

OBJECTIVE SECTION

[BASIC/STANDARD]

I. MULTIPLE CHOICE QUESTIONS

1. For some integer m , every even integer is of the form:
(a) m (b) $m + 1$ (c) $2m$ (d) $2m + 1$
2. For some integer q , every odd integer is of the form:
(a) q (b) $q + 1$ (c) $2q$ (d) $2q + 1$
3. $n^2 - 1$ is divisible by 8, if n is:
(a) an integer (b) a natural number (c) an odd integer (d) an even integer
4. If the HCF of 65 and 117 is expressible in the form $65m - 117$, then the value of m is:
(a) 4 (b) 2 (c) 1 (d) 3
5. The largest number which divides 70 and 125, leaving remainders 5 and 8 respectively is:
(a) 13 (b) 65 (c) 875 (d) 1750
6. Euclid's Division Lemma states that for two positive integers a and b , there exists unique integers q and r such that $a = bq + r$, where r must satisfy:
(a) $1 < r < b$ (b) $0 < r \leq b$ (c) $0 \leq r < b$ (d) $0 < r < b$
7. If p_1 and p_2 are two odd prime numbers such that $p_1 > p_2$, then $p_1^2 - p_2^2$ is:
(a) an even number (b) an odd number
(c) an odd prime number (d) a prime number
8. If the HCF of 210 and 55 is expressible as $210x - 19 \times 55$, then x is:
(a) 7 (b) 4 (c) 5 (d) 1
9. If the HCF of 81 and 237 can be written as $237m + 81n$, then the values of m and n are:
(a) $m = 13, n = -38$ (b) $m = 13, n = 38$
(c) $m = -13, n = 38$ (d) $m = -13, n = -38$
10. The largest number that divides 398, 436 and 542, leaving remainders 7, 11 and 15 respectively is:
(a) 15 (b) 17 (c) 19 (d) 13
11. If two positive integers p and q are written as $p = x^2y^2$ and $q = xy^3$, x and y are prime numbers, then HCF (p, q) is:
(a) xy (b) xy^2 (c) x^3y^3 (d) x^2y^2

12. If HCF and LCM of two numbers are respectively $(n - 1)$ and $(n^2 - 1)(n^2 - 4)$, then the product of the two numbers will be:
 (a) $(n^2 - 1)(n^2 - 4)$ (b) $(n^2 + 1)(n^2 - 4)(n^2 - 1)$
 (c) $(n^2 - 4)(n + 1)(n - 1)^2$ (d) $(x^2 - 1)(x^2 + 1)(x - 4)$
13. For any natural number n , $6^n - 5^n$ is always ends with :
 (a) 2 (b) 1 (c) 3 (d) 4
14. In m is a rational number and n is an irrational number, then $m + n$, $m - n$ and mn are all :
 (a) rational numbers (b) irrational numbers
 (c) either rational or irrational (d) neither rational nor irrational
15. If the LCM of P and 18 is 36 and the HCF of P and 18 is 2, then P equals :
 (a) 2 (b) 3 (c) 1 (d) 4
16. If $\text{HCF}(26, 169) = 13$, then $\text{LCM}(26, 169)$ equals
 (a) 26 (b) 52 (c) 20 (d) 338
17. The $(\text{HCF} \times \text{LCM})$ for the numbers 50 and 20 is:
 (a) 10 (b) 100 (c) 1000 (d) 50
18. If $\text{HCF}(105, 120) = 15$, then $\text{LCM}(105, 120)$ is:
 (a) 210 (b) 420 (c) 840 (d) 1680
19. The HCF of two numbers is 16 and their product is 3072. Their LCM is:
 (a) 182 (b) 192 (c) 200 (d) 210
20. $\text{HCF} \times \text{LCM}$ for the numbers 45 and 117 is:
 (a) 5165 (b) 5265 (c) 3365 (d) 3065
21. HCF of 960 and 432 is :
 (a) 45 (b) 46 (c) 48 (d) 50
22. If $\text{HCF}(45, 105) = 15$, then $\text{LCM}(45, 105)$ is equal to :
 (a) 315 (b) 320 (c) 400 (d) 410
23. After how many decimal places will the decimal expansion of $\frac{487}{2^6 \times 5^4}$ terminates?
 (a) 3 (b) 4 (c) 5 (d) 6
24. Product of HCF and LCM of numbers 50 and 95 :
 (a) 2350 (b) 4750 (c) 5530 (d) 4900
25. Prime factors of 98 are :
 (a) 2×7^3 (b) 3×7^3 (c) 2×7^2 (d) 2×7^5
26. HCF of 726 and 275 is :
 (a) 17 (b) 16 (c) 15 (d) 11
27. $\frac{51}{1500}$ will terminate after how many places of decimal
 (a) 2 (b) 3 (c) 4 (d) 5
28. The product of HCF and LCM of 72 and 132 is :

