Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/B.Tech (OLD)/SEM-2/CS-201/2011
2011
INTRODUCTION TO COMPUTING

Time Allotted : 3 Hours   Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

                                                        10 × 1 = 10

   i)   A 64-bit microprocessor has the word length equal to

      a)   2 bytes   b)   4 bytes

      c)   1 byte   d)   8 bytes.

   ii) ASCII value 'A' is

      a)   65   b)   66

      c)   97   d)   none of these.

   iii) De Morgan's second theorem says that a NAND gate is equivalent to a bubbled .... gate.

      a)   AND   b)   OR

      c)   XOR   d)   none of these.

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iv) The function used to detect the end of file is

    a)   ferror ( )   b)   feof ( )

    c)   fputs ( )   d)   fgetch ( )

v) Arithmetic Logic Unit (ALU) is a part of a

    a)   Output device   b)   Memory

    c)   CPU   d)   Input device.

vi) Members of a union use

    a)   different storage locations

    b)   same storage locations

    c)   no storage locations

    d)   none of these.

vii) main ( )

```
{
        int fact = 1, i;
        for ( i = 1; i < 5; i ++ );
        fact = fact * i;
        printf ( "\n%d", fact );
}
```

What will be the output ?

    a)   24   b)   Infinite loop

    c)   5   d)   None of these.

viii) void man ( )

```
{
        int i = 5, m;

        m = i++;

        printf ( "\n%d, %d", i, m );

}
```

What will be the output ?

a)   6, 6   b)   5, 5

c)   6, 5   d)   None of these.

ix)   # define CUBE (x) x*x*x

void main ( )

```
{
        int i = 3, j;

        j = CUBE ( i + 2 );

        printf ("\n %d, j );

}
```

What will be the output ?

a)   125   b)   17

c)   27   d)   None of these.

x) main ( )

{

    int n = 8;

    n = n >> 2;

    printf ("\n %d", n);

}

What will be the output ?

a)   2   b)   1

c)   4   d)   None of these.

xi) A pointer is

a)   a value

b)   a memory location

c)   a variable containing the address of a variable

d)   none of these.

xii) During storing of number in computer memory, the positive sign is denoted by

a)   0   b)   +

c)   1   d)   none of these.

GROUP – B
(Short Answer Type Questions)
Answer any *three* of the following.   3 × 5 = 15

2. Write a C program to print the following pattern :

```
            1
          2 3 2
        3 4 5 4 3
      4 5 6 7 6 5 4
```

3. Write down the difference between

    a) Entry-controlled and Exit-controlled statement

    b) Recursion and Iteration.

4. What is call by value and call by reference ? Explain with examples.

5. a) What is the difference between Compiler and Interpreter ?

    b) Distinguish between i++ and ++i with suitable examples.

6. Convert the following to the corresponding bases :

   a) $(23 \cdot 8125)_{10}$ to Binary

    b) $(2AB)_{16}$ to Decimal.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7.   a)   What are the basic features of an algorithm ?   4

     b)   Write a C program to find the biggest and the smallest of *n* numbers.   5

     c)   Write a C function to find the cube of a number and use this function in main ( ) function to evaluate $x^3 + y^3 + z^3$, where *x*, *y* and *z* are read through standard input device.   6

8.   a)   Draw a flowchart to find the largest among three numbers.   3

     b)   Write a C program to find the largest among three numbers on the basis of the flowchart draw in part (a). 5

     c)   Briefly describe the function of different components of conventional digital computer with a suitable block diagram.   5

     d)   Subtract 2 forms 6 in binary subtraction using 2's complement.   2

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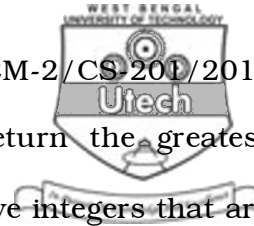
9. a) Write a recursive C function to return the greatest common divisor (GCD) of two positive integers that are received as arguments to the function.   4

    b) Write a C program to arrange a set of numbers in ascending order.   5

    c) Write a C program to check whether a string taken as input is palindrome or not ?   5

    d) What is the range of signed integers if an integer is stored in 2 byes of memory ?   1

10. a) Name any four string functions whose prototype is defined in the string.h header file.   2

    b) Write a C program to copy a disk file into another disk file using command line arguments.   5

    c) Write a C program to find the number of vowels and consonants in a line of text.   5

    d) What is the difference in opening a file in r+ and w+ modes ?   2

    e) What value is returned by the printf ( ) functions ?   1

11. Write short notes on any *three* of the following :   3 × 5

      a)   Operators in C language

      b)   Structure and union

      c)   Pointer and array

      d)   Static and dynamic memory allocation

      e)   Macro and function.