Q.1)

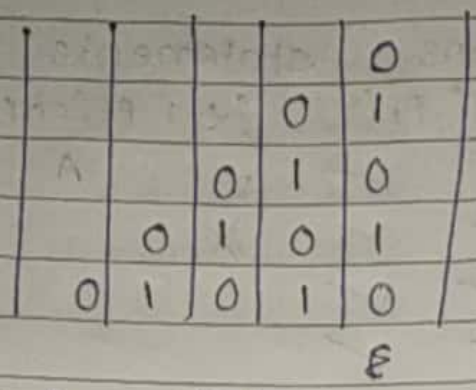
				A
			B	C
		C	D	E
	D	E	F	G
E	F	G	H	I

```
#include <stdio.h>
void main () {
        int num =0;
        for (int i =1 ; i<=5 ; i++){
                char ch1 = 'A' ;
                ch1 = ch1+num;
                 for (int k=4; k>=i ; k--){
                        printf("  ");
                }
                for (int j = 1 ; j<=i ; j++){
                        printf (" %c", ch1);
                        ch1++;
                }
                num++;
                printf("\n");
        }
}
```

• Dry Run

num	variables i	ch1	k	j	conditions i<=5	k>=i	statements PF(" ")	j<=i	PF(ch1)	incre/decre ch++	num++	j++	k--
0	1	A	4	1	✓	✓	✓	✓	A	B	1	2	3
			3	2	✓	✓	X						2
			2		✓	✓							1
			1		✓	✓							0
			0		X								2
1	2	B	4	1	✓	✓	✓	✓	B	C	1	2	3
1		C	3	2	✓	✓	✓		C	D	2	3	2
			2	3	✓	✓	X						1
			1		X								3
2	3	C	4	1	✓	✓	✓	✓	C	D	1	2	3
2		D	3	2	✓	✓	✓		D	E	2	3	2
2		E	2	3	X		✓		E	F	3	4	
			4				X						4
3	4	D	4	1	✓	✓	✓	✓	D	E	1	2	3
		E	3	2	X		✓		E	F	2	3	
		F		3			✓		F	G	3	4	
		G		4			✓		G			5	
				5			X						5
4	5	E	4	1	✓	✓	✓		E	F	1	2	
		F		2			✓		F	G	2	3	
		G		3			✓		G	H	3	4	
		H		4			✓		H	I	4	5	
		I		5			✓		I			6	
				6			X						6
6						X							

Q.2)



E

```
#Include<stdio.h>
void main() {
    for (int i=1; i<=5; i++) {
            for(int k=4; k>=i; k--){
                printf(" ");
            }
            for (int j=0; j<=i-1; j++){
                printf("%d", j+1+2);
            }
            printf("\n");
        }
    }
```

- Dry Run

variables			conditions			statements		incre/decre	
i	k	j	i<=5	k>=i	~~j<=i-1~~	printf(" ")	j<=i-1	printf(j+1+2)	k--	j++	i++
1	4	0	✓	✓	✓		✓		✓	0	3	1
	3	1		✓	✓		X				2	
	2			✓	✓						1	
	1			✓	✓						0	
	0			X								2

P	K	J	P<=5	K>=P	PF(" ")	J<=P-1	PF(j-2)	K--	J++	i++
2	2	0	✓	✓	✓	✓	0	3	1	
	3	1		✓	✓	✓	1	2	2	
	2	2		✓	✓	X		1	3	
	1	3		X						3
3	4	0	✓	✓	✓	✓	0	3	1	
	3	1		✓	✓	✓	1	2	2	
	2	2		X		✓	0		3	
		3				X				4
4	4	0	✓	✓	✓	✓	0	3	1	
	3	1		X	✓	✓	1		2	
		2			✓	✓	0		3	
		3			✓	✓	1		4	
		4				X				5
5	4	0	✓	X		✓	0		1	
		1				✓	1		2	
		2				✓	0		3	
		3				✓	1		4	
		4				✓	0		5	
		5				X				

Q.3)

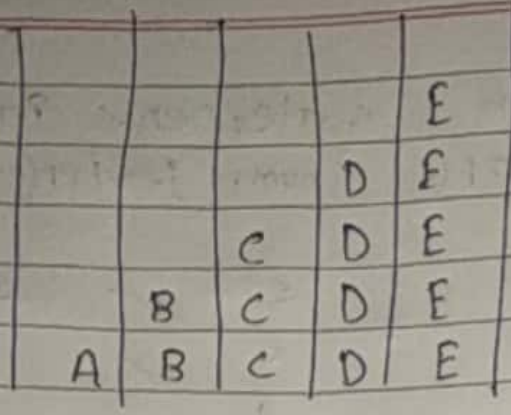
				25
			16	25
		9	16	25
	4	9	16	25
1	4	9	16	25

```
#include<stdio.h>
void main (){
    for( int i=1; i<=5; i++){
        int num=1;
        for( int k=4; k>=i; k--){
            printf(" ");
            num++;
        }
        for(int j=1; j<=i; j++){
            printf("%d ",num * num);
            num++;
        }
        printf("\n");
    }
}
```

