

1. Three out of the following four expression are exactly equal. Find the expression, which is not equal to the other three.
 (A) $12^2 \div 16 + 7 \times 3$ (B) $16 \times 9 \div 12 + 9 \times 2$ (C) $18^2 \div 12 + 3$ (D) $18 \times 6 \div 12 + 7 \times 2$
2. Simplify : $6\sqrt{12} + 2\sqrt{75} - 3\sqrt{98}$
 (A) 1 (B) $22\sqrt{3} - 21\sqrt{2}$ (C) $21\sqrt{3} - 22\sqrt{2}$ (D) $22\sqrt{2} + 21\sqrt{3}$
3. Which of the following numbers is exactly divisible by 99 ?
 (A) 3572403 (B) 135732 (C) 913464 (D) 114345
4. Find the value of $\left(\frac{2^n + 2^{n-1}}{2^{n+1} - 2^n}\right)$
 (A) $\frac{2}{3}$ (B) $\frac{2}{3}$ (C) $\frac{1}{3}$ (D) None of these
5. In the numerator of a fraction is decreased by 40% and the denominator is increased by 100% the new value is 1. What was the original fraction ?
 (A) $\frac{10}{3}$ (B) $\frac{3}{10}$ (C) $\frac{2}{3}$ (D) $\frac{5}{2}$
6. Simplify $\frac{1.12 \times (0.0104 - 0.002) + 0.36 \times 0.002}{0.12 \times 0.12}$
 (A) 11.2 (B) 1.2 (C) 0.02 (D) 0.12
7. How many natural number between 200 and 400 are there which are divisible by
 I. Both 4 and 5 ?
 II. 4 or 5 or 8 or 10 ?
 (A) 9, 79 (B) 10, 80 (C) 9, 81 (D) 10, 81
8. What is the remainder when 7^{63} is divided by 344 ?
 (A) 1 (B) 343 (C) 338 (D) None of these
9. Which of following numbers $\sqrt{\pi^2}, \sqrt[3]{0.8}, \sqrt[4]{0.00016}, \sqrt[3]{-1}, \sqrt{0.001}$ is/are rational ?
 (A) $\sqrt[3]{-1}$ (B) $\sqrt{\pi^2}$ (C) $\sqrt{0.001}$ (D) All of these
10. What will be the unit digit of $1^{781} + 2^{781} + 3^{781} + \dots + 9^{781}$?
 (A) 1 (B) 3 (C) 5 (D) 7
11. What will be the last digit of $7^{23^{12^9}}$?
 (A) 7 (B) 9 (C) 1 (D) 3
12. What is the remainder when 7^{84} is divided by 2402 ?
 (A) 1 (B) 6 (C) 2401 (D) None of these
13. What is the remainder when $9875347 \times 7435789 \times 5789743$ is divided by 4 ?
 (A) 1 (B) 2 (C) 3 (D) None of these
14. P is a prime number greater than 5. What is the remainder when P is divided by 6 ?
 (A) 5 (B) 1 (C) 1 or 5 (D) None of these
15. What is the remainder when 5^{87} is divided by 15 ?
 (A) 0 (B) 5 (C) 10 (D) None of these
16. What is the largest of 12 that would divided 49 ?
 (A) 22 (B) 23 (C) 21 (D) None of these

17. How many zeroes will be there at the end of $36!^{36!}$?
 (A) 8 (B) 64 (C) $8 \times 36!$ (D) None of these
18. How many zeroes will be there at the end of the product $(2!)^{2!} \times (4!)^{4!} \times (6!)^{6!} \times (8!)^{8!} \times (10!)^{10!}$?
 (A) $10! + 6!$ (B) $2(10!)$ (C) $10! + 8! + 6!$ (D) $6! + 8! + 2(10!)$
19. If the places of last two digits of three digit number are interchanges, a new number greater then the original number by 27 is obtained. Find the difference between the last two digits of that number.
 (A) 6 (B) 3 (C) 8 (D) 9
20. Two numbers, x and y, are such that when divided by 6, they leave remainders 4 and 5 respectively. Find the remainder when $(x^2 + y^2)$ is divided by 6.
 (A) 3 (B) 4 (C) 5 (D) None of these
21. Find the product of $\left(1 - \frac{1}{6}\right)\left(1 - \frac{1}{7}\right)\left(1 - \frac{1}{8}\right) \dots \left(1 - \frac{1}{n+4}\right)\left(1 - \frac{1}{n+5}\right)$ for $n \geq 4$.
