

pattern →

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

	$i <= 4$	ch	chl	j	$j > i$	O/P	$j - -$	K	$K < i$	$chl++$	$K++$	$i++$
0	$0 <= 4$	65	65	4	$4 > 0$	—	3					
		3	3 > 0	—	2							
		2	2 > 0	—	1							
		1	1 > 0	—	0							
		0	$0 > 0 X$	A			0	$0 < 0$	66	1		
							1	$1 < 0 X$				1
1	$1 < 4$	65	66	4	$4 > 1$	—	3					
		3	3 > 1	—	2							
		2	2 > 1	—	1							
		1	$1 > 1 X$	B		0	$0 < 1$	67	1			
						C	1	$1 < 1$	68	2		
							2	$2 < 1 X$				2
2	$2 < 4$	65	67	4	$4 > 2$	—	3					
		3	3 > 2	—	2							
		2	$2 > 2 X$	C		0	$0 < 2$	68	1			
						D	1	$1 < 2$	69	2		
						E	2	$2 < 2$	70	3		
							3	$3 < 2 X$				3
3	$3 < 4$	65	68	4	$4 > 3$	—	3					
		3	$3 > 3 X$	D		0	$0 < 3$	69	1			
						E	1	$1 < 3$	70	2		
						F	2	$2 < 3$	71	3		
						G	3	$3 < 3$	72	4		
							4	$4 < 3 X$				4
4	$4 < 4$	65	69	4	$4 > 4 X$	E	0	$0 < 4$	70	1		
						F	1	$1 < 4$	71	2		
						G	2	$2 < 4$	72	3		
						H	3	$3 < 4$	73	4		
						I	4	$4 < 4$	74	5		
							5	$5 < 4 X$				5
5	$5 < 4 X$											

Pattern →

```

      0   0
      |   |
      0   1
      |   |
      0   0   0
      |   |
      0   1   0   1
      |   |
      0   1   0   1   0
    
```

i	$i <= 4$	$j = 8$	$j > i$	$0/p$	$j--$	k	$k <= 9$	$k \& 2 == 0$	$k++$	$i++$
0	$0 <= 4$	4	$4 > 0$	-	3					
	3	3	$3 > 0$	-	2					
	2	2	$2 > 0$	-	1					
	1	1	$1 > 0$	-	0					
	0	0	$0 > 0 X$	0		0	$0 <= 0$	✓	1	
						1	$1 <= 0 X$			1
1	$1 <= 4$	4	$4 > 1$	-	3					
	3	3	$3 > 1$	-	2					
	2	2	$2 > 1$	-	1					
	1	1	$1 > 1 X$	0		0	$0 <= 1$	✓	1	
						1	$1 <= 1 X$	X	2	
						2	$2 <= 1 X$			2
2	$2 <= 4$	4	$4 > 2$	-	3					
	3	3	$3 > 2$	-	2					
	2	2	$2 > 2 X 0$	0		0	$0 <= 2$	✓	1	
						1	$1 <= 2 X$	2		
						0	$2 <= 2$	✓	3	
						3	$3 <= 2 X$			3
3	$3 <= 4$	4	$4 > 3$	-	3					
	3	3	$3 > 3 X 0$	0		0	$0 <= 3$	✓	1	
						1	$0 <= 3 X$	2		
						0	$2 <= 3$	✓	3	
						1	$3 <= 3 X$	4		
						4	$4 <= 3 X$			4
4	$4 <= 4$	4	$4 > 4 X 0$	0		0	$0 <= 4$	✓	1	
						1	$1 <= 4 X$	2		
						0	$2 <= 4$	✓	3	
						1	$3 <= 4 X$	4		
						0	$4 <= 4$	✓	5	
5	$5 <= 4 X$					8	$5 <= 4 X$			5

No.

Date

pattern 3 =

$$\begin{matrix} & & 25 \\ & & 16 & 25 \\ & & 9 & 16 & 25 \\ & & 9 & 9 & 16 & 25 \\ , & 4 & 9 & 9 & 16 & 25 \end{matrix}$$

