

SECTIONAL GROUP:

DISCUSSION GROUP:

MATRICULATION NO:

--	--	--	--	--	--	--	--	--

(Write your matriculation number legibly using a **PEN**.)

--

TOTAL
MARKS

1.

D

2.

B

3.

C

4.

E

5.

A

6.

[3 marks]

```
if (x) {  
    y++;  
    z = x + y;  
}
```

7.

[2 marks]

0

8.

[3 marks] // Write your code for swapping

```
temp = arr[(max_pos + 1) % size];  
arr[(max_pos + 1) % size] = arr[min_pos];  
arr[min_pos] = temp;
```

9.

[6 marks]

```
void rotateMatrix(int mtx[][10], int size){  
    int i, j, temp;  
  
    for (i = 0; i < size/2; i++) // Flip horizontal  
        for (j = 0; j < size; j++) {  
            temp = mtx[i][j];  
            mtx[i][j] = mtx[size-i-1][j];  
            mtx[size-i-1][j] = temp;  
        }  
  
    for (i = 0; i < size; i++) // Flip anti-diagonal  
        for (j=0; j< size-i; j++) {  
            if (i+j != size-1){  
                temp = mtx[i][j];  
                mtx[i][j] = mtx[size-j-1][size-i-1];  
                mtx[size-j-1][size-i-1] = temp;  
            }  
        }  
}
```

10. (a) [5 marks]

```
maxterm ← 0
do
    read in noterms
    if (noterms == 0) exit loop

    pi ← calculatePI(noterms, arr, maxterm)
    print pi

    if (noterms > maxterm) maxterm ← noterms
while (noterms > 0)
print goodbye message
-----
calculatePI(arr, noterms, maxterm)
    pi ← 0
    if (noterms > maxterms)
        for i from maxterm to noterms-1
            arr[i] ← 4.0/(i*2+1)

    for i from 1 to noterms
        if (i is even) pi ← pi += arr[i-1];
        else pi ← pi - arr[i-1]
    return pi
```

(b) [6 marks]

```
int main(void){
    double pi, arr[100000];
    int maxterm = 0, noterms;

    do {
        printf("Enter no. of terms: ");
        scanf("%d", &noterms);

        if (noterms == 0) break;

        pi = calculatePI(noterms, arr, maxterm);
        printf("The value of pi is %f\n", pi);

        if (noterms > maxterm) maxterm = noterms;
    } while(noterms > 0);

    printf("Thank you and goodbye!\n");

    return 0;
}

double calculatePI (int noterms, double arr[], int maxterm){
    int i;
    double pi = 0;

    if (noterms > maxterm)
        for (i = maxterm; i < noterms; i++)
            arr[i] = 4.0/(i*2+1);

    for (i = 0; i < noterms; i++)
        if (i%2 == 0) pi += arr[i];
        else pi -= arr[i];

    return pi;
}
```