

5. LCM AND HCF

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Class: VI. MATHEMATICS
INTEGRATED SOLUTIONS

2025/26

TEACHING TASK
JEE MAINS LEVEL

01. Given 72, 108, 210

$$\begin{array}{r} 72 \overline{) 108} (1 \\ \underline{72} \\ 36 \overline{) 72} (2 \\ \underline{72} \\ 0 \end{array}$$

$$\begin{array}{r} 36 \overline{) 210} (5 \\ \underline{180} \\ 30 \overline{) 36} (1 \\ \underline{30} \\ 6 \overline{) 30} (5 \\ \underline{30} \\ 0 \end{array}$$

$\therefore \text{H.C.F} = 6$

Ans. A.

02 LCM { 20, 24, 36, 40 }

$$20 = 2^2 \times 5$$

$$24 = 2^3 \times 3$$

$$36 = 2^2 \times 3^2$$

$$40 = 2^3 \times 5$$

$$\text{LCM} = 2^3 \times 3^2 \times 5 = 360$$

Now, Smallest 4-digit no = 1000

$$\text{Now, } \frac{1000}{360} \approx 2.78 \Rightarrow \text{Next whole no: } 3$$

$\therefore \text{Required no} = 360 \times 3 = 1080$

Ans. B

03 LCM { 63, 90, 135 } = 1890

Required no = $1890 + 11 = 1901$

Ans. A

04 $110 - 2 = 108$; $125 - 5 = 120$

HCF { 108, 120 } = 12

Ans. C



$$05 \text{ LCM} \{ 24, 36, 40 \} = 360$$

② Ans: C

$$06 \quad 252 = 2 \times 2 \times 3 \times 3 \times 7$$

Ans: A

$$07 \text{ HCF} \{ 36, 84 \} = 12$$

Ans: A

$$08 \text{ HCF} \{ 48, 36, 72, 24 \} = 12$$

$$\text{LCM} \{ 48, 36, 72, 24 \} = 144$$

$$\therefore \text{LCM} = 12 \times \text{HCF}$$

Ans: A

$$09. \quad 462$$

Ans: C

$$10. \quad \text{LCM} \times \text{HCF} = \text{product}$$

$$12 \times \text{HCF} = 24 \Rightarrow \text{HCF} = 2$$

Ans: B

JEE ADVANCED LEVEL

Ans: D

11. Conceptual

Ans: A, C

12. Conceptual

$$13 \quad 15 \overline{) 225} \begin{matrix} (15 \\ 225 \\ \underline{0} \end{matrix} \quad \text{H.C.F} = 15$$

Ans: B

$$14 \quad p = a \times b \times c \times d$$

$$q = b \times c \times d \times 4$$

$$\text{HCF} \{ p, q \} = bcd$$

Ans: A

$$15 \text{ statement I: } \text{LCM}(120, 20) = 120 \text{ (True)}$$

statement II: Conceptual (True)

Ans: A



16. Statement I: $LCM\{3, 5\} = 15$ (True) (3)
Statement II: Conceptual (True) Ans: A

17. $HCF\{3, 4\} = 1$ Ans: 1

18. We have $510 = 24 \times 21 + 6$
 $270 = 24 \times 11 + 6$

$\therefore$ Clearly 6 should be subtracted Ans: 6

19. a) $HCF\{5, 7\} = 1$ (r)

b) product (P)

c) $LCM\{8, 9, 25\} = 1800$ (S)

d) $HCF\{8, 9, 25\} = 1$ (r)

Ans: r, P, S, r

20. a) $HCF \times LCM$ (r)

b) Twin Primes (S)

c) Co-primes (r)

d) Twin primes (S)

Ans: r, S, r, S

LEARNERS TASK (CUE'S)

01. Conceptual

Ans: D

02.

$$\begin{array}{r} 8 \overline{) 12} (1 \\ \underline{8} \\ 4 \overline{) 4} (2 \\ \underline{8} \\ 0 \end{array}$$