- (a) 9540 (b) 9045 (c) 9504 (d) 9054
29. The HCF $\times$ LCM for the numbers 100 and 190 is
 (a) 17000 (b) 18000 (c) 19000 (d) 20000
30. The decimal representation of $\frac{11}{2^3 \times 5}$ will [CBSE(SP) 2019]
 (a) terminate after 1 decimal place (b) terminate after 2 decimal places
 (c) terminate after 3 decimal places (d) not terminate
31. LCM of smallest two digit composite number and smallest composite number is [CBSE(SP) 2019]
 (a) 12 (b) 4 (c) 20 (d) 44
32. HCF of 168 and 126 is
 (a) 21 (b) 42 (c) 14 (d) 18
33. 325 can be expressed as a product at its primes as : [CBSE(SP) 2019]
 (a) $5^2 \times 7$ (b) $5^2 \times 13$ (c) 5×13^2 (d) $2 \times 3^2 \times 5^2$
34. HCF of x^2y^2 and x^3y^2 :
 (a) x^3y^3 (b) x^6y^6 (c) xy (d) x^2y^2
35. HCF of two prime numbers is
 (a) 0 (b) 1 (c) 2 (d) 3
36. $\sqrt{7} + 7$ is :
 (a) an integer (b) a rational number
 (c) an irrational number (d) none of these
37. The ratio between the LCM and HCF of 5, 15, 20 is :
 (a) 9 : 1 (b) 4 : 3 (c) 11 : 1 (d) 12 : 1
38. The decimal expansion of the rational number $\frac{14587}{1250}$ will terminate after :
 (a) One decimal place (b) Two decimal places
 (c) Three decimal places (d) Four decimal places
39. If n is an odd integer, then $n^2 - 1$ is divisible by
 (a) 8 (b) 11 (c) 13 (d) 9
40. If the LCM of P and 12 is 24 and the HCF of P and 12 is 4, then the value of P :
 (a) 3 (b) 4 (c) 6 (d) 8
41. Prime factorisation of 8232 is
 (a) $2^3 \times 3 \times 7^3$ (b) $7^2 \times 3 \times 2^3$ (c) $2 \times 3 \times 7^4$ (d) $2^2 \times 3^2 \times 7^2$
42. If the product of two numbers a and b is 1152 and HCF of a and b is 12, then LCM of a and b :
 (a) 88 (b) 90 (c) 92 (d) 96
43. If the HCF of 18 and 117 is expressible in the form $18m - 117$, then the value of m is:
 (a) 5 (b) 6 (c) 7 (d) 8
44. The LCM of two numbers is 740 and their HCF is 37. If one of the numbers is 185, then the other number is :

- (a) 136 (b) 140 (c) 142 (d) 148
45. Greatest number that will divide 382, 509 and 636 leaving remainders 4, 5 and 6 respectively is :
- (a) 60×2 (b) 61×2 (c) 62×2 (d) 63×2
46. The decimal expansion $\frac{63}{72 \times 175}$ is :
- (a) terminating (b) non-terminating
(c) non-terminating and repeating (d) none of these
47. The decimal expansion of $\frac{111}{2 \times 5}$ is :
- (a) terminating (b) non-terminating non-repeating
(c) non-terminating (d) does not exist
48. The decimal expansion of the number $\frac{31}{2^2 \times 5}$ will terminate after :
- (a) one decimal place (b) two decimal places
(c) three decimal places (d) more than three decimal places
49. The decimal expansion of the number $\frac{441}{2^2 \times 5^3 \times 7}$ is :
- (a) terminating (b) non-terminating but repeating
(c) non-terminating non-repeating (d) terminating after two places of decimal
50. If the HCF of 85 and 153 is expressible in the form $85m - 153$, then the value of m is :
- (a) 4 (b) 3 (c) 1 (d) 2

