1. What will be the output of the following program segment?

```c
int i=0, x=0;
do
{
    if(i%5= =0)
    {
        x++;
        printf("%d ",x);
    }
    ++i;
} while(i<20);
printf("\nx = %d",x);
```

2. What will be the output of the following program segment?

```c
int i=0, x=0;
for(i=1;i<10;i=i*2)
{
    x++;
    printf("%d",x);
}
 printf("\nx = %d",x);
```

3. What will be the output of the following program segment?

```c
int i=0, x=0;
for(i=1;i<10;++i)
{
    if(i%2= =1)
        x=x+i;
    else
        x--;
    printf("%d",x);
}
 printf("\nx = %d",x);
```

4. What will be output of the following program segment?

```c
int  a = 5, b = 0;
  if ( b && a++)
      printf("b = %d", b );
  else
       printf("\na=%d",a );
  printf("\n a = %d  b = %d", a, b);
```

Each of the following program segments (Problem 5 and 6) contains syntax errors. Identify the errors and make the necessary corrections. (Write the program segment correctly).

5. The following should print the values 1 to 10.
```c
n=1;
```

```
while (n<10)
  printf("%d ",n++);
```

6. The following should output the odd integers from 19 to 1:

```
for(x=19;x>1;x=x+2);
        printf("%d\n",x);
```

7. Determine how many times each of the following loops will execute?

   a.
   ```
   int z =0, sum = 0;
       while(z<=30)
           z = z+1;
   ```
   b.
   ```
   int a = 0;
       do{
           printf("%d\n", a);
           a++;
       }while (a>1);
   ```

8. Write a program to read the age of 100 persons and count the number of persons in the age group 50 to 60.

9. A class of 35 students takes an exam on which scores range from 0 to 100. Write a C program which reads marks for all the students and finds:
   i.   the average score
   ii.   the number of students who failed, i.e., scored below 40 and
   iii. the number of students with perfect papers, i.e. scored 100.