation, deletion and display operation on singly linked list with functions.

10

(3×10=30)

7065 – B22 – IIS BCA (R) – M – 17

SECOND SEMESTER B.C.A. DEGREE EXAMINATION, MAY 2017

DATA STRUCTURE

Time : 3 *Hours*] [*Max. Marks* : 80

Answer any **five** *full questions.*

1. a) Define Data structure. Explain different data structures. 8 + 8 = 16

   b) Write the syntax and explain with examples of dynamic memory allocation functions.

2. a) How pointer variable can be declared and initialized? Explain with example. 4 + 4 + 8 = 16

   b) List difference between Iteration and Recursion.

   c) Explain the file handling functions with syntax.

3. a) Write a program to implement recursion method for binary search technique. 8 + 5 + 3 = 16

   b) What is recursion? Write a program to find GCD of two numbers using recursion.

   c) Write recursive function for Fibonacci series for n^{th} number.

4. a) What is stack? Mention the operations that are performed to put an element on to a stack and remove an element from stack using C language implement the above functions. 8 + 6 + 2 = 16

   b) Write a program to sort an array using bubble sort.

   c) Define sorting.

5. a) Discuss the merge sort technique. Write the steps involved in sorting the following list using merge sort 14, 7, 3, 12, 9, 11, 6, 2 8 + 8 = 16

   b) Define Double Ended queue. Write a program to implement ordinary Queue.

6. a) Give the comparison between sequential and Binary Search.

   b) What you mean by complete binary tree?

[P.T.O.

c) Convert below infix expression to postfix expression. 6 + 2 + 8 = 16

i) $(CA+B)*C-D)\ /\ E*H$

ii) $(A+B)\ *\ (D-C)$

iii) $(C6-(3+2)*5)\ \wedge 2+3)$

iv) $(CA+(B-C)\ ^{*}\ D)\wedge E+F)$

7. a) Write advantages and disadvantages of linked list over array. 5 + 8 + 3 = 16

b) Write a 'C' program to implement singly linked list.

c) Define selection sort.

8. Write short notes on any **four**. 4 + 4 + 4 + 4 = 16

a) Tree traversal Technique

b) Operations of Data structure

c) Queue

d) Static memory allocation

e) File operations

f) Application of stack

BCA – A – 18

SECOND SEMESTER BCA DEGREE EXAMINATION, APRIL 2018

DATA STRUCTURE USING 'C'

Time : 3 Hours] [Max. Marks : 80

Answer any **five** *questions.*

1. a) What do you mean by Data Structure? Explain classification of Data Structure.
   b) Mention operations on Data Structure. Explain briefly.
   c) Define pointer. (8+6+2=16)

2. a) Compare static memory with Dynamic memory allocation techniques.
   b) What is file?
   c) Explain any four file operation functions. (6+2+8=16)

3. a) What is Recursion?
   b) Write a program to print Fibbonacci series up to n^{th} number using recursive method.
   c) Explain Binary search technique with example. (2+6+8=16)

4. a) Define Searching.
   b) Write an algorithm for Merge Sort technique.
   c) Discuss selection sort technique with example. (2+8+6=16)

5. a) Write a program to demonstrate stack operations such as Push ( ), Pop ( ) and Display ( ). (8+8=16)

   b) Convert Infix to postfix for the following expressions and evaluate using the values of A = 5, B = 2, C = 4, D = 2, E = 3 and F = 6.

   i) (A+B) * C/D * (E – F)

   ii) A * B – (C+D) / E * F

[P.T.O.

(2+8+6=16

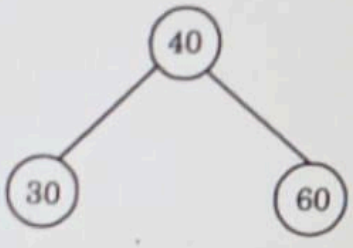
6. a) What is Queue?

   b) Write a program to implement circular Queue.

   c) Explain priority Queue.

7. a) Explain Insertion, Deletion and Searching Operations of Singly linked list wit pseudo code. (10+6=1

   b) Using below tree, write Inorder, Postorder & Preorder traversal.



8. Write short notes on any four (4 × 4 =

   a) Static memory Allocation technique.

   b) File related Error handling functions

   c) Sequential Search

   d) Double Ended Queue

   e) Binary Tree.

DKS Education Trust's

Chetan College of Commerce & BCA

Subject - Data Structure

BCA II Sem

Marks: 5x5 = 25 Date: 1/07/2023

I Answer the following question any 5 5x5=25

Q1 What is Sorting techniques? List the types of sorting techniques

Q2 What is Searching techniques: List the types of Searching techniques

Q3 What is Merge Sort techniques. Explain briefly

Q4 What is Stack? List the various operation of Stack

Q5 What is Push operation? Explain with Example

Q6 What is Expression? Explain the types of expression

Chetan College of Commerce & BCA

BCA IInd Semister

Marks: 25 hours: 1 hour

I Answer the following question Any 4. 5×5=20

Q1 write a program to create, insert & access an Pointer

Q2 write a program to calculate the length of String using pointer

Q3 write a program to find the given element using linear search

Q4 write a program to sort N integer using : Selection Sort

Q5 write a Program to sort information of using Structure

CHETAN COLLEGE OF COMMERCE & BCA, HUBLI

BCA Internal Assessment Test - I, June 2023

DATA STRUCTURE

Class: BCA 2nd Semester | Marks: 20 | Time: 1 Hour

Section - A

5X5 = 25

Answer the following.

1. What is data structure ? explain types of data structure ?
2. Difference between malloc and calloc ?
3. Explain the bubble sort technique with working of its ?
4. Explain the binary search techniques ?
5. Differences between linear and non linear data structure ?
6. Explain the selection sort techniques briefly ?