Ex - 8C

(Q1) i) 8, 12, and 24

M8 = 8, 16, 24, 32, 40, 48, 56, 64, 72, 80
M12 = 12, 24, 36, 48, 60, 72, 84, 96, 108, 120
M24 = 24, 48, 68, 99, 120, 142, 178, 182, 166, 240

CM of 8, 12, 24 = 24, 48
LCM of 8, 12, 24 = 24.

ii) 10, 15, 20

M_{10} = 10, 20, 30, 40, 50, 60, 70, 80, 90, 100
M_{15} = 15, 30, 45, 60, 75, 90, 105, 120, 135, 150
M_{20} = 20, 40, 60, 80, 100, 120, 140, 160, 180, 200
CM of 10, 15, 20 = 60
LCM = 60.

iii) 3, 6, 9 and 12

M_3 = 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36
M_6 = 6, 12, 18, 24, 30, 36, 42, 48, 54, 60
M_9 = 9, 18, 27, 36, 45, 54, 63, 72, 81, 90
M_{12} = 12, 24, 36, 48, 60, 72, 84, 96, 108, 120.
CM of 3, 6, 9, 12 = 36
LCM = 36.

Q2) i) LCM of 18, 24 and 96 in Prime factor method :-

18 :- 2 x 3 x 3
$= 2^1 \times 3^2$

24 :- 2 x 2 x 2 x 3
$2^3 \times 3^1$

96 :- 2 x 2 x 3 x 8
$2^2 \times 3^1$

Required LCM = $2^3 \times 3^2$
$= 2 \times 2 \times 2 \times 3 \times 3 = 72$

LCM of 18, 24, 96 in common division method

2	18, 24, 96
3	9, 12, 48
3	3, 4, 16
2	1, 4, 16
2	1, 2, 8
2	1, 1, 4
	1, 1, 2

LCM = 2x3x3x2x2x2x2
= 288

ii) 100, 150, 200 = L.CM of 100, 150, 200 in P.F method :-

100 = 2x5x2x5
$= 2^2 \times 5^2$

150 = 3x5x2x5
$= 3^1 \times 5^2 \times 2^1$

200 = 2x2x2x5
$= 2^3 \times 5^1$

Required LCM = $2^3 \times 5^2$
= 2x2x2x5x5
= 200

iii) LCM of 100, 150, 200 in common division method :-

2	100, 150, 200
2	50, 75, 100
5	25, 75, 50
5	5, 15, 10
	1, 3, 2

LCM = 2×2×5×5×3×2
= 600

iii) 14, 21, 98 = LCM of 14, 21, 98 in prime factor method:-

14 = 2×7 = $2^1 \times 7^1$
21 = 3×7 = $3^1 \times 7^1$
98 = 2×7×7 = 2×7^2

LCM = $7^2 \times 3^1 \times 2^1$
= 7×7×3×2
= 294

(3) HCF and LCM of two no.s = 50 and 300

HCF = 300×50 =
300
×50
000
1500×
15000

50 | 300 | 6
-300
000

100 = other no.

150 | 15000 | 100
-150
0000
000

So the other no. is 100.

④ Product of two no.s = 432
If LCM = 72
HCF = 432 ÷ 72

	6
72	432
	432
	R = 0

So the HCF is 6

⑤ Product of two no.s = 19,200
If HCF = 40
LCM = 19,200 ÷ 40

	480
40	19200
	−160
	320
	320
	0000

⑥ Required no. = LCM of 12, 15, 18, 24, 36
$= 2 \times 2 \times 2 \times 3 \times 3 \times 5$
$= 360$

2	12, 15, 18, 24, 36
2	6, 15, 9, 12, 18
3	3, 15, 9, 6, 9
3	1, 5, 3, 2, 3
	1, 5, 1, 2, 1

⑦ increased by 1 is exactly divisible 12, 18, 24, 32, 40

2	12, 18, 24, 32, 40
2	6, 9, 12, 16, 20
3	3, 9, 6, 8, 10
3	1, 3, 2, 8, 10
	1, 3, 1, 4, 5

LCM of 12, 18, 24 ~~and~~, 32 and 40
$= 2 \times 2 \times 2 \times 3 \times 3 \times 4 \times 5$
$= 1440$
Required no. $= 1440 - 1$
$= 1439$.

(8) decrease by 3 is exactly divisible.
18, 36, 32, 27.

2	18, 36, 32, 27	
3	9, 18, 16, 27	
3	3, 6, 16, 9	
2	1, 2, 16, 9	
	1, 1, 8,	

2	18, 36, 32, 27
3	9, 18, 16, 27
3	3, 6, 8, 9
3	1, 2, 8, 3
	1, 1, 8, 1

LCM of 12, 18, 24, 32 and 40
$= 2 \times 2 \times 3 \times 3 \times 8 \times 3$
$= 864$
Required no. $= 864 + 3$
$= 867$