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.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 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 × 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 : 6

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

ii) $(111001111101)_2 = (\ )_{16}$

iii) $(25{\cdot}125)_{10} = (\ )_2$.