Charotar University of Science and Technology [CHARUSAT]
Faculty of Technology and Engineering
U & P U Patel Department of Computer Engineering

Subject: CE103 Computer Concepts & Programming
First Internal Exam **(CE/EC)**

Semester: 1ˢᵗ SEM B. Tech.　　　　　　　　　　　**Maximum Marks: 30**
Date: 23/09/2015 (Wednesday)　　　　　　　　**Time: 11:10 to 12:10 a.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 (a) Do as directed.

1. **Find the most appropriate option for the following questions.**　　**[02]**
    (i)   The operator which compares two values is
        (a) assignment　　(b) relational　　(c) unary　　(d) equal
    (ii) The while loop and for loop are also known as
        (a) exit controlled loop　(b) entry controlled loop
        (c) pre-test loop　　　　(d) both (b) and (c)
    (iii) In response to the input statement
        scanf("%4d %d",&year,&code);
        the following data is given by the user:
            78925634   678
        What values does the computer assign to the variables year and code where year and code are in integers?
        (a) year = 7892 , code = 5634　　(b) year = 78925634 , code = 678
        (c) year = 7892 , code = 678　　　(d) year = 7892, code = 5634678
    (iv) What would be the value of Z in the following ternary operator if the value of Y is 6?
        Z = (Y! = 30)? ((Y<30)? (3 * Y + 100) : (3.5 * Y +150)) :300;
        (a) 300　　　(b) 110　　　(c) 118　　　(d) 150

2. **Classify whether the following variable names are valid or invalid. If**　**[02]**
   invalid specify reason.
   (a) _123　　(b) A+B　　(c) Floats　　(d) char

3. **Evaluate the following expression according to the precedence and**　**[02]**
   associativity of the operator.
   on = ink * act / 2 +3 / 2 * act + (2 + tig) ;
   where ink = 4, tig =3.2 and act = 1.
   Assume variables **on, ink** and **act** to be an **int** and variable **tig** to be **float.**

(b) Attempt the following questions. (Any two)　　　　　　　　　　**[08]**

1. Write an **algorithm** and draw a **flowchart** to read the marks of a student and classify them into different grades. If the marks secured are greater than or equal to 90, the student is awarded Grade A; if they are greater than or equal to 80 but less than 90 , Grade B is awarded ; if they are

greater than or equal to 65 but less than 80, Grade C is awarded; otherwise Grade D is awarded.

2. Explain with diagram the **basic structure** of C program.
3. Explain **Implicit Type Conversion** and **Explicit type conversion** with example.
4. Explain **switch statement** with example.

(c) Give the difference between **compiler** and **interpreter**. **[02]**

Q-2 (a) **Attempt the following programs. (Any Two)** **[10]**

1. Write a program to check whether the character is alphabet or a digit **without** using character testing functions of ctype.h library file.

2. Write a program to calculate tax , using **else if ladder** if given the following conditions:
   - If income is less than or equal to 1,50,000 then no tax
   - If income is in the range 1,50,001 to 300,000 then charge 10% tax
   - If income is in the range 3,00,001 to 500,000 then charge 20% tax
   - If income is above 500,000 then charge 30% tax

3. Write a program to find whether the entered integer number is palindrome number or not using **do...while loop**. A palindrome number is a number that remains same when its digits are reversed. For example 121 will remain 121 even if it is reversed.

4. Write a program to print the following pattern using **for loop**.

```
        1
      1 2
    1 2 3
  1 2 3 4
1 2 3 4 5
```

(b) **What is the output of the following code? Assume all the header files.** **[04]**

(1)
```c
void main()
{
  int a=2 , b=3 , c = 4;
   if(c!=100)
     a=10;
   else
     b=10;
  if(a+b<10)
    c=12;
   a=20;
   b=++c;
 printf("a=%d b=%d",a,b);
 }
```

(2)
```c
void main()
{
  int x=4, y=0;
   while(x>=0)
   {
     if(x==y)
        break;
      else
     printf("\n %d %d",x,y);
      x--;
      y++;
   }
 }
```

ALL THE BEST