$HCF = 4$

Ans: D



(4) Ans. B

03. Conceptual

04 $LCM\{2, 3\} = 6$

Ans. B

05 Infinite set

Ans. C

06 $100 = 2^2 \times 5^2$

Ans. C

07 Conceptual

Ans. B

08 Conceptual

Ans. A

09 Conceptual

Ans. B

10 Conceptual

Ans. B

JEE MAINS LEVEL QUESTIONS

01.

$$\begin{array}{r} 5 \overline{) 5, 10, 12, 20} \\ 2 \overline{) 1, 2, 12, 4} \\ 2 \overline{) 1, 1, 6, 2} \\ 1, 1, 3, 1 \end{array}$$

$$L.C.M = 5 \times 2 \times 2 \times 3 = 60$$

Ans. D

02

$$\begin{array}{r} 150 \overline{) 225} (1 \\ \underline{150} \end{array}$$

$$\begin{array}{r} 75 \overline{) 150} (2 \\ \underline{150} \\ (0) \end{array} \quad HCF = 75$$

Ans. B

03

$LCM\{16, 24, 40\} = 240$; Largest 4 digit

number = 9999

Now $240 \times 41 = 9840$

$$\frac{9999}{240} = 41 \text{ (Approx)}$$

Ans. B



04 $HCF\{45, 135, 105\} = 15$

⑤ Ans: A

05 $LCM\{20, 24, 36, 40\} = 360$

the smallest 5 digit no = 10000

$$\frac{10000}{360} = 27.78 \approx 28 \text{ (Approx)}$$

Now $360 \times 28 = 10080$

Ans: C

06 $GCD\{325, 225\} = 25 \text{ cm} = 0.25 \text{ m}$

Ans: A

07 999987

Ans: C

08 $20 \text{ lit} = 20 \times 1000 \text{ ml} = 20000 \text{ ml}$

$G.C.D\{20000, 30000\} = 10000 \text{ ml}$

$= 10 \text{ lit}$

Ans: A

09 $7 \overline{)171} (24 \quad \bigg| \quad 7 \overline{)215} (35$
 $\frac{168}{(3)} \quad \quad \quad \frac{215}{6}$

Option Verification

Ans: C

10 $LCM\left\{\frac{36}{225}, \frac{48}{150}, \frac{72}{65}\right\}$

$$= \frac{LCM\{36, 48, 72\}}{HCF\{225, 150, 65\}} = \frac{144}{5}$$

Ans: C

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11

Conceptual

Ans: C, D



12. statement I: Conceptual (True)

(6)

statement II: HCF $\times$ LCM = product

$$37 \times \text{LCM} = 4107$$

$$\therefore \text{LCM} = 111$$

$$\text{Now, L.C.M } \{3, 7, 111\} = 111$$

$$\therefore \text{greater number} = 111$$

Ans: A

13 $\text{HCF } \left\{ \frac{9}{10}, \frac{12}{25}, \frac{18}{35}, \frac{21}{40} \right\}$

$$= \frac{\text{HCF } \{9, 12, 18, 21\}}{\text{LCM } \{10, 25, 35, 40\}} = \frac{3}{1400}$$

Ans: C

14 $\text{HCF } \{36, 84\} = 12$

Ans: 12

15 a) Factors of 18 = $\{1, 2, 3, 6, 9, 18\}$
" " 24 = $\{1, 2, 3, 4, 6, 8, 12, 24\}$

$$\text{Common factors} = \{1, 2, 3\}$$

$$\text{No. of Common factors} = 3 (P)$$

b) $\text{HCF } \{55, 12\} = 1 (S)$

c) $\text{LCM } \{12, 24\} = 24 (T)$

d) Factors of 38 = $\{1, 2, 19, 38\}$
Factors of 57 = $\{1, 3, 19, 57\}$

$$\text{Common factors} = \{1, 19\}$$

$$\text{No. of Common factors} = 2 (R)$$

Ans: P, S, R

$\Rightarrow$ THE END $\Leftarrow$