A

Reg. No. :

Question Paper Code: 52809

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

Second Semester

Information Technology

15UIT209 - PROBLEM SOLVING AND PROGRAMMING TECHNIQUES

(Regulation 2015)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1.   What is the scope of external variable   CO1- R

(a) Whole source file in which it is defined
(b) From the point of declaration to the end of the file in which it is defined
(c) Any source file in a program
(d) From the point of declaration to the end of the file being compiled

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.   Which of the followings is correct for a function definition along with storage-   CO2- R
      class specifier in C language?
      (a) int fun(auto int arg)   (b)int fun(static int arg)
      (c)int fun(register int arg)   (d) int fun(extern int arg)

4.   What is the output of this C code?   CO2- R
      #include <stdio.h>
        struct student
        {
          char *name;
        };
        void main()
        {
          struct student s, m;
          s.name = "st";
          m = s;
          printf("%s%s", s.name, m.name);
        }
      (a) Compile time error   (b) Nothing   (c) Junk values   (d) st st

5. What is the output of this C code? CO3- R

```c
#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. Which of the following are correct syntaxes to send an array as a parameter to function: CO3- R

(a) func(&array);   (b) func(#array);   (c) func(*array);   (d) func(array[size]);

7. The library function used to find the last occurrence of a character in a string is CO4- R

(a) laststr()   (b) strstr()   (c) strnstr()   (d) strrchr()

8. What is the return value of putchar()? CO4- R

(a) The character written   (b) EOF if an error occurs
(c) Nothing   (d) Both character written & EOF if an error occurs

9. What are the applications of binary search? CO5- R

(a) To find the lower/upper bound in an ordered sequence
(b) Union of intervals
(c) Debugging
(d) All of the mentioned

10. 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

PART – B (5 x 2= 10Marks)

11. List the categories of functions and also mention the advanced features of functions   CO1- R

12. How to pass a structure variable to a function in C programming?   CO2-R

13. Illustrate the concept of pointers to pointers.   CO3- R

14. What are the Basic File Operations In C Programming   CO4- R

15. Compare worst case, average case and best case time of bubble sort and quick sort   CO5- R

52809

PART – C (5 x 16= 80Marks)

16. (a) (i) Show the structure of a C program with its essential sections.   CO1- U   (8)

(ii) Illustrate the uses of function and Preprocessor. How does the   CO1- U   (8)
function contribute in the development of an application.

Or

(b) Find the factorial of a number, n!, defined as fact(n)=1, if n=0.   CO1- App   (16)
Otherwise fact(n)=n*fact(n-1). Write a C program to compute the
binomial coefficient. Tabulate the results for different values of n
and r with suitable messages.

17. (a) Construct a C program to maintain a record of "n" student details   CO2- App   (16)
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.

Or

(b) Point out and explain the storage classes in C programming with   CO2- App   (16)
example.

18. (a) (i) Describe the features of pointer and its types.   CO3-U   (8)

(ii) Explain the process of Pointers to Functions.   CO3-U   (8)

Or

(b) Explain the concept of Pointers and Arrays with example.   CO3-U   (16)

19. (a) Write a C program to   CO4- App   (8)
(i) Implement string copy operation with out using library
function.
(ii) Read a sentence and print the frequency of each vowels and   CO4- App   (8)
the total count of consonants.

Or

(b) Write a C program to create a file output .txt that copies the   CO4- App   (16)
contents of files " Student name.txt" and "usn.txt", where the
student name, usn.txt contains USN. The output.txt should be as
follows

Student name   USN
Name 1   USN1
Name 2   USN2
.   .
.   .
.   .

52809

20. (a) Explain Bubble sort and write a C program that reads N integer numbers and arrange them in ascending order using bubble sort technique.   CO5- U   (16)

Or

(b) Differentiate Sequential Search and Binary Search and write a C program to search a Name in a list of names using Binary searching Technique.   CO5- U   (16)

52809