• Dry Run

i	num	k	j	i<=5	k>=i	pf(" ")	num+1	j<=i	pf(num²)	num+1	k=i+1
1	1	4	1	✓	✓	✓	2	✓	25	6	3
	2	3	2		✓	✓	3	✗			2
	3	2			✓	✓	4				1
		1			✓	✓	5				0
		0			✗	✗					2
2	1	4	1	✓	✓	✓	2	✓	16	5	3
	2	3	2		✓	✓	3	✓	25	6	2
	3	2	3		✓	✓	4	✗			1
	4	1			✗						3
	5										
3	1	4	1	✓	✓	✓	2	✓	9	4	3
	2	3	2		✓	✓	3	✓	16	5	2
	3	2	3		✗			✓	25		4
	4							✗			4
	5										
4	1	4	1	✓	✓	✓	2	✓	4	3	3
	2	3	2		✗			✓	9	4	3
	3		3					✓	16	5	4
	4		4					✓	25		5
	5		5					✗			5
5	1	4	1	✓	✗			✓	1	2	2
	2		2					✓	4	3	3
	3		3					✓	9	4	4
	4		4					✓	16	5	5
	5		5					✓	25	6	6
	6		6					✗			6
6				✗							

Q.4)




```
#include<stdio.h>
void main () {
    for(int i=1 ; i<=5 ; i++){
        int num=1;
        char ch='A';
        for (int k=4 ; k>=i ; k--){
            printf(" ");
            num++;
            ch++;
        }
        for(int j=1; j<=i ; j++){
            printf("%c", ch);
            ch++;
        }
        printf("\n");
    }
}
```

• Dry Run

Variables Conditions statements Incre/decre

i	num	ch	k	j	i<=5	k>=1	Pf(" ")	num++	ch++	j<=i	Pf(ch)	ch++	k--	j++	Pf
1	1	A	4	1	✓	✓	✓	2	B	✓	E	F	3	2	
	2	B	3	2		✓	✓	3	C	X			2		
	3	C	2			✓	✓	4	D				1		
	4	D	1			✓	✓	5	E				0		2
	5	E	0			X									
2	1	A	4	1	✓	✓	✓	2	B	✓	D	E	3	2	
	2	B	3	2	✓	✓	✓	3	C	✓	E	F	2	3	
	3	C	2	3		✓	✓	4	D	X			1		
	4	D	1			X									3
		E													
		F													
3	1	A	4	1	✓	✓	✓	2	B	✓	C	D	3	2	
	2	B	3	2		✓	✓	3	C	✓	D	E	2	3	
	3	C	2	3		X				✓	E	F		4	
		D		4						✓	F	G		5	4
		E													
		F													
4	1	A	4	1	✓	✓	✓	2	B	✓	B	C	3	2	
	2	B	3	2		X				✓	C	D		3	
	3	C		3						✓	D	E		4	
				4						✓	E	F		5	
				5						X					5
5	1	A	4	1	✓	X				✓	A	B		2	
		B		2						✓	B	C		3	
				3						✓	C	D		4	
				4						✓	D	E		5	
				5						✓	E	F		6	
				6						X					6
6					X										

Q.5

	1	2	3	4	5
1					1
2				2	1
3			3	2	1
4		4	3	2	1
5	5	4	3	2	1

```
#include<stdio.h>
void main(){
    for(int i=1 ; i<=5 ; i++){
        int num=i;
        for(int k=4 ; k>=i ; k--){
            printf("  ");
        }
        for(int j=1 ; j<=i ; j++){
            printf("%d", num);
            num--;
        }
        printf("\n");
    }
}
```

Dry Run

variables			conditions		statements		Incre/decre	
i	num	k	i<=5	k>=i	pf(" ")	i<=i	pf(num)	num--k++
1	1	4	1 ✓	✓	✓	✓	1	0 3 2
		3	2	✓	✓	X		2
		2		✓	✓			1
		1		✓	✓			0
		0		X				2
2	2	4	1 ✓	✓	✓	✓	2	1 3 2
	1	3	2 ✓	✓	✓	✓	1	0 2 3
		2	3	✓	✓	X		1
		1		X				3
3	3	4	1 ✓	✓	✓	✓	3	2 3 2
	2	3	2	✓	✓	✓	2	1 2 3
	1	2	3	X		✓	1	4
			4			X		4
4	4	4	1 ✓	✓	✓	✓	4	3 3 2
	3	3	2	X		✓	3	2 1 3
	2		3			✓	2	1 4
	1		4			✓	1	5
			5			X		5
5	5	4	1 ✓	X		✓	5	4 2
	4		2			✓	4	3 3
	3		3			✓	3	2 4
	2		4			✓	2	1 5
	1		5			✓	1	0 6
			6			X		
6			X					6