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.

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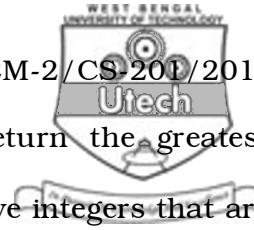
9. a) Write a recursive C function to return the greatest common divisor (GCD) of two positive integers that are received as arguments to the function. 4

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.

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