

**Charotar University of Science and Technology [CHARUSAT]****Faculty of Technology and Engineering****U & P U Patel Department of Computer Engineering****Subject: CE143 Computer Concepts & Programming****First Internal Exam****Semester: 1<sup>st</sup> SEM B. Tech. (CE/IT/EC/CSE)****Maximum Marks: 30****Date: 10/09/2019 (Tuesday)****Time: 11:10 a.m. to 12:10 p.m.****Instructions:**

- (i) Attempt *all* the questions.
- (ii) Figures to the right indicate *full* marks.
- (iii) Make suitable assumptions and draw neat figures wherever if required.

**Q-1 Do as directed.****(1) State whether the following statements are True or False. [04]**

1. Header files are preprocessed by the preprocessor and library files are linked to the program by a linker.
2. Constants also have a data type like variables.
3. Bitwise operators can be used with float data types.
4. The default case is required in the switch statements.

**(2) Rewrite the following program using conditional operators. [02]**

```
#include<stdio.h>
void main()
{
    float sal;
    printf("Enter the salary: "); scanf("%f",&sal);
    if(sal<=40000 && sal>=25000)
        printf("Manager");
    else
    {
        if(sal<25000&&sal>=15000)
            printf("Accountant");
        else if(sal<15000 && sal>=5000)
            printf("Clerk");
        else
            printf("Invalid salary");
    }
}
```

**(3) Find out the output of the following code if it is correct or find error if the code is incorrect. [02]**

```
(1) #include<stdio.h>
void main()
{
    int x=20,y=3;
    if(x!=20 && printf("x+y=%d",x+y))
        printf("Logical && Executed");

    if(x!=20 & printf("x*y=%d",x*y))
        printf("Bitwise & Executed");
}
```

```
(2) #include<stdio.h>
void main()
{ int choice=65;
  switch(choice)
  {
    case 65: printf("65"); break;
    case 'A': printf("A"); break;
    default: printf("Default"); break;
  }
}
```

(4) Mention whether the following are **VALID/INVALID** variable names. [02]

(i) #mean

(ii) int\_a

(iii) hello.

(iv) FLOAT

**Q-2 Answer the following question. (Any 5)**

[10]

(1) Given the length and breadth of a rectangle. Draw the flowchart to find whether the area of the rectangle is greater than its Perimeter or not. Area of rectangle = length \* breadth.  
Perimeter of rectangle = 2 \* (length + breadth)

(2) Mention any two difference between compiler and interpreter.

(3) Explain getchar() and putchar() functions of <stdio.h>

(4) Evaluate the following expression step by step in detail.

$$(9/3 + 7\%2) * (8-3/7 / (4+3))$$

(5) Demonstrate the use of goto statement with example.

(6) Identify whether the following code is an entry controlled loop or an exit controlled loop. Justify your answer.

```
#include <stdio.h>
void main()
{
    double number, sum = 0;
    do
    {
        printf("Enter a number: ");
        scanf("%lf", &number);
        sum += number;
    }
    while(number != 0.0);
    printf("Sum = %.2lf",sum);
}
```

**Q-3 Write down following programs in C. (Any two)**

[10]

(1) The center of the circle is at point (0, 0). If the Radius of the circle and coordinates of a point (x, y) are entered through the keyboard, write a program which will determine whether a point (x, y) lies inside the circle, on the circle or outside the circle. Equation of the circle is  $x^2 + y^2 = r^2$ . Use nested if..else statement.

(2) If the three sides of a triangle are entered through the keyboard, write a program to check whether the triangle is isosceles, equilateral or scalene using else...if ladder.

- An isosceles triangle is a triangle with (at least) two equal sides.
- An equilateral triangle is a triangle in which all three sides are equal.
- A scalene triangle is a triangle that has three unequal sides.

(3) If an n-digit number is entered through the keyboard, write a program to find the length of the number and calculate sum of its digit. For example, if 5436 is entered through the keyboard then length of the number is 4 and sum of its digit is  $5+4+3+6 = 18$ . Use any looping concept.

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