Playing With Numbers

Test

Time - 1.00 hour **Maximum Marks - 20**

Important Instructions

- This test contains 20 questions.
- Each question has FOUR options (1), (2), (3) and (4). ONLY ONE of these four options is correct.
- For each question, marks will be awarded in one of the following categories.
  Full Mark: +1 : If only correct answer is given.
  Zero Mark: 0 : If no answer is given.
  Negative Marks : There is no negative marking.

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1. If a number is divisible by both 5 and 7. Then the number is also divisible by _____ .

(1) 12 (2) 35 (3) 21 (4) 25

2. H.C.F. of 21 and 78 is

(1) 3 (2) 21 (3) 1 (4) 13

3. Find the L.C.M of 42, 63 and 162.

(1) 1134 (2) 1243 (3) 2124 (4) 1112

4. Which of the pair of numbers is twin prime?

(1) (31, 33) (2) (15, 17) (3) (59, 61) (4) (11, 14)

5. The length, breadth and height of a room are 360 cm, 264 cm and 312 cm respectively. Find the longest tape which can measure the three dimensions of the room exactly.

(1) 40 cm (2) 88 cm (3) 24 cm (4) 28 cm

6. The sum of the smallest odd prime number and the smallest prime number is

(1) 4 (2) 6 (3) 7 (4) 5

7. Which of the following is completely divisible by 24?

(1) 332148 (2) 181560 (3) 202856 (4) 237414

8. Which of the following is the pair of co-primes?

(1) 9, 21 (2) 49, 77 (3) 17, 32 (4) 12, 68

9. A number which has more than two factors is called a _____ number.

(1) whole (2) perfect (3) prime (4) composite

10. 56 is a multiple of _____.

(1) 12 (2) 15 (3) 8 (4) 25

11. The number of primes between 1 and 100 are

(1) 27 (2) 26 (3) 20 (4) 25

12. Find the least number which when divided by 12, 20, 42 and 45 leaves remainder 3 in each case.

(1) 2533 (2) 1263 (3) 1260 (4) 1257

13. Two digit smallest perfect number is _____.

(1) 27 (2) 26 (3) 28 (4) 6

14. How many multiples of 12 lying between 30 and 90?

(1) 3 (2) 4 (3) 5 (4) 6

15. The HCF and LCM of two numbers are 21 and 3,003. If one of the number is 231. The other number is _____.

(1) 13 (2) 31 (3) 257 (4) 273

16. What is the first five multiplies of 19?

(1) 19, 57, 76, 95, 114 (2) 19, 38, 57, 76, 95

(3) 19, 38, 76, 95, 114 (4) 19, 38, 95, 114, 133

17. Which of the following numbers is expressed as prime factors?

(1) $24 = 2 \times 3 \times 4$ (2) $56 = 7 \times 2 \times 2 \times 2$

(3) $70 = 2 \times 35$ (4) $54 = 2 \times 3 \times 9$

18. Read the statements carefully.

[i] A number is divisible by 3, if the sum of the digits is divisible by 3.

[ii] A number is divisible by 9, if the sum of digits is divisible by 9.

Select the true option regarding the give statements.

(1) Both statements [i] and [ii] are true.

(2) Statement [i] is true but statemen [ii] is false.

(3) Statement [ii] is true but statemen [i] is false.

(4) Both statements [i] and [ii] are false.

19. The L.C.M of two co-prime numbers is 221. If one of the numbers is 17, find the other number.

(1) 12 (2) 11 (3) 14 (4) 13

20. Prime factorisation of 1155 is

(1) $3 \times 5 \times 7 \times 11$ (2) $3 \times 6 \times 8 \times 19$

(3) $3 \times 5 \times 7 \times 13$ (4) $3 \times 5 \times 9 \times 13$

Test Solutions

Answer Key

Question	1	2	3	4	5	6	7	8	9	10
Answer	**2**	**1**	**1**	**3**	**3**	**4**	**2**	**3**	**4**	**3**
Question	11	12	13	14	15	16	17	18	19	20
Answer	**4**	**2**	**3**	**3**	**4**	**2**	**2**	**1**	**4**	**1**

1. Option (2)

Number is divisible by 5 and 7 both then number is also divisible by their products,

