EXERCISE 5(F)

1. For each pattern, given below, write the next three steps :

(i)
$1 \times 9 + 1 = 10$
$12 \times 9 + 2 = 110$
$123 \times 9 + 3 = 1110$
$1234 \times 9 + 4 = 11110$
$12345 \times 9 + 5 = 111110$
$123456 \times 9 + 6 = 1111110$

(ii)
$9 \times 9 + 7 = 88$
$98 \times 9 + 6 = 888$
$987 \times 9 + 5 = 8888$
$9876 \times 9 + 4 = 88888$
$98765 \times 9 + 3 = 888888$
$987654 \times 9 + 2 = 8888888$

(iii)
$1 \times 8 + 1 = 9$
$12 \times 8 + 2 = 98$
$123 \times 8 + 3 = 987$
$1234 \times 8 + 4 = 9876$
$12345 \times 8 + 5 = 98765$
$123456 \times 8 + 6 = 987654$

(iv)
$111 \div 3 = 37$
$222 \div 6 = 37$
$333 \div 9 = 37$
$444 \div 12 = 37$
$555 \div 15 = 37$
$666 \div 18 = 37$

2. Complete each of the following magic squares :

(i)

6	7	2
1	5	9
8	3	4

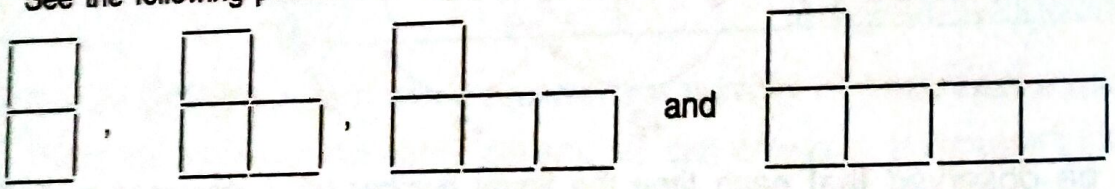
(ii)

4	9	8
11	7	3
6	5	10

(iii)

16	2	12
6	10	14
8	18	4

3. See the following pattern carefully :

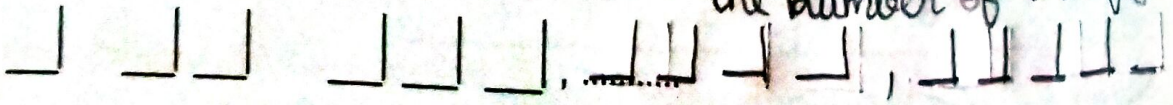


(i) If n denotes the number of figures and S denotes the number of matchsticks; find S in terms of n. $S = 3n + 4$

(ii) Find how many matchsticks are required to make the :
(1) 15th figure 49 (2) 40th figure 124

(iii) Write a discription of the pattern in words, No. of matchsticks (S) is equal to four more than 3 times the number of the figure

4. (i) In the following pattern, draw the next two figures.



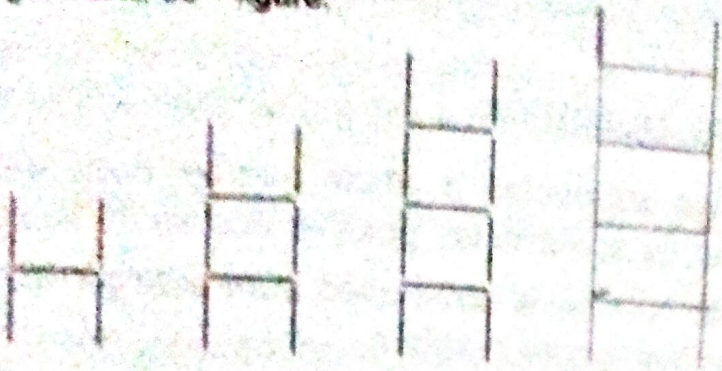
(ii) Construct a table to describe the figures in the above pattern. 2, 4, 6, 8, 10

(iii) If n denotes the number of figures and L denotes the number of matchsticks, find L in terms of n. $L = 2n$