II. FILL IN THE BLANKS

- Decimal expansion of $\frac{1717}{2^2 \times 5^3}$ is _____.
- If a positive integer n is divided by 3, then the possible remainder = _____.
- The decimal expansion of $\frac{7}{125}$ will terminate after _____ places.
- If $\text{HCF}(225, 60) = 225 \times 5 - 10x$, then the value of x = _____.
- Product of smallest prime number and smallest composite number is _____.
- If $p = 2^3 \times 3 \times 5^2$, $q = 2^3 \times 3^3$, then $\text{HCF}(p, q) =$ _____.
- There are _____ irrational numbers between $\sqrt{2}$ and $\sqrt{3}$.
- Greatest number that will divide 445, 572 and 699 leaving remainders 4, 5 and 6 respectively is _____.
- The LCM of two numbers is 2079 and their HCF is 27. If one of the numbers is 297, then other number is _____.
- $\text{LCM}(72, 126, 168) =$ _____.
- $\text{HCF}(a, b) \times \text{LCM}(a, b) =$ _____.
- Let p be a prime number. If p divides a^2 , then p will divide _____, where a is _____.

positive integer.

13. $(2 + \sqrt{5})(2 + \sqrt{5})$ is _____.
14. If $\frac{241}{4000} = \frac{241}{2^m \times 5^n}$, then values of m and n are _____ respectively.
15. Given positive integers a and b , there exist unique whole numbers q and r satisfying $a =$ _____, $0 \leq r < b$.

III. VERY SHORT ANSWER QUESTIONS

1. State Euclid's division comma.
2. What is Fundamental Theorem of Arithmetic?
3. The product of two consecutive positive integers is divisible by 2. Is it true?
4. The product of three consecutive natural numbers is divisible by 6. Is it true?
5. Write 72 as product of its prime factors.
6. Write the exponent of 2 in the prime factorisation of 112.
7. What is the HCF of two prime numbers?
8. What is the LCM of two prime numbers?
9. Numbers of the form $\sqrt{x}$, where x is a natural number, are always irrational. Is it true?
10. The sum of two irrational numbers may be rational. Is it true?
11. What is the HCF of smallest prime number and smallest composite number? [CBSE 2018]
12. If $\text{HCF}(336, 54) = 6$, find $\text{LCM}(336, 54)$ [CBSE 2019]

ANSWERS

I. Multiple Choice Questions :

1. (c) 2. (d) 3. (c) 4. (b) 5. (a) 6. (c) 7. (a) 8. (c) 9. (a) 10. (b)
11. (b) 12. (c) 13. (b) 14. (b) 15. (d) 16. (d) 17. (c) 18. (c) 19. (b) 20. (b)
21. (c) 22. (a) 23. (d) 24. (b) 25. (c) 26. (d) 27. (b) 28. (c) 29. (c) 30. (c)
31. (c) 32. (b) 33. (b) 34. (d) 35. (b) 36. (c) 37. (d) 38. (d) 39. (a) 40. (d)
41. (a) 42. (d) 43. (c) 44. (d) 45. (d) 46. (a) 47. (a) 48. (b) 49. (a) 50. (d)

II. Fill in the blanks :

1. 3.434 2. 0, 1 or 2 3. 3 4. 111 5. 8 6. 24 7. infinitely
8. 63 9. 189 10. 504 11. $a \times b$ 12. a 13. irrational 14. 5 and 3
15. $bq + r$

III. Very Short Answer Questions :

3. Yes 4. Yes 5. $2^3 \times 3^2$ 6. 4 7. 1 8. Their product 9. No 10. Yes 11. 2 12. 3024