 (A) $\frac{1}{n+5}$ (B) $\frac{5}{n+5}$ (C) $\frac{2}{n+4}$ (D) $\frac{3}{(n+4)(n+5)}$
22. Find the greatest number less than 100000 which is divisible by 38, 60 and 64
 (A) 98000 (B) 91200 (C) 76000 (D) 85000
23. $N = 12^3 \times 13^2 \times 14$. Total number of factors of N is
 (A) 64 (B) 192 (C) 24 (D) None of these
24. Find the greatest number which will divide 12288, 28421, 44333 so as to leave the same remainder in each case.
 (A) 272 (B) 120 (C) 431 (D) 221
25. The numerator and denominator of a fraction are in ratio 2 : 3. If 6 is subtracted from the numerator, the result will be $\frac{2}{3}$ of the original fraction. What is the value of the numerator ?
 (A) 27 (B) 18 (C) 36 (D) 6
26. What is the HCF of $\frac{1}{5}, \frac{2}{7}$ and $\frac{3}{11}$?
 (A) $\frac{1}{385}$ (B) 6 (C) $\frac{1}{35}$ (D) $\frac{5}{77}$
27. Which parts contain the fractions is ascending order ?
 (A) $\frac{11}{14}, \frac{16}{19}, \frac{19}{21}$ (B) $\frac{16}{19}, \frac{11}{14}, \frac{19}{21}$ (C) $\frac{19}{21}, \frac{11}{14}, \frac{16}{19}$ (D) $\frac{16}{19}, \frac{19}{21}, \frac{11}{14}$
28. A boy was asked to multiple a certain number by 53. Instead he divided it by 53 and got his answer to be less than the correct one by 5616. The number to be multiplied was :
 (A) 53 (B) 106 (C) 159 (D) 212
29. An auto driver saves one coin of Rs. 2 on first day of the week, three coins of Rs. 2 on the 2nd day of the week, five on the 3rd day and so on. How mush money will be have at the end of the week. ?
 (A) 49 (B) 98 (C) 196 (D) 245
30. Which of the following is greatest ?
 (A) 2222 (B) 2^{22^2} (C) 2^{222} (D) $2^{2^{2^2}}$
31. What is the smallest three - digit number which when divided by 6 leaves a remainder of 5 and when divided by 5 leaves a remainder of 3 ?
 (A) 125 (B) 113 (C) 137 (D) 309
32. If 41% of a number is less than 76% of the same number by 105, what is the number ?
 (A) 400 (B) 500 (C) 600 (D) 300
33. If $\frac{x}{y} = \frac{2}{3}$ then value of $\frac{4}{5} + \frac{y-x}{y-x}$ is
 (A) 1 (B) 0 (C) 2 (D) 5
34. The L.C.M. of 2 numbers of three digits each is 1740 and the H.C.F. is 209. The two numbers are
 (A) 290,870 (B) 580,870 (C) 290,580 (D) 290,1106

35. $1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{3}}} =$
- (A) $\frac{1}{3}$ (B) $\frac{11}{4}$ (C) 3 (D) $\frac{11}{7}$
36. The rational form of 2.7435 is
- (A) $\frac{27161}{9999}$ (B) $\frac{27161}{9990}$ (C) $\frac{27161}{9900}$ (D) $\frac{27161}{9000}$
37. The exponential form of $\sqrt{\sqrt{2}\sqrt{3}}$ is
- (A) $6^{1/2}$ (B) $6^{1/3}$ (C) $6^{1/4}$ (D) $6^{1/5}$
38. Arrange the following surds in ascending order $\frac{3}{7}, \frac{4}{5}, \frac{7}{9}, \frac{1}{2}$
- (A) $\frac{4}{5}, \frac{7}{9}, \frac{3}{7}, \frac{1}{2}$ (B) $\frac{3}{7}, \frac{1}{2}, \frac{7}{9}, \frac{4}{5}$ (C) $\frac{4}{5}, \frac{7}{9}, \frac{1}{2}, \frac{3}{7}$ (D) $\frac{1}{3}, \frac{3}{7}, \frac{7}{9}, \frac{4}{5}$
39. The sum of the 1st 50 natural numbers is.
- (A) 1275 (B) 1325 (C) 1450 (D) 1375
40. If $x = 7 + 4\sqrt{3}$ then the value of $\sqrt{x} + \frac{1}{\sqrt{x}}$ is -
- (A) 8 (B) 6 (C) 5 (D) 4
41. Which among the following is the greatest:
 $\sqrt{5}, \sqrt[3]{11}, \sqrt[6]{123}$?
