

Quiz II: Computer Programming (MA511)

1. What is the difference between the constants 123, '1', and "123" ? [1]

Ans.

123: an integer, '1': a character "123": string.

2. What is the function of the *semicolon* in a C statement ? [1]

Ans.

semicolon implies end of an expression.

3. What is the line `#include <stdio.h>` at the top of a C source file for ? [1]

Ans.

for standard input output library function.

4. What would the expression $i = i++$ do ? [1]

Ans.

its an invalid expression since at the same time i is increasing and assigning to itself.

5. What are the *largest* and *smallest* values that can be reliably stored in a variable of type signed *int* and unsigned *int* in a 8 *bit* machine ? [2]

Ans.

for signed int: $(-2^7 \text{ to } +2^7 - 1)$, for unsigned int: $(0 \text{ to } 2^8 - 1)$

6. Under what conditions will this code print (i) water (ii) steam ? [2]

```
if( $T < 32$ )
    printf("ice\n");
else if( $T < 212$ )
    printf("water\n");
else printf("steam\n");
```

Ans:

(i) water : $32 \leq T < 212$

(ii) steam : $212 \leq T$

7. What would this code print ? [2]

```
int i;
for( $i = 0; i < 3; i = i + 1$ )
    printf("a\n");
    printf("b\n");
printf("c\n");
```

Ans:

a

a

a

b

c

8. Write a C program to find out how many of the numbers from 1 to 777 are greater than 7 and divisible by 7 ? [2]

Ans.

```
#include <stdio.h>
main(){
    int i, count=0;
    for(i = 0; i <= 777; i = i + 1){
        if((i > 7)&&(i%7 == 0)){
            count=count+1;
            //printf ("%d, %d\n", i, count);
        }
    }
    printf ("%d\n", count);
}
```

9. Write a C program to compute the average of the numbers (x) which are perfect square and $x \in [1, 1024]$? [2]

Ans.

```
#include <stdio.h>
#include <math.h>
main(){
    int i, count=0, sum =0;
    for(i = 1; i <= 1024; i = i + 1){
        if( ((float)sqrt(i))==sqrt(i)){
            count=count+1;
            sum=sum+i;
        }
    }
    printf ("Average := %d\n", sum/count);
}
```

10. Write a program that takes a line of string as input and print the line in reverse order. [2]

Ans.

```
#include <stdio.h>
#include <string.h>
main(){
    char name[100], eman[100];
    int i, j, length;
    printf("Enter the string: ");
    scanf ("%[^\\n]", name);
    length=strlen(name);
    for(i = length, j = 0; 0 <= i, j <= length; i = i - 1, j = j + 1)
        eman[j]=name[i];
    for(i = 0; i <= length; i = i + 1)
        printf ("%c", eman[i]);
}
```