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Question Paper Code: 52229

B.E./B.Tech. DEGREE EXAMINATION, NOV 2016

Second Semester

Computer Science and Engineering

15UCS209 - PROGRAMMING AND DATA STRUCTURES

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. How many times the following loop be executed?

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{ ..ch='b'; while (ch>='a' &&ch<=='z') ch++; }
```

- (a) 0 (b) 25 (c) 26 (d) 1

2. Which of the following statement is false?

- (a) Arrays are dense lists and static data structure
- (b) Data elements in linked list need not be stored in adjacent space in memory
- (c) Pointers store the next data element of a list
- (d) Linked lists are collection of the nodes that contain information part and next pointer

3. The maximum combined length of the command-line arguments including the spaces between adjacent arguments is

- (a) 128 characters (b) 256 characters
- (c) 67 characters (d) It may vary from one operating system to another

4. _____ is not an operation performed on linear list.

- (a) Insertion (b) Deletion (c) Retrieval (d) Traversal
- (a) only a, b and c (b) only a and b
- (c) All of the above (d) None of these

5. The postfix equivalent of the prefix $* + ab - cd$ is?
(a) $ab + cd - *$ (b) $abcd + - *$ (c) $ab + cd * -$ (d) $ab + - cd *$

PART - B (5 x 3 = 15 Marks)

6. Difference between structures and unions.
7. Suppose a member of a structure is a pointer variable. How can the object of the pointer be accessed in terms of structure variable name and the member name?
8. Write a program to opening a file MYFILE.C in r mode, reading the content of the file and displaying it on the console.
9. List the basic operations carried out in a linked list.
10. Give the applications of priority queues.

PART - C (5 x 16 = 80 Marks)

11. (a) Create a structure to specify data of customers in a bank. The data to be stored is: Account number, Name, Balance in account. Assume maximum of 20 customers in the bank. Create a function to read all customers details and call it in main. Your program must be menu driven with following options.
- (i) Print the Account number and name and balance of each customer
 - (ii) Withdraw money
 - (iii) Deposit money
 - (iv) Search Customer (16)
- Or
- (b) Explain in detail about structures within structures with suitable example. (16)
12. (a) Write a program to copy the contents of one string to another string using a pointer. (16)
- Or
- (b) Write a C program to find largest number using dynamic memory allocation. (16)
13. (a) Write a program to reverse the contents of a file and print it. (16)
- Or
- (b) Distinguish between the following functions when operating on files: (i) rewind and ftell (ii) printf and fprintf (iii) feof and ferror and (iv) getc and putc. (16)

14. (a) Write an algorithm for inserting and deleting element in a doubly linked list. Explain linear linked implementation of stack and queue. (16)

Or

- (b) Write an algorithm Polynomial addition, multiplication (8th degree polynomials) using arrays. (16)

15. (a) Explain how the following “infix” expression is evaluated with the help of stack:
 $5 * (6+2)-12/4$. (16)

Or

- (b) Explain the applications of stack with suitable example. (16)
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