First/Second Semester B.E. Degree Examination, June 2012
Computer Concepts and 'C' Programming

Time: 3 hrs.   Max. Marks:100

Note: 1. *Answer any FIVE full questions, choosing at least two from each part.*
      2. *Answer all objective type questions only on OMR sheet page 5 of the answer booklet.*
      3. *Answer to objective type questions on sheets other than OMR will not be valued.*

PART – A

1   a.   Choose your answers for the following :   **(04 Marks)**
     i)   The first mechanical computer designed by Charles Babbage was called
         A) Abacus   B) Processor
         C) Calculator   D) Analytical Engine
     ii)   Integrated circuit was developed in _____ generation of computers
         A) FIRST   B) SECOND
         C) THIRD   D) FOURTH
     iii)   1 Gigabyte (GB) is equivalent to _____
         A) 1024 MB   B) 1024 KB
         C) 1024 GB   D) 1024TB
     iv)   ASCII is a _____ bit BCD code
         A) 4   B) 6
         C) 8   D) 10

    b.   Discuss the basic structure of a computer with a neat block diagram.   **(06 Marks)**
    c.   Explain different types of computers for organizations.   **(10 Marks)**

2   a.   Choose your answers for the following :   **(04 Marks)**
     i)   A collection of 4 bits is called
         A) Nibble   B) Byte   C) Word   D) Record
     ii)   Which of the operating system is not a GUI based?
         A) WINDOWS   B) LINUX   C) MAC   D) DOS
     iii)   Which is a secondary memory device?
         A) Cache   B) RAM   C) Registers   D) Floppy disk
     iv)   Which of the following is not a layer in the OSI model?
         A) Presentation   B) Transport   C) Session   D) Communication

    b.   Enlist various secondary storage devices. Explain how data can be stored and retrieved from CD-ROM.   **(06 Marks)**
    c.   What is an operating system? What are the major functions of an operating system?   **(06 Marks)**
    d.   Write a note on the need for networking.   **(04 Marks)**

3 a. Choose your answers for the following : **(04 Marks)**
    i) 'C' language is a _____
       A) Structured language   B) Object-oriented language
       C) Machine language   D) Assembly language
    ii) Identify valid identifier
       A) a123   B) $123
       C) 123a   D) a#123
    iii) A step by step procedure to solve a given problem is called
       A) Logarithm   B) Algorithm
       C) Flowchart   D) Program
    iv) The range of char data types on 16 bit machines is:
       A) -126 to 127   B) -128 to 127
       C) -127 to 128   D) -127 to 127
  b. Explain the different phases of solving a given problem using computer. **(10 Marks)**
  c. Write an algorithm and flowchart to calculate factorial of a number. **(06 Marks)**

4 a. Choose your answers for the following : **(04 Marks)**
    i) The operator % yields
       A) Quotient   B) Remainder
       C) Percentage   D) Fractional part
    ii) Evaluate the expression $10! = 10 \,||\, 5 < 4 \&\&8$. The result is:
       A) 1   B) 0   C) 2   D) 10
    iii) Which of the following bitwise operator shifts their first operand to its left?
       A) &&   B) <<   C) >>   D) ∧
    iv) If a = 10,   b = 5   find C = ++a-b. The result is:
       A) 5   B) 7   C) 6   D) -6
  b. Explain precedence and associativity of operators in 'C' with an example. **(08 Marks)**
  c. What is type conversion? What are the different ways of type conversion? Explain with an example. **(08 Marks)**

PART – B

5 a. Choose your answers for the following : **(04 Marks)**
    i) What is the output of following program?

```c
#include <stdio.h>
Void main( )
{ int num;
  for(num = 0; num <= 10; num ++)
    { ;
        }
  printf("%d", num);
}
```

       A) 012345678910   B) 11
       C) 10   D) 01234567891011
    ii) A for loop with no test condition is known as _____ loop
       A) Finite   B) Infinite   C) While   D) do-while
    iii) In 'C' which of the following is not a storage class specifier?
       A) Static   B) Auto   C) Const   D) Register
    iv) Which of the following is the last character that is stored in a char array in 'C'?
       A) \0   B) \NULL   C) 0   D) /0

b. Describe the different ways of passing parameters to functions. **(08 Marks)**

c. Write a 'C' program using functions, to compute the sum of N numbers. **(08 Marks)**

6 a. Choose your answers for the following : **(04 Marks)**

i) Which of the following command will place the program control out of the loop when it gets executed

A) goto B) Break C) exit D) continue

ii) How many times the following loop will be executed?

```
for(; ;)
{
    printf("Hello");
}
```

A) 1 B) 0 C) Infinite D) Finite

iii) What would be the output of the following code segment?

```
for(i = 1; i< = 5; i++)
{
    if(i = = 3) continue;
    printf("%d", i);
}
```

A) 12 B) 1245 C) 1234 D) 345

iv) The minimum number of times the do-while loop will be executed

A) 0 B) 1 C) 2 D) Both a and b

b. Differentiate between while and do while statements, with an example for each. **(08 Marks)**

c. Write a 'C' program to calculate area of circle, rectangle and triangle using switch statement. Area of circle = π * r * r, Area of rectangle = length × breadth, Area of triangle = 0.5 * base * height. **(08 Marks)**

7 a. Choose your answers for the following : **(04 Marks)**

i) In the following segment of code, what will be the values of x and y after execution, if n assumes a value of zero(0)

```
x = 1; y = 1;
if (n > 0)
{ x = x + 1;
  y = y – 1;
}
printf("%d %d", x, y);
```

A) 0, 0 B) 1, 0 C) 0, 1 D) 1, 1

ii) Arrays can be initialized at

A) Compile time B) Run time C) Both A and B D) None of these

iii) Strncmp( ) function has _____ number of parameters

A) 2 B) 3 C) 1 D) 4

iv) How many times the following while loop is executed?

```
While (0)
{
    Statements;
}
```

A) 0 B) 1 C) Infinite D) Finite

b. What is an array? Write a program to print the sum of two one dimensional array and store the result in another array. **(08 Marks)**

c. Write a program that accepts a string and check whether the string is palindrome or not. **(08 Marks)**

8 a. Choose your answers for the following : **(04 Marks)**
   i) Parallel computing is _____ execution of instructions in a computer
      A) Simultaneous   B) Serial
      C) Accurate   D) Complete
   ii) Open MP supports _____
      A) Multi-threaded   B) Shared memory
      C) Both a and b   D) None of these
   iii) Which of the following is not a synchronization construct?
      A) Single   B) Master
      C) Section   D) Critical
   iv) Which of the following is the correct syntax of specifying open MP threads in C?
      A) #pragma omp directive [clause 1] [clause 2]… [clause n]
      B) #pragma openmpdirective [clause 1] [clause 2]…[clause n]
      C) #define omp directive [clause 1]…[clause n] accurate
      D) #define pragma omp directive [clause 1]…[clause n]

b. What is parallel computing? What are the various motivating factors for parallelism? **(10 Marks)**

c. What is open MP? Explain the open MP programming model. **(06 Marks)**

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