Roll No. .... Total No. of Pages : 4

BT-1/D11   7527

Fundamentals of Computers and Programming in C

Paper : CSE-101 E

Time : Three Hours] [Maximum Marks : 100

Note :— Attempt **FIVE** questions in all, selecting at least **ONE** question from each of four Units.

UNIT–I

1. (a) Identify the device which should be used for the following and justify your answer for each case :

    (i) A hand-drawn map of KUK is to be stored inside the computer.

    (ii) The train-ticket booked online through computer is to be put in the suitcase.

    (iii) The result of KUK 2nd Semester is to be seen digitally.

    (iv) The sessional-marks of CSE-101 subject sent by teachers are to be stored in the computer.   8

    (b) Compare DOS, Unix and Windows operating systems in terms of (i) security (ii) user's convenience.   12

2. (a) Do following number system conversions :

    (i) 101101.0101 decimal to octal

    (ii) 56.340 octal to decimal and hexadecimal

    (iii) 7451.356 octal to decimal

    (iv) FDEA hexadecimal to decimal and binary.   3+4+4+4=15

    (b) What is the use of auxiliary storage devices ? List few of such devices.   5

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UNIT—II

3. (a) Compare machine language, assembly language and high-level language in terms of

    (i) users convenience in programming

    (ii) efficiency   12

    (b) Draw and explain flow chart to generate first n numbers of the series :

    4+16+64+256+   8

4. (a) Write an algorithm to classify whether a given triangle is equilateral/isosceles/scalene/not-a-triangle based on three-sides of the triangle supplied as input.   8

    (b) Differentiate between compiler and interpreter.   6

    (c) Except email, what are uses of Internet ?   6

UNIT—III

5. (a) Write a C program which will find sum of following series using loops :   10

    S1=50+46+42+.... **upto** m1   (e.g. upto 30)

    S2=47+45+43+.... m2 values

             (e.g. 4 values i.e. 47+45+43+41)

    (b) How many times while loop executes ? **Justify**. Also specify the value of a after every iteration of the loop :

```
int x=65, y=45, a=1;
while (a<9)
{
    if (x>y)
    {x=x–5; a=a–2;}
    a = a+1;
}
```
   6

7527   2   Contd.

(c) Give an example to differentiate between post-fix and pre-fix decrement operator. 4

6. (a) Write a C program using functions with proper parameters which reads values of diagonal elements of a square matrix and then copies the value of first diagonal element into first row as well as first column. Value of second element is copied into all remaining elements of 2nd row as well as 2nd column and so on. Display the complete matrix as output. For example If a square matrix of 4 * 4 matrix has diagonal elements as 4, 20, 9, 7 then the output matrix should be

```
4  4   4   4
4  20  20  20
4  20  9   9
4  20  9   7
```

Values shown in **bold** will be read by the program and rest if the values should be generated by the program. 14

(b) Find the output of following syntactically correct code & **justify** :

```
int a, b, x = 0;
For (a = 0 ; a < 5; a = a + 1)
    for (b = 0; b < a; b = b + 1)
    {   x = x + (a+b–1);
        printf("%d", x);
    }
    printf("%d  %d\n",a,x);
```

If { } are removed from the above code, what will be the output ? Justify. 4+2=6

7. (a) Write a C program which generated two strings from a given string such that all odd positioned characters generate first string and all even positioned characters generate second string. Both generated strings must be stored first and then displayed. For example, "ABCDEFG" should generate two strings "ACEG" and "BDF". Strings should be read and displayed using a single command and no loop should be used for these purposes. 10

(b) Write a C program to compare two English words and find which one should appear in the dictionary before the other. Assume same words are never given as input.

For example "charge" should appear before "charm". Do not use any function of string.h except strlen. 10

8. (a) What is use of enumerated data types ? Give example. 5

(b) Write a C program which counts the total number of lowercase alphabets in a given input file. Name of the input file should be taken from user. 10

(c) What is a structure in C ? How is it declared ? How are its members accessed ? Give examples. 5