



**DELHI POLICE 2025**  
**CONSTABLE HCM AWO/TPO DRIVER**

**यकीन बैच**

**MATHS**



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**Number System**

**(संख्या पद्धति)**

**Part -11**

**LIVE**  
STREAMING

**29-01-2025 11:00 AM**



$$\Rightarrow \underline{420}$$

$$\Rightarrow 2 \times 3 \times 7 \times 2 \times 5$$

$$\Rightarrow 2^2 \times 3^1 \times 5^1 \times 7^1$$

$$\textcircled{i} \text{ Total factor} = 3 \times 2 \times 2 \times 2 = \underline{24}$$

$$\textcircled{ii} \text{ Even factor} = 2 \times 2 \times 2 \times 2 = 16$$

$$\textcircled{iii} \text{ Odd factor} = 2 \times 2 \times 2 = 8$$

Prime factor :

$$\textcircled{i} \begin{array}{cccc} 2^2 & \times & 3^1 & \times & 5^1 & \times & 7^1 \\ \hline & & & & & & \\ & & & & & & \end{array}$$

$$2+1+1+1 = \textcircled{5}$$

$$\textcircled{ii} 6^3 \times 4^5 \times 3^2 \times 10^9$$

$$(2 \times 3)^3 \times (2 \times 2)^5 \times 3^2 \times (2 \times 5)^9$$

$$2^3 \times 3^3 \times 2^5 \times 2^5 \times 3^2 \times 2^9 \times 5^9$$

$$\textcircled{36}$$

$$\Rightarrow 420$$

$$2^2 \times 3^1 \times 5^1 \times 7^1$$

कुल गुणस्वरों का योग:

$$(2^0 + 2^1 + 2^2)(3^0 + 3^1)(5^0 + 5^1)(7^0 + 7^1)$$

$$(1 + 2 + 4)(1 + 3)(1 + 5)(1 + 7)$$

$$7 \times 4 \times 6 \times 8 = 168 \times 8$$

$$= 1344$$

$$(1 + 2 + 4 + 8)(1 + 3 + 9)(1 + 5 + 25) 2^3 \times 3^2 \times 5^2$$

कुल गुणस्वरों का योग:

$$(2^0 + 2^1 + 2^2 + 2^3) \times (3^0 + 3^1 + 3^2) \times (5^0 + 5^1 + 5^2) \times$$

$$(1 + 2 + 4 + 8)(1 + 3 + 9)(1 + 5 + 25)$$

$$15 \times 13 \times 31$$

$$403 \times 15$$

$$\underline{6045}$$

$$\Rightarrow 2^4 \times 3^3 \times 7^1$$

$$\Rightarrow (1+2+4+8+16)(1+3+9+27)(1+7)$$

$$31 \times 40 \times 8$$

$$31 \times 320$$

$$\boxed{9920}$$

(सम) गुणितखंडों का योग:  
Sum of Even factors.

$$\Rightarrow 2^3 \times 3^2 \times 5^2 = (8 \times 9 \times 25) = 1800$$

$$(2+4+8)(1+3+9)(1+5+25)$$

$$14 \times 13 \times 31$$

$$403 \times 14$$

$$\boxed{5642}$$

$$2^4 \times 3^1 \times 5^1 \times 7^1$$

$$(2+4+8+16)(1+3)(1+5)(1+7)$$

$$30 \times 4 \times 6 \times 8$$

$$192 \times 30$$

$$\boxed{5760}$$

विषम गुणांकों का योग  
Sum of odd factors :-

$$2^3 \times 3^3 \times 5^2$$

$$(1+3+9+27)(1+5+25)$$

$$40 \times 31 = \underline{1240}$$

$$\Rightarrow 2^7 \times 3^4 \times 5^1$$

कितने ऐसे गुणनखण्ड जो पूर्ण वर्ग हैं?

$$(2^2)^3 \times \cancel{2} \times (3^2)^2 \times \cancel{5}$$

$$4 \times 3 = 12$$

$$\sqrt{3^2} = 3 \quad \sqrt{5^2} = 5$$

$$\sqrt{7^2} = 7 \quad \sqrt{9^2} = 9$$

$$\textcircled{11} \quad 2^{11} \times 3^5 \times 5^3$$

$$(2^2)^5 \times \cancel{2} \times (3^2)^2 \times \cancel{3} \times (5^2)^1 \times \cancel{5}$$

$$6 \times 3 \times 2 = 36$$

Last part ∴

$$2^7 \times 3^4 \times 5^1$$

$$8 \times 5 \times 2 = 80$$

$$\begin{aligned} & 72 \\ &= 2 \times 2 \times 2 \times 3 \times 3 \\ &= 2^3 \times 3^2 \end{aligned}$$

$$\begin{aligned} & 2^4 \times 3^2 \times 5^1 \\ & 5 \times 3 \times 2 = 30 \end{aligned}$$

$$\begin{aligned} & 2^7 \times 3^4 \times 5^1 \\ & 30 \text{ के लिये जोड़ें } \\ & 2 \times 3 \times 5 (2^6 \times 3^3 \times 5^1) \\ & 7 \times 4 = 28 \end{aligned}$$

$$\begin{aligned} &\underline{\underline{60}} \\ &= 2 \times 2 \times 3 \times 5 \\ &2^2 \times 3^1 \times 5^1 \end{aligned}$$

$$\begin{aligned} &2^6 \times 3^3 \times 5^4 = \textcircled{60} \\ &\cancel{2^1 \times 3^1 \times 5^1} [2^4 \times 3^2 \times 5^3] \\ &\quad \underbrace{5 \times 3 \times 4} \end{aligned}$$



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83. What are the total number of odd and even divisors of 120 respectively?

$$2 \times 2 \times 2 \times 3 \times 5$$

$$2^3 \times 3^1 \times 5^1$$

$$\times 2 \times 2 = 4$$

$$3 \times 2 \times 2 = 12$$

120 के विषम और सम भाजकों की कुल संख्या क्रमशः कितनी है?

(a) 12, 4

(b) 16, 0

☒ (c) 4, 12

(d) 8, 8



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84. How many factors of  $2^9 \times 3^5 \times 5^4 \times 7^6$  are odd numbers?

~~$2^9 \times 3^5 \times 5^4 \times 7^6$~~  के कितने गुणक विषम संख्याएँ हैं?

(a) 288

(b) 144

(c) 210

(d) 140

$6 \times 5 \times 7$



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**85. What will be the number of prime factors of**

$$(15)^{15} \times (45)^{45} \times (50)^{50} \times (100)^{100}?$$

$$\begin{array}{r} 550 \\ 165 \\ \hline 715 \end{array}$$

$(15)^{15} \times (45)^{45} \times (50)^{50} \times (100)^{100}$  के अभाज्य गुणनखंडों की संख्या होगी?

- (A) 700  
(B) 715  
(C) 725  
(D) 745

$$(3 \times 5)^{15 \times 2} \times (3 \times 5 \times 3)^{45 \times 3} \times (2 \times 5 \times 5)^{50} \times (2 \times 2 \times 5 \times 5)^{100}$$

$$30 + 125 + 150 + 400$$

|               |               |
|---------------|---------------|
| 18            | 50            |
| <del>18</del> | <del>50</del> |
| <del>45</del> | 400           |
| <del>45</del> |               |
| <del>45</del> |               |
| <del>50</del> |               |



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86. Find the sum of factors of 3240

**3240 के गुणनखण्डों का योग ज्ञात कीजिए**

(a) 10890

(b) 11000

(c) 10800

(d) 10190