i=0	i<=4	n	j	j>i	o/p	j--	sq	k	k=i	sq++	k++	i++
0	0<=4	5	4	4>0	-	3						9
			3	3>0	-	2						0
			2	2>0	-	1						
			1	1>0	-	0						
			0	0>0 X	25		5	0	0<=0	6	1	
								1	1<=0 X			1
-1	1<=4	5	4	4>1	-	3						1
			3	3>1	-	2						
			2	2>1	-	1						
			1	1>1 X	16		4	0	0<=1	5	1	
					25		5	1	1<=1	6	2	
							2	2<=1 X				2
-2	2<=4	5	4	4>2	-	3						
			3	3>2	-	2						
			2	2>2 X	9		3	0	0<=2	4	1	
					16		4	1	1<=2	5	2	
					25		5	2	2<=2	6	3	
							3	3<=2 X				3
-3	3<=4	5	4	4>3	-	3						
			3	3>3 X	4		2	0	0<=3	3	1	
					9		3	1	1<=3	4	2	
					16		4	2	2<=3	5	3	
					25		5	3	3<=3	6	4	
							4	4<=3 X				4
-4	4<=4	5	4	4>4 X	1		1	0	0<=4	2	1	
					4		2	1	1<=4	3	2	
					9		3	2	2<=4	4	3	
					16		4	3	3<=4	5	4	
					25		5	4	4<=4	6	5	
							5	5<=4 X				5

O/P →

E
 D E
 C D E
 B C D E
 A B C D E

No.

Date

	$PC=4$	ch	$j=4$	$j>4$	O/P	$j=$	R	$PC=9$	$ch++$	$k++$	$q++$
0	$0C=4$	69	4	$4>0$	—	3					
			3	$3>0$	—	2					
			2	$2>0$	—	1					
			1	$1>0$	—	0					
	69	0		$0>0X$	E	0	$O<0$	70	1		
						1	$1<0X$				
1	$1C=4$	69	4	$4>1$	—	3					
			3	$3>1$	—	2					
			2	$2>1$	—	1					
	68	1		$1>1X$	D	0	$O<1$	69	1		
	69	0			E	1	$1<1$	70	2		
						2	$2<1$				2
2	$2C=4$	69	4	$4>2$	—	3					
			3	$3>2$	—	2					
	67	2		$2>2X$	C	0	$O<2$	68	1		
	88	1			D	1	$1<2$	69	2		
	69	0			E	2	$2<2$	70	3		
	70					3	$3<2X$				3
3	$3C=4$	69	4	$4>3$	—	3					
	66	3		$3>3X$	B	0	$O<3$	67	1		
	67				C	1	$1<3$	68	2		
	68				D	2	$2<3$	69	3		
	69				E	3	$3<3$	70	4		
	70					4	$4<3X$				4
4	$4C=4$	65	4	$4>3X$	A	0	$O<4$	66	1		
	66	5			B	1	$1<4$	67	2		
	68	6			C	2	$2<4$	68	3		
	87	7			D	3	$3<4$	69	4		
	68	8			E	4	$4<4$	70	5		
	69	9				5	$5<4X$				5
	70	10									

$$\begin{matrix} & & 1 \\ & 2 & 1 \\ 3 & 2 & 1 \\ 5 & 4 & 3 & 2 & 1 \end{matrix}$$

i	$P=4$	n	j	$j > i$	$0/Pj - k$	$kC=1$	$n--$	$k++$	$i++$
0	$0C=4$	1	4	$4 > 0$	-3				
			3	$3 > 0$	-2				
		5	2	$2 > 0$	-1				
			1	$1 > 0$	0				
			11	$0 > 0 X$	1	0	$0C=0$	0	1
			0			1	$1C=0 X$		
1	$1C=4$	1	4	$4 > 1$	-3				
		10	3	$3 > 1$	-2				
			2	$2 > 1$	-1				
			2	$1 > 1 X$	2	0	$0C=1$	1	1
			1		1	1	$1C=1$	0	2
			0				$2C=1 X$		2
2	$2C=4$	1	4	$4 > 2$	-3				
			3	$3 > 2$	-2				
		20	3	$2 > 2 X$	3	0	$0C=2$	2	1
			2		2	1	$1C=2$	1	2
			1		1	2	$2C=2$	0	3
			0			3	$3C=2 X$		3
3	$3C=4$	1	4	$4 > 3$	-3				
			4	$3 > 3 X$	4	0	$0C=3$	3	1
		25	3		3	1	$1C=3$	2	2
			2		2	2	$2C=3$	1	3
			1		1	3	$3C=3$	0	4
			0			4	$4C=3 X$		4
4	$4C=4$	15	4	$4 > 4 X$	5	0	$0C=4$	4	1
			4		4	1	$1C=4$	3	2
		30	3		3	2	$2C=4$	2	3
			2		2	3	$3C=4$	1	4
			1		1	4	$4C=4$	0	5
			0			5	$5C=4 X$		5