

# The number of prime numbers 1 to 100 is?

## NUMBER SYSTEM PRACTICE QUESTIONS

1. In a test of 25 questions (+4) marks are given for every correct answer and (-2) marks are given for every incorrect answer. Sunitha attempted all questions and gets a score of 76, then the number of correct answers attempted by her is?

1.23 2. 21 3. 20 4.22

**Sol:** Let the number of correct answered questions = x, incorrect answered questions = 25-x according to the given sum  $4x + (-2)(25-x) = 76 \Rightarrow 4x - 50 + 2x = 76 \Rightarrow 6x = 126 \Rightarrow x = 21$

2. The number of prime numbers 1 to 100 is?

1.20 2.23 3.25 4.24

**Sol:** Prime numbers 1 to 100 are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97. They are 25 in number.

3. The number of rational numbers between 1 to 100 is?

1. 100 2. 993 3. 101 4. Infinite

**Sol:** There are infinite rational and irrational numbers are there between two rational numbers, so number of rational numbers between 1 and 100 is infinite.

4. The H.C.F. of any two consecutive even integers is?

1.1 2.2 3.3 4.4

**Sol:** The H.C.F. of any two consecutive even integers is 2. Example: Let 18 and 20 are two consecutive even numbers prime factorization  $18 = 2 \times 3 \times 3$ ,  $20 = 2 \times 2 \times 5$ , common factor is 2. The H.C.F. of 18 and 20 is 2.

5. The smallest number that must be added to 321727, so that the resultant exactly divisible by 3 is?

1.3 2.4 3.1 4.2

**Sol:** Given number is 32127 sum of the digits of the given number is  $3 + 2 + 1 + 7 + 2 + 7 = 22$ . multiple of 3 after 22 is 24, we need to add 2 to 22 to get the sum should be divisible by 3. So the new number  $32127 + 2 = 32129$  is exactly divisible by 3.

6. Number of integers lie between  $35^2$  and  $36^2$ ?

1. 74 2. 68 3. 72 4. 70

**Sol:** the number of integers between  $n^2$  and  $(n+1)^2$  is  $2n$ . So, number of integers lie between  $35^2$  and  $36^2 = 2(35) = 70$ .

7. The difference between the L.C.M and H.C.F. of two numbers is 133. If the L.C.M. is 20 times the H.C.F. and one of the numbers is 35, then the other number is?

1.20 2. 25 3. 42 4. 28

**Sol:** Given the difference between LCM and HCF = 133  $\Rightarrow \text{LCM} - \text{HCF} = 133$  and  $\text{LCM} = 20 \times \text{HCF}$ , one number  $\Rightarrow 35 \times x = 140 \times 7 \Rightarrow x = \frac{140 \times 7}{35} = 28$ .

8. The difference between the greatest and the smallest 5-digit number formed by the digits 6, 2, 0, 3 and 8 is?

1. 65952 2. 64952 3. 64852 4. 65852

**Sol:** The greatest number formed by the digits 6, 2, 0, 3, 8 is 86320 and the smallest number formed by the digits 6, 2, 0, 3, 8 is 20368. The difference between these numbers is  $86320 - 20368 = 65952$ .

