DAA WEEK-TIME COMPLEXITY AND SPACE COMPLEXITY

1)

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

Convert the following algorithm into a program and find its time complexity using the counter method.

```
void func(int n)
{
    if(n==1)
    {
      printf("*");
    }
    else
    {
     for(int i=1; i<=n; i++)
     {
       for(int j=1; j<=n; j++)
       {
          printf("*");
          printf("*");
          break;
       }
     }
   }
 }
```

Note: No need of counter increment for declarations and scanf() and count variable printf() statements.

Input:

A positive Integer n

Output:

Print the value of the counter variable

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
int func(int n){
    int count=0;
    if(n==1){
        count++;
        count++;
        return count++;
    }else{
        for(int i=1;i<=n;i++){
            count++;
            for(int j=1;j<=n;j++){
                count++;
                count++;
                count++;
                count++;
                break;
            }
        }
    }
    count++;
    count++;
    return count++;
}
int main(){
    int n;
    scanf("%d",&n);
    printf("%d",func(n));
}
```

OUTPUT:

	Input	Expected	Got	
✔	2	12	12	✔
✔	1000	5002	5002	✔
✔	143	717	717	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

2)

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

Convert the following algorithm into a program and find its time complexity using counter method.

```
Factor(num) {
{
   for (i = 1; i <= num;++i)
   {
    if (num % i== 0)
      {
        printf("%d ", i);
      }
   }
 }
```

Note: No need of counter increment for declarations and scanf() and counter variable printf() statement.

Input:

A positive Integer n

Output:

Print the value of the counter variable

Answer:

```c
#include<stdio.h>
int main(){
    int num,i;
    int counter=0;
    scanf("%d",&num);
    for(i=1;i<=num;i++){
        counter++;
        counter++;
        if(num%i==0){
        counter++;
        }
    }
    counter++;
    printf("%d",counter);
}
```

OUTPUT:

	Input	Expected	Got	
✔	12	31	31	✔
✔	25	54	54	✔
✔	4	12	12	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.

3)

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

Convert the following algorithm into a program and find its time

complexity using counter method.

```
void function(int n)
{
    int c= 0;
    for(int i=n/2; i<n; i++)
        for(int j=1; j<n; j = 2 * j)
            for(int k=1; k<n; k = k * 2)
                c++;
}
```

Note: No need of counter increment for declarations and scanf() and count variable printf() statements.

Input:

A positive Integer n

Output:

Print the value of the counter variable

Answer:

```c
#include<stdio.h>
int function(int n){
    int c=0;
    int count=0;
    count++;
    for(int i=n/2;count++,i<n;i++){
        for(int j=1;count++,j<n;j=2*j){
            for(int k=1;count++,k<n;k=k*2){
                count++;
                c++;
            }
        }
    }
    return count;
}
int main(){
    int a;
    scanf("%d",&a);
    printf("%d",function(a));
}
```

OUTPUT:

	Input	Expected	Got	
✓	4	30	30	✓
✓	10	212	212	✓

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

4)

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

Convert the following algorithm into a program and find its time complexity using counter method.

```
void reverse(int n)
{
   int rev = 0, remainder;
   while (n != 0)
    {
        remainder = n % 10;
        rev = rev * 10 + remainder;
        n/= 10;

    }
print(rev);
}
```

Note: No need of counter increment for declarations and scanf() and count variable printf() statements.

Input:

A positive Integer n

Output:

Print the value of the counter variable

Answer:

```c
#include<stdio.h>
int main(){
    int rev=0,remainder,counter=0,n;
    scanf("%d",&n);
    counter++;
    counter++;
    while(n!=0){
        counter++;
        remainder=n%10;
        counter++;
        rev=rev*10+remainder;
        counter++;
        n/=10;
        counter++;
    }
    counter++;
    printf("%d",counter);
}
```

OUTPUT:

	Input	Expected	Got	
✔	12	11	11	✔
✔	1234	19	19	✔

Passed all tests! ✔

Correct

Marks for this submission: 1.00/1.00.