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Question Paper Code: 52809

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Second Semester

Information Technology

15UIT209 - PROBLEM SOLVING AND PROGRAMMING TECHNIQUES

(Regulation 2015)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. AC preprocessor directive begins with _____ CO1- R
(a) # (b) include (c) main() (d) Functions
2. If #include is used with file name in angular brackets CO1- R
(a) The file is searched for in the standard compiler include paths
(b) The search path is expanded to include the current source directory
(c) The search path will expand
(d) None of the mentioned
3. Regarding the scope of the variables identify the incorrect statement: CO2- R
(a) Automatic variables are automatically initialized to 0
(b) Static variables are automatically initialized to 0
(c) The address of a register variable is not accessible
(d) static variable cannot be initialized with any expression.
4. Which of the following uses structure? CO2- R
(a) Array of structures (b) Linked Lists
(c) Binary Tree (d) All the above.

5. What is the output of this C code? CO3- R
- ```
#include <stdio.h>
void main()
{
 char *s = "hello";
 char *p = s;
 printf("%p\t%p", p, s);
}
```
- (a) Different address is printed                      (b) Same address is printed  
(c) Run time error                                              (d) Nothing
6. Give float \*pf; int \*pi; which of the following is true? CO3- R
- (a) sizeof(pf) > sizeof(pi)                              (b) sizeof(pf) < sizeof(pi)  
(c) sizeof(pf) == sizeof(pi)                              (d) none of these above
7. What is the return value of getc()? CO4- R
- (a) The next character from the stream is not referred by file pointer  
(b) EOF for end of file or error  
(c) Nothing  
(d) None of the mentioned
8. What is the return value of putchar()? CO4- R
- (a) The character written                              (c) EOF if an error occurs  
(b) Nothing                                                      (d) Both character written & EOF if an error occurs
9. What is the advantage of bubble sort over other sorting techniques? CO5- R
- (a) It is faster                                                      (b) Consumes less memory  
(c) Detects whether the input is already sorted              (d) All of the mentioned
10. The time complexity of a quick sort algorithm which makes use of CO5- R  
median, found by an O(n) algorithm, as pivot element is
- (a) O(n<sup>2</sup>)                                                      (b) O(n log n)  
(c) O(n log log n)                                                      (d) O(n)

PART – B (3 x 8= 24 Marks)

**(Answer any three of the following questions)**

11. List the categories of functions and also mention the advanced features of functions CO1- U (8)
12. Construct a C program to maintain a record of “n” student details using an array of structures with four fields (Roll number, Name, Marks, and Grade). Each field is of an appropriate data type. Print the marks of the student use student name as input. CO2- U (8)
13. Build a C program for the following concepts: CO3- U (8)
  - (i) Passing pointers to function.
  - (ii) Array of Pointers.
14. Explain in detail about the various types of standard input and output functions. CO4- U (8)
15. Write the algorithm for merge sort with example. CO5- U (8)