9. The scale of a map is 1:30000. If two cities are 4cm apart in the map then the actual distance between them is?

1. 1.2m 2. 1.2km 3. 10.2 km 4. 10.2km

**Sol:** Given the ratio 1:30000, let the actual distance between them is 1.5 2.3 3.6 4.384615

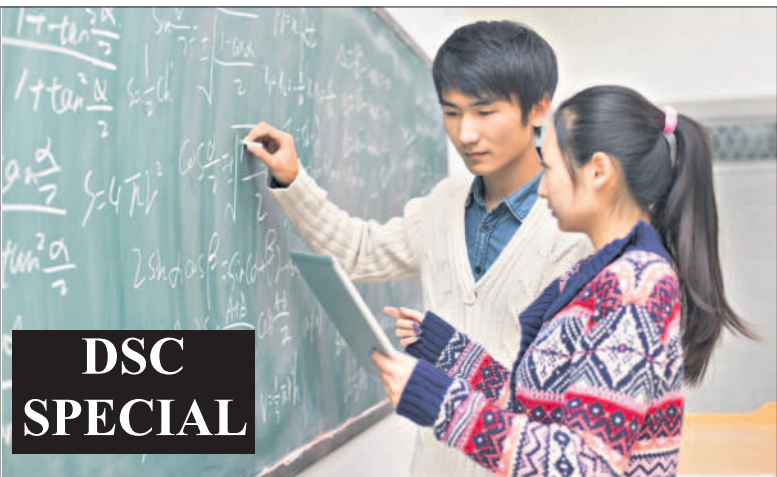
**Sol:**  $\frac{1}{30000} = \frac{4}{y} = 120000 \text{ cm} \Rightarrow y = 4 \times 30000 = 120000 \text{ cm}$  ( $\because 1 \text{ km} = 100 \times 1000 \text{ cm}$ )  $\Rightarrow y = \frac{120000}{100000} \text{ km} \Rightarrow 1.2 \text{ km}$

10.  $\frac{5}{13} = 0.384615$  is a non-terminating repeating decimal then its periodicity is?

1. 5 2. 3 3. 6 4. 384615

**Sol:**  $\frac{5}{13} = 0.384615$  in this given non-terminating repeating decimal the digits 384615 are repeating they are 6 in number hence periodicity is 6 and period is 384615 (digits which are repeating).

11. If  $\sqrt{2} = 1.414$  then the value of  $\sqrt{3/24}$  is?



1.3.535 2.0.5335 3.0.3535 4.0.352

**Sol:** Given  $\sqrt{2} = 1.414$   $\sqrt{\frac{3}{24}} = \sqrt{\frac{1}{8}} = \frac{1}{2\sqrt{2}} = \frac{\sqrt{2}}{4} = \frac{1.414}{4} = 0.3535$

12. Which of the following is a prime number?

1.331 2.481 3.437 4.357

**Sol:** 331 is a prime number  $481 = 13 \times 37$   $437 = 19 \times 23$   $357 = 3 \times 119$

13. Sum of two numbers is 95. If one number exceeds the other by 3, then difference of two numbers is?

1.3 2.4 3.5 4.6

**Sol:** Let the two numbers be x and y according to the sum  $x + y = 95$ , and  $x = 3 + y$  then we have  $3 + y + y = 95 \Rightarrow 4y = 95 - 3 \Rightarrow 4y = 92 \Rightarrow y = 92/4 = 23$  then  $x = 3 + y = 3 + 23 = 26$  now the difference of the two numbers is  $26 - 23 = 3$ .

14. The HCF of two numbers is 6 and their LCM is 36. If one of the numbers is 12 then another number?

1.16 2.20 3.22 4.18

**Sol:** Given HCF of two numbers = 6, LCM = 36, one number = 12 let other number = x, we know that Product of two numbers = LCM  $\times$  HCF,  $x \times 12 = 36 \times 6 \Rightarrow x = \frac{36 \times 6}{12} = 18$

15. A daily newspaper is published with 16 pages. If every day 15,020 copies are printed then number of pages printed in a day are?

1.2,45,320 2.2,40,320 3.2,32,400 4.2,46,320

**Sol:** Number of newspapers 15,020 number of pages in each paper = 16, total number of pages printed

16. = 15,020  $\times$  16 = 2,40,32016. The product of two numbers is 3276. If their HCF is 6 then LCM?

1. 546 2. 645 3. 540 4. 640

**Sol:** Given the product of two numbers = 3276, HCF of two numbers = 6, LCM = ? we know that LCM  $\times$  HCF = Product of two numbers  $\Rightarrow \text{LCM} = \frac{\text{product of the two numbers}}{\text{HCF}} = \frac{3276}{6} = 546$ .

17. Difference of rational number and its reciprocal is 8/3 then the numbers are?

1. -3 or  $\frac{1}{3}$  2. -4 or  $\frac{4}{3}$  3. 3 or  $-\frac{1}{3}$  4. 4 or  $-\frac{4}{3}$

**Sol:** Let the number be x, and its reciprocal is  $\frac{1}{x}$  then the difference between them  $= x - \frac{1}{x} = \frac{8}{3}$   $\Rightarrow \frac{x^2 - 1}{x} = \frac{8}{3} \Rightarrow 3(x^2 - 1) = 8x$   $\Rightarrow 3x^2 - 8x - 3 = 0$  where  $a=3, b=-8, c=-3$  then  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(3)(-3)}}{2(3)} = \frac{8 \pm \sqrt{64 + 36}}{2(3)} = \frac{8 \pm \sqrt{100}}{2(3)} = \frac{8 \pm 10}{2(3)} \Rightarrow x = \frac{8+10}{2(3)} = 3$  or  $x = \frac{8-10}{2(3)} = -\frac{1}{3}$  so  $x = 3$  or  $-\frac{1}{3}$ .

