

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

1. Explain the following phases of typical C development environment.

- Edit.
- Preprocess.
- Compile.
- Link.
- load and execute.

[2]

2. (a) Identify and correct the errors in each of the following statements. (Note: There may be more than one error per statement.)

- `scanf( "d", value );`
- `printf( "The product of %d and %d is %d"\n, x, y );`
- `if ( number > largest )`
`largest == number;`

(b) Given the equation $y = ax^3 + 7$, which of the following, if any, are correct C statements for this equation?

- `y = a * x * x * x + 7;`
- `y = a * x * x * (x + 7);`
- `y = (a * x) * x * (x + 7);`
- `y = (a * x) * x * x + 7;`
- `y = a * (x * x * x) + 7;`
- `y = a * x * (x * x + 7);`

[2]

3. (a) Subtract 128-4 using binary mathematics and 2's complement with sign extension.
- (b) Convert 01011110111011110010000 bits' pattern in Hexadecimal Numbers
- (c) Convert 1111001101 to decimal numbers.
- (d) Find out the value of Single-precision IEEE floating point number:

10111111010000000000000000000000

[4]

4. What will be the output of these programs?

<pre>(a) #include<stdio.h> intmain() { int x=55; printf("%d, %d, %d\n", x<=55, x=40, x>=10); return 0; }</pre>	<pre>(b) #include<stdio.h> intmain() { int k, num=30; k = (num>5 ? (num<=10 ? 100 : 200): 500); printf("%d\n", num); return 0; }</pre>
<pre>(c) #include<stdio.h> intmain() { int a = 300, b, c; if(a >= 400) b = 300; c = 200; printf("%d, %d, %d\n", a, b, c); return 0; }</pre>	

[3]

5. (a) Write a program to enter a number XYZ and:
 - a. Find the sum of all digits of XYZ
 - b. Find the largest digit in XYZ
 - c. Find the number of digits in XYZ with even value and odd value.
- (b) WAP to find the leap year

[3+1=4]