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Question Paper Code: 52209

B.E./B.Tech. DEGREE EXAMINATION, MAY 2018

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. Number of bytes in memory taken by the structure variable is CO1- R
 - (a) Multiple of integer size
 - (b) Integer size + character size
 - (c) Depends on the structure definition
 - (d) Multiple of word size

2. Correct syntax to pass a function pointer as an argument CO2- R
 - (a) `void pass(*fptr(int,float,char)){}`
 - (b) `void pass(int(*fptr)(int, float,char)){}`
 - (c) `void pass(int(*fptr){}`
 - (d) `void pass(*fptr){}`

3. In `fopen()`, the open mode “wx” is sometimes preferred “w” because CO3- R
 1. use of wx is more efficient
 2. if w is used, old content of file are erased and a new empty file is created.

When wx is used, `fopen()` returns NULL if file already exists.

 - (a) only 1
 - (b) only 2
 - (c) both 1 and 2
 - (d) neither 1 nor 2

4. The advantage of _____ is that they solve the problem of sequential storage representation. But disadvantage is that they are sequential lists CO4- R
- (a) Lists
 (b) Trees
 (c) Linked Lists
 (d) Queues
5. A queue in which insertion and deletion takes place from any position is called CO5- R
- (a) Circular queue
 (b) Random of queue
 (c) Priority
 (d) Dequeue

PART – B (5 x 3= 15Marks)

6. List out the need for structure and union in C. CO1- R
7. What is the difference between call by value and call by reference? CO2- R
8. Mention the different file opening modes in C with example. CO3- R
9. Define a list. Mention any two operations and implementations of list. CO4- R
10. Give the prefix for an expression, write its postfix CO5- R
- * - + a b c / e f - g / h i

PART – C (5 x 16= 80Marks)

11. (a) Explain the difference between structure and unions with suitable example. CO1-U (16)
- Or
- (b) Build a structure data type named date with three integer members' day, month and year. Develop an interactive modular program to perform the following tasks: CO1-U (8)
- (i) To read data into structure members by a function.
- (ii) To print the date in the following format: April 15, 2018 by a second function. CO1-U (8)
12. (a) Give short notes about: CO2- U (8)
- (i) Array of pointers
- (ii) Pointers and structures CO2- U (8)

Or

(b) Briefly discuss about dynamic memory allocation. CO2- U (16)

13. (a) Explain about file manipulations in detail with suitable program. CO3 Ana (16)

Or

(b) Write a C program to read data from keyboard, write it to a file named student again read the same data from student file and write it into data file. CO3-U (16)

14. (a) Illustrate the necessary algorithms to implement doubly linked list and perform all the operations on the created list. CO4- U (16)

Or

(b) Explain the following: CO4- U (8)

(i) Application of lists.

(ii) Polynomial manipulations. CO4- U (8)

15. (a) Discuss about Stack ADT in detail. Explain any one application of stack. CO5- U (16)

Or

(b) Discuss about implementations of Queue ADT. Give relevant examples and diagrammatic representations. CO5- U (16)