18. These are two pairs of twin prime numbers in three prime numbers. The product of those three numbers is?

1.2145 2. 693 3.105 4.30

**Sol:** the product of the given numbers  $30 = 2 \times 3 \times 5$   $105 = 3 \times 5 \times 7$   $693 = 3 \times 3 \times 7 \times 11$   $2145 = 3 \times 5 \times 11 \times 13$

twin primes means the difference between the two prime numbers is 2. In the question given 2 pairs of twin primes means (3, 5) and (5, 7) so the required number is 105.

19. The number should be subtracted from  $-\frac{5}{7}$  to get -1 is?

1.  $-\frac{2}{7}$  2.  $\frac{2}{7}$  3.  $\frac{12}{7}$  4.  $-\frac{12}{7}$

**Sol:** Let the number should be subtracted from  $(-5/7)$  be x, then according to the sum,  $-\frac{5}{7} - x = -1 \Rightarrow -\frac{5}{7} + 1 = x \Rightarrow -\frac{5+7}{7} = \frac{2}{7} = x$ .

20. The three numbers are in the ratio 1:2:3 and their HCF is 12 then the numbers are?

1.20,40, 60 2. 3, 6, 18 3.5, 10, 15 4.1224, 36

**Sol:** Given the ratio of 3 numbers is 1:2:3 and their HCF is 12 let the three numbers be 1x, 2x, 3x then their HCF is  $1x = 12 \Rightarrow x = 12$  then  $2x = 2(12) = 24$  and  $3x = 3(12) = 36$ . The numbers are 12, 24, 36.

21. In the given product  $(6)^{10} \times (35)^{17} \times (11)^{27}$  the total number of prime factors are?

1.81 2.54 3.45 4.64

**Sol:** Given  $(6)^{10} \times (35)^{17} \times (11)^{27} = (2 \times 3)^{10} \times (7 \times 5)^{17} \times (11)^{27} = 2^{10} \times 3^{10} \times 7^{17} \times 5^{17} \times 11^{27}$  total number of prime factors are  $10 + 10 + 17 + 17 + 27 = 81$ .

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- ### పక్షులు
- పక్షుల అధ్యయనాన్ని అర్చిడాలజీ అంటారు.
  - ప్రముఖ భారతీయ పక్షి శాస్త్రవేత్త సలీం అలీని 'ఇండియన్ బర్డ్ మ్యాన్' అంటారు.
  - అంతర్జాతీయ వలస పక్షుల దినోత్సవాన్ని ఏటా మే 4న నిర్వహిస్తారు.
  - అతిచిన్న ఎగరలేని పక్షి - కివి (న్యూజిలాండ్ జాతీయ పక్షి)
  - అతిపెద్ద గుడ్డు పెట్టే ఎగరలేని పక్షి - ఆస్ట్రేచ్
  - నిలబడి గుడ్డుపెట్టే పక్షి - పెంగిన్
  - పైదపడ కలిగిన ఏకైక పక్షి - రామబిలుక
  - అత్యధిక దూరం ప్రయాణించే పక్షి - అల్టిమిక్ టెర్న్
  - అతివేగంగా ఎగిరే పక్షి - స్పిన్ట్ (జపాన్)
  - అతిపెద్ద రెక్కలు కలిగిన సముద్ర పక్షి - అల్బాట్రోస్
  - ముందుకు, వెనుకకు ఎగిరే అతిచిన్న పక్షి - హమ్మింగ్
  - ఇండియాలో అంతరించే దశలో ఉన్న అతిపెద్ద పక్షి - బుట్టమేక పిట్ట
  - అంతరించే దశలో ఉన్న మారిషస్ జాతీయ పక్షి - డోడో
  - తెలంగాణ రాష్ట్ర పక్షి - కొరాసియన్ బెంగాలెస్ (పాల పిట్ట)