- (A) $\sqrt{5}$ (B) $\sqrt[3]{11}$ (C) $\sqrt[6]{123}$ (D) All are equal
42. The Value of $\sqrt[3]{32} \times \sqrt[6]{123}$ is -
- (A) 50 (B) 0.031 (C) 20 (D) 0.001
43. If $x = 3 + \sqrt{3}$, then what is the value is $x^2 + \frac{9}{x^2}$?
- (A) $(15 + 3\sqrt{3})$ (B) $(18 + 3\sqrt{3})$ (C) $27 + \sqrt{3}$ (D) None of these
44. The H.C.F. of 10, $\frac{1}{10^{20}}, \frac{1}{10^{40}}$ is -
- (A) 1 (B) 10 (C) 10^{20} (D) 10^{-40}
45. In a school 437 boys and 342 girls have been divided into classes, so that each class has the same number of students and no class has boys and girls mixed. What is the least number of classes needed ?
- (A) 51 (B) 43 (C) 41 (D) 39
46. Six bells start tolling together and they toll at intervals of 2, 4, 6, 8, 10, 12 sec. respectively, find how many times will they toll together in 30 min ?
- (A) 13 (B) 15 (C) 17 (D) 16
47. Find the largest four digit number which when reduced by 54, is perfectly divisible by all even natural numbers less than 20.
- (A) 5081 (B) 5094 (C) 5001 (D) 5196
48. How many numbers between 200 and 600 are divisible by 4, 5, and 6 ?
- (A) 6 (B) 7 (C) 8 (D) 9
49. If the LCM of first 100 natural numbers is P then the LCM of first 105 natural numbers would be :
- (A) P (B) $P + 105$ (C) $P(P + 101)(P + 103)$ (D) $103 \times 101 \times P$
50. A number when divided by 259+ leaves a remainder 139. What will be the remainder when the same number is divided by 37 ?
- (A) 21 (B) 23 (C) 27 (D) 28
51. A number being successively divided by 3, 5 and 8 leaves remainder 1, 4 and 7 respectively. Find the respective remainders in the order of divisors be reversed.
- (A) 6, 5, 1 (B) 6, 4, 2 (C) 2, 4, 6 (D) 1, 3, 3

52. Find unit's digit in $y = 7^{17} + 7^{34}$
 (A) 6 (B) 3 (C) 7 (D) 9
53. What will be the last digit of $(73)^{75^{64^{76}}}$
 (A) 9 (B) 7 (C) 3 (D) 1
54. How many zeros at the end of first 100 multiples of 10.
 (A) 100 (B) 124 (C) 920 (D) 1225
55. There are four prime number written in ascending order. The product of the first three is 385 and that of the last three is 1001. The last number is :
 (A) 11 (B) 13 (C) 17 (D) 19
56. Find the square root of $7 - 4\sqrt{3}$
 (A) $2 - \sqrt{3}$ (B) $5 - \sqrt{3}$ (C) $2 - \sqrt{3}$ (D) None of these
57. How many three-digit numbers would be find, which when divided by 3, 4, 5, 6, 7 leave the remainders 1, 2, 3, 4 and 5 respectively ?
 (A) 4 (B) 3 (C) 2 (D) 1
58. Three pieces of cakes of weights $4\frac{1}{2}$ lbs, $4\frac{3}{4}$ lbs and $7\frac{1}{5}$ lbs respectively are to be divided into parts of equal weights. Further, each must be as heavy as possible. If one such part is served to each guest, then what is the maximum number of guests that could be entertained ?
 (A) 54 (B) 72 (C) 20 (D) 41
59. IF $(2^{32} + 1)$ divisible by a certain number then which of the following is also divisible by the number.
 (A) $(2^{16} - 1)$ (B) $2^{16} + 1$ (C) $2^{96} + 1$ (D) None of these
60. The 288th term of the series a,b,c,c,c,d,d,d,d,e,e,e,e,f,f,f,f,f,.....is :
 (A) u (B) v (C) x (D) w
61. The LCM of two number is 12 times their H.C.F. The sum of the H.C.F and L.C.M. is 403. If one of the numbers is 93, then the other number is.
 (A) 134 (B) 124 (C) 128 (D) 310
62. Find a four-digit number of the form a, abb which is perfect square :
 (A) 7,799 (B) 7,766 (C) 7,755 (D) 7,744
63. Find the value of $397 \times 397 + 104 \times 104 + 2 \times 397 \times 104$.
 (A) 2350001 (B) 251001 (C) 260101 (D) 261001
64. $\left(1 + \frac{1}{2}\right)\left(1 + \frac{1}{3}\right)\left(1 + \frac{1}{4}\right)\left(1 + \frac{1}{5}\right)\left(1 + \frac{1}{6}\right)\left(1 + \frac{1}{7}\right)\left(1 + \frac{1}{8}\right)$ is equal to :
 (A) 9 (B) 8 (C) 4.5 (D) None of these
65. The value of $\sqrt{-\sqrt{3}} + \sqrt{(4 + \sqrt{3})^2}$ is
 (A) 4 (B) 9 (C) 2 (D) 0