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**Reg. No. :**

**Question Paper Code: 52029**

B.E./B.Tech. DEGREE EXAMINATION, NOV 2017

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?

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

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

2. The operator used to get value at address stored in a pointer variable is

(a) && (b) !\* (c) & (d) \*

3. Which of the following *fopen* statements are illegal?

(a) *fp = fopen(“abc.txt”, “r”);* (b) *fp = fopen(“/home/user1/abc.txt”, “w”);* (c) *fp = fopen(“abc”, “w”);* (d) None of these

4. Which of the following data structure is linear type?

(a) Binary tree (b) Graph (c) Stack (d) all the above

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. List the Disadvantages of Pointers.

8. State the error handling functions and explain it with suitable examples.

9. Mention the applications of List.

10. Differentiate stack and queue.

PART - C (5 x 16 = 80 Marks)

11. (a) An examination result system of a college has details of Student name, register number, subject code, subject name and grade. Design the above system using structures to store details of 10 students. The system should get the register number as input and retrieve result details. (16)

Or

(b) Write a Program in C to implement the structures and functions. (16)

12. (a) Write a program to copy the contents of one string to another string using a pointer. (16)

Or

(b) (i) Discuss in detail the dynamic memory allocation functions with examples. (10)

(ii) Write a C program to swap two numbers using functions returning pointers. (6)

13. (a) Write a program to do the following: (i) Write and read the integers from a file named as “Input” (ii) if the integer is an odd number then store it into a file named as “Odd”

(iii) Else store that into another file named as “Even”. (16)

Or

(b) Discuss in detail about Error handling during I/O operations and Random Access to Files with relevant examples. (16)

14. (a) Explain in detail about Abstract Data Types and List ADT with its Array based Implementation. (16)

Or

### (b) Explain polynomial manipulation using linked lists with an example? (16)

15. (a) Write an algorithm to implement the operations of circular queue in array. (16)

Or

(b) What is a stack ADT? Write in detail about any three applications of stack. (16)