ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009
INTRODUCTION TO COMPUTING
SEMESTER - 2

Time : 3 Hours]   [Full Marks : 70

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

i) Which one of the following declaration is invalid ?

   a) int 2A   b) int A2A

   c) int A2   d) int AA2.

ii) Which one is the right output ?

   int x = 9 ;

   if (10)

       printf("%d", ++x);

   else

       printf("%d", x++);

   a) 9   b) 10

   c) 11   d) 12.

iii) Which one is the right output ?

   char a[50] = "computer" ;

   printf("%d", strlen(a));

   a) 9   b) 10

   c) 8   d) 11.

iv)   Which one is the right output ?

```
#define int char

main()

{

    int i = 65;

    printf("sizeof(i)=%d",sizeof(i));

}
```

a)   sizeof(i)=1   b)   sizeof(i)=2

c)   sizeof(i)=4   d)   sizeof(i)=8.

v)   Which one is the right output ?

```
main()

{

    int i = 5, j = 6, z;

    printf("%d", i + ++j );

}
```

a)   12   b)   10

c)   11   d)   13.

vi)   In Hexadecimal number system, *E* is equivalent to the number in decimal

a)   10   b)   12

c)   14.   d)   15.

vii) What is the range of unsigned short int ?

    a)   0 to 65535   b)   0 to 255

    c)   – 128 to 127   d)   none of these.

viii) Operating system is

    a)   Application Software   b)   System Software

    c)   Firmware   d)   None of these.

ix) ALU is a part of

    a)   Memory   b)   CPU

    c)   Output device   d)   Input device.

x) Member of a union uses

    a)   different storage location   b)   same storage location

    c)   no storage location   d)   none of these.

xi) What will be the value of l and m after executing the following code ?

    int l = 1, m;

    $m = l ++$;

    a)   6, 5   b)   5, 5

    c)   5, 6   d)   6, 6.

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GROUP – B

(Short Answer Type Questions)

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

2. a) Convert $(17 \cdot 25)_{10}$ to Binary.   1

    b) What are 2's compliment numbers ? How do you use this system to perform $(51)_{10} - (27)_{10}$ in binary ?   1 + 2

    c) What are the main differences between RAM & ROM ?   1

3. a) What is ternary operator ? Explain with example.   2 + 1

    b) Write down the difference between compiler and interpreter.   2

4. a) Write down the main characteristics of algorithm.   2

    b) Write a flowchart to find the sum of the all integers ranging from 100 to 200 and divisible by both 2 and 3.   3

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

6. Write a C program to find out the G.C.D of two numbers.   5

GROUP – C

(Long Answer Type Questions)

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

7. a) Differentiate between "do-while" and "while" statements with suitable examples.   4

    b) Differentiate between "break" and "continue" statements with examples.   4

    c) What is the difference between structure and union in C programming ? Supplement with examples.   4

    d) Explain recursion with an example.   3

8. a) Write a C program to check whether a given number is prime number or not.   5

    b) Write a program to compute factorial of a number read from keyboard.   4

    c) What are auto, external and static variables ? Explain their uses with suitable examples.   6

9. a) What is array of pointers ? Explain with example.   4

    b) Explain call by value and call by reference with examples.   4

    c) Write a program in C to find the real roots of a quadratic equation using user defined function Quad( ).   7

10. a) Explain two input Exclusive OR gate using truth table. $2\frac{1}{2}$

    b) Why NAND gate is called universal gate ? $2\frac{1}{2}$

    c) Simplify :

    $$(A + \bar{B}) . (A.C) + (A.\bar{B} + \bar{A}.C) . (\overline{A + D})$$ 4

    d) Convert :   5

    i) $(2AD)_8 = (\quad)_2$

    ii) $(1110011101)_2 = (\quad)_{16}$

    iii) $(25.125)_{10} = (\quad)_2.$