

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.

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```
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.

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GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

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) $(23.8125)_{10}$ to Binary

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

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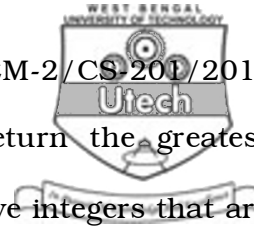
GROUP – C

(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 bytes 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

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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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