



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) $(23.8125)_{10}$ to Binary
- b) $(2AB)_{16}$ to Decimal.



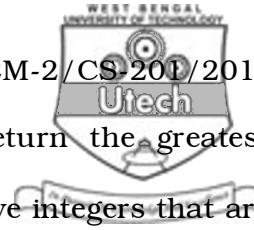
GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.

3 × 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 from 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 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.
-