$5 \times 7 = 35$

2. Option (1)

Long division method

$$
\begin{array}{r}
21\overline{)\,78\,(\,3} \\
-63 \\
\hline
15\overline{)\,21\,(\,1} \\
-15 \\
\hline
6\overline{)\,15\,(\,2} \\
-12 \\
\hline
3\overline{)\,6\,(\,2} \\
-6 \\
\hline
0
\end{array}
$$

HCF = 3

3. Option (1)

2	42, 63, 162
3	21, 63, 81
3	7, 21, 27
3	7, 7, 9
3	7, 7, 3
7	7, 7, 1
	1, 1, 1

LCM = $2 \times 3 \times 3 \times 3 \times 3 \times 7$

$= 2 \times 81 \times 7$

$= 1134$

4. Option (3)

(59, 61)

[$\because$ As twin prime both numbers must be prime and the difference of the prime number should be 2.]

5. **Option (3)**

HCF of 360cm, 264cm and 312cm will give us length of longest tape. (Applying prime factorisation method)

2	360
2	180
2	90
3	45
3	15
5	5
	1

2	264
2	132
2	66
3	33
11	11
	1

2	312
2	156
2	78
3	39
13	13
	1

$360 \rightarrow 2 \times 2 \times 2 \times 3 \times 3 \times 5$

$264 \rightarrow 2 \times 2 \times 2 \times 3 \times 11$

$312 \rightarrow 2 \times 2 \times 2 \times 3 \times 13$

HCF = $2 \times 2 \times 2 \times 3 = 24$ cm

$\therefore$ Length of longest tape is 24 cm.

6. **Option (4)**

Smallest odd prime number is 3.

and smallest prime number is 2.

Sum of 3 and 2 = 3 + 2 = 5

7. **Option (2)**

If a number is divisible by factors of 24 then it will be completely divisible by 24.

Prime factors of $24 = 2 \times 2 \times 2 \times 3$

As 3 is the factor of 24, we will apply the divisibility rule of 3.

$\because$ In 202856, sum of the digits = 2 + 0 + 2 + 8 + 5 + 6 = 23, which is not divisible by 3.

And rest three options (1), (2) and (4) are divisible by 3.

Now, we will apply the divisibility rule of 8. Last three digits must be divisible by 8.

So, out of rest of the three options, in option (2) 181560, last three digits 560 is divisible by 8.

So, 181560 is divisible by 3 and 8 both, hence divisible by 24.

8. **Option (3)**

Co–primes numbers have HCF as 1.

$\therefore$ 17, 32.

9. **Option (4)**

Composite number have more than two factors.

10. **Option (3)**

56 is a multiple of 8 = $(8 \times 7 = 56)$

11. **Option (4)**

Number of primes between 1 and 100 are 25.

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

12. Option (2)

2	12, 20, 42, 45
2	6, 10, 21, 45
3	3, 5, 21, 45
3	1, 5, 7, 15
5	1, 5, 7, 5
7	1, 1, 7, 5
	1, 1, 1, 1

LCM = $2 \times 2 \times 3 \times 3 \times 5 \times 7 = 1260$

LCM + Remainder = 1260 + 3 = 1263

13. Option (3)

A number is called a perfect number if the sum of all its factors is equal to twice the number.

Factors of 28 are 1, 2, 4, 7, 14, 28

Now, the sum of the factors of 28.

= 1 + 2 + 4 + 7 + 14 + 28 = 56

= 2 times 28

Two-digit smallest perfect number is 28.

14. Option (3)

Multiples of 12 between 30 and 90 are 36, 48, 60, 72, 84.

$\rightarrow$ 5 multiples.

15. Option (4)

HCF = 21 and LCM = 3,003, one number is 231.

To find other number, apply the formula,

HCF $\times$ LCM = Product of two numbers.

$\Rightarrow$ $21 \times 3{,}003 = 231 \times$ Other number

$\Rightarrow$ $\frac{21 \times 3003}{231}$ = other number

$\Rightarrow$ Other number is 273.

16. Option (2)

First 5 multiples of 19 $\rightarrow$ 19, 38, 57, 76, 95

17. Option (2)

$56 = 7 \times 2 \times 2 \times 2$

18. Option (1)

Both statements [i] and [ii] are true.

19. Option (4)

Other number = $\frac{221}{17} = 13$

13, (Product of 13 and 17 gives 221)

20. Option (1)

Prime factorisation of $1155 = 3 \times 5 \times 7 \times 11$