Question # 1 (for)

```c
#include <stdio.h>

int main()
{
    int range;
    printf("Enter a range: ");
    scanf("%d", &range);

    printf("Odd Numbers:\n");
    int sum = 0;
    for (int i = 1; i <= range; i++ ){
        if (i%2==1) {
            printf("%d\n", i);
            sum += i;
        }
    }
    printf("Sum of the odd numbers: %d", sum);
    return 0;
}
```

```
Enter a range: 6
Odd Numbers:
1
3
5
Sum of the odd numbers: 9
```

Question # 1 (while)

```c
#include <stdio.h>

int main()
{
    int range;
    printf("Enter a range: ");
    scanf("%d", &range);

    printf("Odd Numbers:\n");
    int sum = 0;
    int i = 1;
    while (i <= range){
        if (i%2==1) {
            printf("%d\n", i);
            sum += i;
        }
        i++;
    }
    printf("Sum of the odd numbers: %d", sum);
    return 0;
}
```

```
Enter a range: 7
Odd Numbers:
1
3
5
7
Sum of the odd numbers: 16
```

Question # 1 (do while)

```c
#include <stdio.h>

int main()
{
    int range;
    printf("Enter a range: ");
    scanf("%d", &range);

    printf("Odd Numbers:\n");
    int sum = 0;
    int i = 1;
    do{
        if (i%2==1) {
            printf("%d\n", i);
            sum += i;
        }
        i=i+1;
    }while (i <= range);

    printf("Sum of the odd numbers: %d", sum);
    return 0;
}
```

```
Enter a range: 3
Odd Numbers:
1
3
Sum of the odd numbers: 4
```

Question # 2

```c
#include <stdio.h>

int main()
{

    for( int a = 1; a<=4; a++) {

        for(int i=1; i<=(4-a); i++){
            printf(" ");
        }

        for(int j=1; j<=a; j++){
            printf("* ");
        }
        printf("\n");
    }
}
```

```
   *
  * *
 * * *
* * * *
```

Question # 3

```c
#include <stdio.h>

int mystrcmp(char str1[], char str2[])
    {

        int i = 0;
        while(str1[i] !='\0' && str2[i] !='\0') {
            if(str1[i] != str2[i]){
                if(str1[i] < str2[i]) {
                    return -1;
                }
                else if (str1[i] > str2[i]){
                    return 1;
                }
            }
            i = i + 1;
        }

        if(str1[i] =='\0' && str2[i] =='\0') {
            return 0;
        }
        else if (str1[i] =='\0') {
            return -1;
        }
        else {
            return 1;
        }

    }

void main() {
    char str1[] = "She";
    char str2[] = "Sheep";

    int result = mystrcmp(str1, str2);

    if (result < 0){
        printf("%s is smaller than %s", str1, str2);
    }
    else if (result > 0){
        printf("%s is bigger than %s", str1, str2);
    }
    else {
        printf("Both strings are equal");
    }

}
```

```
She is smaller than Sheep
```

Question # 4

```c
#include <stdio.h>

void change(char str1[]) {
    int i = 0;
    while(str1[i] != '\0') {

        if(str1[i] >= 'a' && str1[i] <= 'z') {
            str1[i] -= 32;
        }
        else if(str1[i] >= 'A' && str1[i] <= 'Z') {
            str1[i] += 32;
        }

        i = i + 1;
    }

    printf("Modified Sentence: %s", str1);
}

void main() {
    char sentence[] = "I study in a University";
    printf("Sentence: %s\n", sentence);
    change(sentence);
}
```

```
Sentence: I study in a University
Modified Sentence: i STUDY IN A uNIVERSITY
```

Question # 5

```c
void unique(int arr[], int length) {

    int unique_arr[length];
    int uniquesize = 0;

    for (int i=0; i < length; i++) {
        int found = 0;

        for(int j=0; j< uniquesize; j++) {
            if (arr[i] == unique_arr[j]) {
                found = 1;
            }
        }
        if (found == 0) {
            unique_arr[uniquesize] = arr[i];
            uniquesize++;
            printf("Unique Element at %d is %d\n",
                i, arr[i]);
        }

    }
```

```c
int main() {
    int arr[] = {1, 2, 3, 4, 3, 6, 2, 1};
    int length = sizeof(arr) / sizeof(arr[0]);

    unique(arr, length);
    return 0;
}
```

```
Unique Element at 0 is 1
Unique Element at 1 is 2
Unique Element at 2 is 3
Unique Element at 3 is 4
Unique Element at 5 is 6
```

Question # 6

```c
#include <stdio.h>

struct Distance {
    int feet;
    int inches;
};

int main() {
    struct Distance distance1;

    printf("Distance 1:\n");
    printf("Enter feets: ");
    scanf("%d", &distance1.feet);
    printf("Enter inches: ");
    scanf("%d", &distance1.inches);

    while(distance1.inches>12) {
        distance1.inches -= 12;
        distance1.feet += 1;
    }

    struct Distance distance2;
    printf("Distance 2:\n");
    printf("Enter feets: ");
    scanf("%d", &distance2.feet);
    printf("Enter inches: ");
    scanf("%d", &distance2.inches);

    while(distance2.inches>12) {
        distance2.inches -= 12;
        distance2.feet += 1;
    }

    struct Distance sum;
    sum.feet = distance1.feet + distance2.feet;
    sum.inches = distance1.inches + distance2.inches;

    while(sum.inches>12) {
        sum.inches -= 12;
        sum.feet += 1;
    }

    printf("(%d ft %d inches) + (%d ft %d inches) = %d ft %d inches",
    distance1.feet, distance1.inches, distance2.feet, distance2.inches,
    sum.feet, sum.inches);

}
```

```
Distance 1:
Enter feets: 2
Enter inches: 12
Distance 2:
Enter feets: 3
Enter inches: 16
(2 ft 12 inches) + (4 ft 4 inches) = 7 ft 4 inches
```