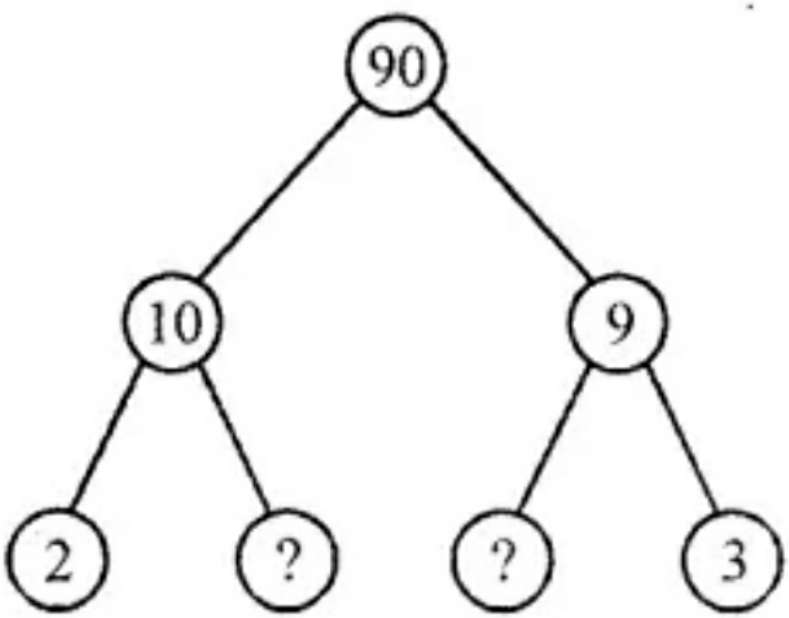
Question 1.

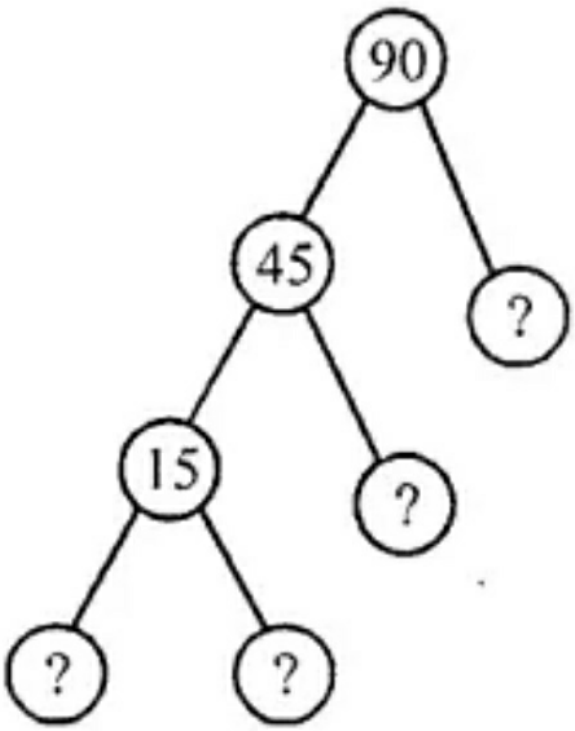
Here are two different factor trees of the number 90.

Write the missing numbers:

(i)

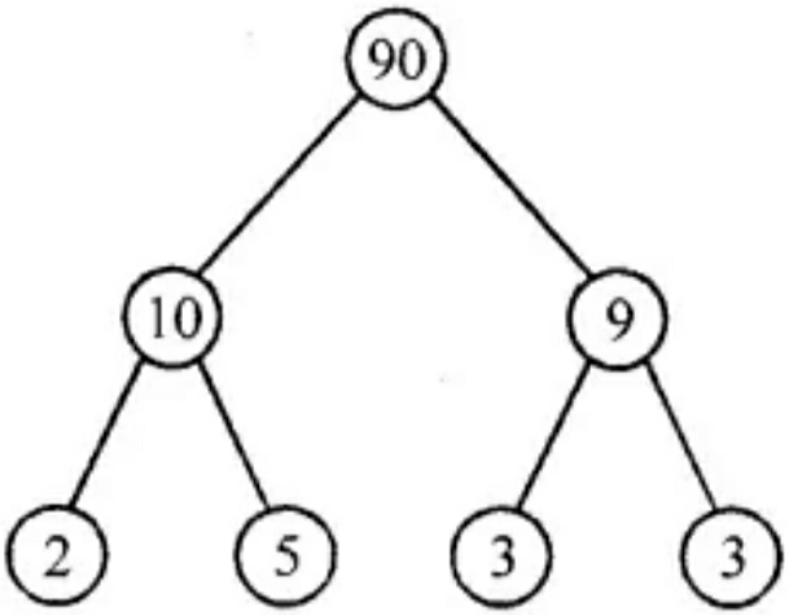


(ii)