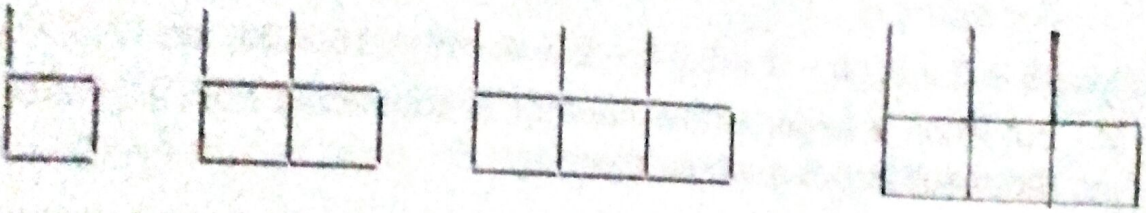
(iv) Find how many matchsticks are required to make the :
(1) 12th figure $= 2 \times 12 = 24$ (2) 20th figure $= 2 \times 20 = 40$

4. In each of the following patterns, construct the next figure.
   (i) In each case, if n denotes the number of figures and F denotes the number of matchsticks used, find F in terms of n.
   (ii) Also find, in each case, how many matchsticks are required to make the : 16^{th} figure and 30^{th} figure.

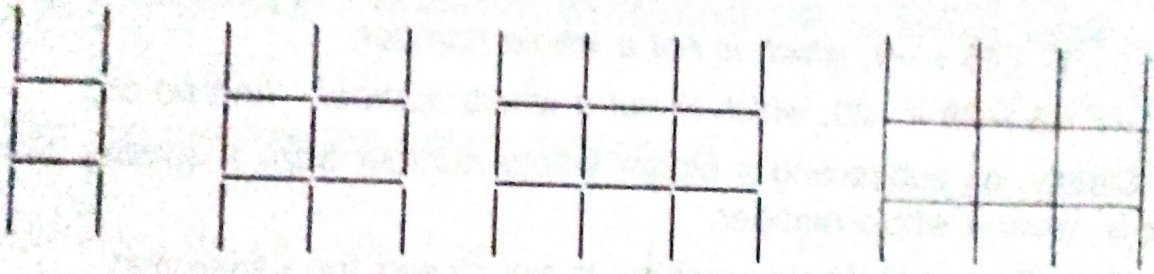
(a)



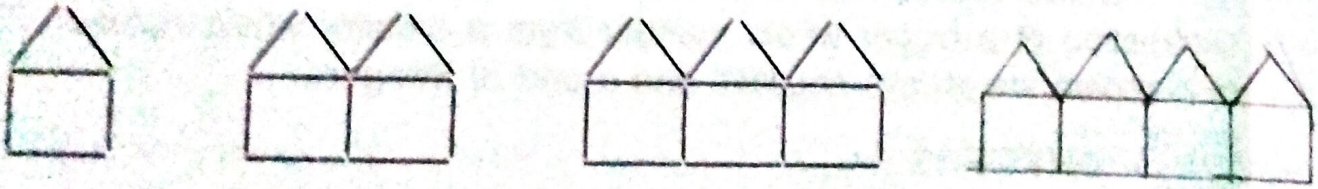
(b)



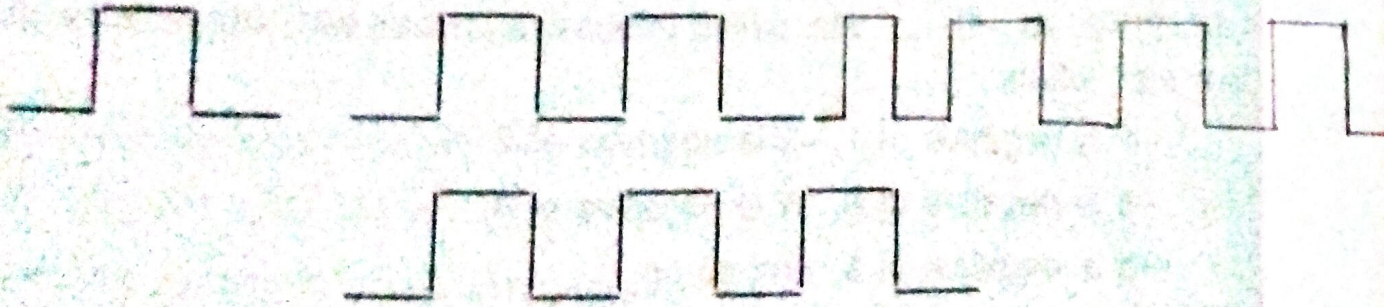
(c)



(d)



(e)



(f)