3. **Attempt any two parts of the following:** (10x2=20)
   (a) What is the use of "switch" statement? Write syntax of "Switch" statement. Also write a program in C to simulate calculator using switch statement.
   (b) Differentiate between break and continue statement. Show the usages of break and continue statement by taking an example.
   (c) Differentiate between:
         (i)   While and do-while loop
         (ii)   Simple variable and pointer variable.

4. **Attempt any two parts of the following:** (10x2=20)
   (a) What do you mean by Recursive function? Write a program using recursive function to calculate the factorial of a positive integer number.
   (b) Explain with the example how arguments are passed using call by value and call by reference respectively. What are the advantages of call by reference over call by value in C-programming?
   (c) What are pointers? How do you declare and initialise then? Write a program in C, which accept a number in main() function and calculates its square and cable in a user defined function and print the values of square and cube in function main().

5. **Attempt any parts of the following:** (10x2=20)
   (a) What do you understand by macros in C-programming? Write down macro-definitions (complete program) for the following:
         (i)   To obtain area of a circle
         (ii)   To obtain the bigger of two numbers.
         (iii)   To find arithmetic mean of five numbers
   (b) Define linear search. How it differs from binary search. Write a program in C to receive 'n' numbers and search a key value sequentially in the list.
   (c) Discuss the Build Process in detail under the point pre-processing, compilation, assembling, linking and loading.

2-3

M.C.A. (Main & COP)
First Semester Examination, 2015-16
Computer Concepts & Programming in C

Time: 3 Hours   **Total Marks: 100**

Note: Attempt all questions. Each questions carry equal marks.

1.   Answer any four parts of the following: (5x4=20)

(a) Draw the functional Block Diagram of a digital computer and discuss its components in brief.

(b) Draw a flow chart to find out whether a number is even or odd.

(c) What is an Algorithm? Discuss it with suitable example.

(d) What do you know about operating system? Also discuss the functions of operating system

(e) Differentiate between system software and Application software with suitable example.

(f) Convert the following:

    (i) $(623)_8 = (?)_2$

    (ii) $(116)_8 = (?)_{10}$

    (iii) $(143)_{10} = (?)$

    (iv) $(01010)_2 = (?)_{10}$

    (v) $(67)_{16} = (?)_2$

2.   Attempt any four parts of the following: (5x4=20)

(a) Discuss implicit and explicit type conversion in C-programming with suitable example.

(b) What is storage class in C? Discuss in brief.

(c) Calculate the value of x in the expression: (x=3+4-7*8/5%10;) in C-programming environment

(d) What is the difference between ++x and x++? Give suitable example to support your answer.

(e) Explain bitwise left shift and bitwise right shift operators with suitable example.

(f) Write a program to swap two integer variables without using third variable in C-programming.