Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech/SEM-2/CS-201/2010

2010

INTRODUCTION OF 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 the following : $10 \times 1 = 10$

i) Which of the following is a bitwise operator ?

a) < b) > =

c) << d) &&

ii) A pointer is

a) a memory location containing the address of a variable

b) a memory location

c) a value

d) none of these.

iii) RAM stands for

a) Read-Write Access Member

b) Random Access Memory

c) Read Access Memory

d) none of these.

iv) Number of bytes required for double in a 32 bit machine is

a) 64 b) 4

c) 8 d) 128.

v) The purpose of mode *r* + is to

a) open for only reading

b) open for only writing

c) open for both reading and writing

d) none of these.

vi) What will be the correct output of the following code ?

```
int x = 9;
if(10)
    printf("%d", ++x) ;
else
    printf("%d", x++);
```

a) 9 b) 10

c) 11 d) 12.

vii) Which is the range of unsigned short integer ?

a) 0 to 65535 b) 0 to 255

c) – 128 to 127 d) None of these.

viii) Which of the following declarations is invalid ?

a) int 2A b) int A2A

c) int A2 d) int AA2.

ix) Members of a union use
   a) different storage locations
   b) same storage location
   c) no storage location
   d) none of these.

x) Which among the following is a special operator ?
   a) << b) ++
   c) ? : d) sizeof( ).

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Briefly describe the functions of different components of a conventional digital computer with a suitable block diagram.
3. Write a C program to arrange a set of *n* numbers in ascending order.
4. Using ternary operator write a macro to find out the absolute value of a number.
5. Draw a flowchart to find the largest among three numbers taken as input.
6. a) What are the differences between recursion and iterations ?
   b) Write a recursive C-function to calculate factorial of a number. 2 + 3

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) Differentiate between while and do-while statements with suitable example.
   b) Differentiate between break and continue statements with suitable example.
   c) Write a C program to check whether a given number is prime or not. 5 + 4 + 6

8. a) i) Convert $(1011010)_2$ to Octal

ii) Convert $(35{\cdot}453)_{10}$ to Binary

iii) Convert $(3AC)_{16}$ to Decimal

iv) Convert $(-496)_{10}$ to Octal

v) Convert $(1001011)_2$ to Hexadecimal.

b) What are 2's complement numbers ? Using 2's compliment system perform $(55_{10} - 34_{10})$ in binary.

$(5 \infty 2) + 2 + 3$

9. a) What is an array ? What condition must be satisfied by the entire element of any given array ? What are subscripts ?

b) Write a program in C to multiply two 2D matrices and display the resultant matrix.

c) Explain the role of the C preprocessor. What is macro and how is it different from a C variable name ?

$4 + 5 + 6$

10. a) What is a function ? What are the advantages of using functions ? What is the purpose of the return statement ?

b) What are function prototypes ? When and where are the prototypes normally used ?

c) Write a C program to find out the GCD of a number using recursion. $5 + 5 + 5$

11. a) Explain the "Call by Value" and "Call by Reference" mechanism for passing arguments into a function call in general with example.

b) Write a program in C to find out the number of vowels in a string. $10 + 5$