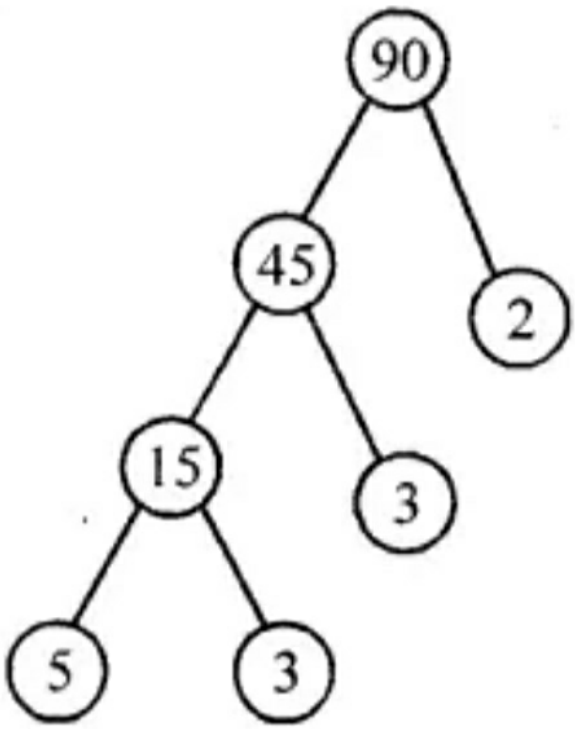
Solution:

(*i*)



Factor tree : $90 = 2 \times 5 \times 3 \times 3$

(*ii*)



Factor tree : $5 \times 3 \times 3 \times 2$

Question 2.

Find the prime factorisation of the following numbers:

(i) 72

(ii) 172

(in) 450

(iv) 980

(v) 8712

(vi) 13500

Solution:

(*i*) 72

2	72
2	36
2	18
3	9
3	3
	1

$\therefore\ 72 = 2 \times 2 \times 2 \times 3 \times 3$

(*ii*) 172

2	172
2	86
43	43
	1

$\therefore\ 172 = 2 \times 2 \times 43$

(*iii*) 450

2	450
3	225
3	75
5	25
5	5
	1

$\therefore$ $450 = 2 \times 3 \times 3 \times 5 \times 5$

(*iv*) 980

2	980
2	490
5	245
7	49
7	7
	1

$\therefore$ $980 = 2 \times 2 \times 5 \times 7 \times 7$

(*v*) 8712

2	8712
2	4356
2	2178
3	1089
3	363
11	121
11	11
	1

$\therefore$ $8712 = 2 \times 2 \times 2 \times 3 \times 3 \times 11 \times 11$

(*vi*) 13500

2	13500
2	6750
3	3375
3	1125
3	375
5	125
5	25
5	5
	1

$\therefore$ $13500 = 2 \times 2 \times 3 \times 3 \times 3 \times 5 \times 5 \times 5$

Question 3.

Write the smallest and the greatest 3–digit numbers and express them as the product of prime.

Solution:

Smallest 3-digit number = 100

2	100
2	50
5	25
5	5
	1

$\therefore$ $100 = 2 \times 2 \times 5 \times 5$

Greatest 3-digit number = 999

3	999
3	333
3	111
37	37
	1

$\therefore$ $999 = 3 \times 3 \times 3 \times 37$

Question 4.

Write the smallest five digit number and express it in the form of its prime factors.

Solution:

The smallest 5–digit number is 10000

2	10000
2	5000
2	2500
2	1250
5	625
5	125
5	25
5	5
	1

∴ 10000 = 2 × 2 × 2 × 2 × 5 × 5 × 5 × 5

Question 5.

1 am the smallest number, having four different prime factors. Can you find me?

Solution:

The smallest four different prime numbers are 2, 3, 5 and 7.

∴ The smallest number, having four different prime factor is 2 × 3 × 5 × 7 = 210.