CHAPTER : NUMBER SYSTEM

Topics to be covered with examples:

- Number system and Types of Numbers
- Divisibility rules
- Remainder theorem
- HCF and LCM concept
- HCF and LCM of integers, decimals, fractions and expressions

1. Is 349 is a Prime Number?

2. Is 881 is a Prime Number?

3. Is 979 is a Prime Number?

4. Which of the following is the greatest?

a. 1/8 b.2/12 c.3/16 d.4/20

5. Find out whether 54766987758726635 is divisible by 11

6. Find the GCD and the LCM of the following numbers:
(i) 360, 8400 (ii) 120, 144

(iii) 275, 180, 372, 156 (iv) 70, 112
(v) 75, 114 (vi) 544, 720

7. What is the greatest number of 4 digits that when divided by any of the numbers 6, 9, 12, 17 leaves a remainder of 1?

8. Find the least number that when divided by 16, 18 and 20 leaves a remainder 4 in each case, but is completely divisible by 7

9. Four bells ring at the intervals of 6, 8, 12 and 18 seconds. They start ringing together at 12'O' clock. After how many seconds will they ring together again?

(a) 72 (b) 84 (c) 60 (d) 48

Question 10

What is the four digit number in which the first digit is 1/3 of the second, the third is the sum of the first and second, and the last is three times the second?

A. 1349 B. 6286 C. 2686 D. 1341

Question 11

What least number must be added to 859622, to get a number exactly divisible by 456?

A. 485 B. 394 C. 62 D. 387

Question 12

The sum of three consecutive even numbers is 36. The middle one is?

A. 10 B. 11 C. 12 D. 13

Question 13

The difference between a two-digit number and the number obtained by interchanging the digits is 36. What is the difference between the sum and the difference of the digits of the number if the ratio between the digits of the number is 1 : 2 ?

A. 6 B. 8 C. 4 D. 5

Question 14

What is the sum of all even integers between 99 and 301?

A. 40400 B. 20200 C. 10100 D. 20000

Question 15

The sum of the squares of three numbers is 138, while the sum of their products taken two at a time is 131. Their sum is:

A. 20 B. 30 C. 40 D. CND

Question 16

A positive number when decreased by 2 is equal to 15 times the reciprocal of the number. The number is

A. 6 B. 4 C. 5 D. 15

Question 17

The product of two numbers is 120 and the sum of their squares is 289. The sum of the number is

A. 20 B. 23 C. 27 D. 150

Question 18

Three numbers are in the ratio 2:3:4 and their product is 1536. Largest of these numbers is

A. 10 B. 18 C. 16 D. 100

Question 19

What is the sum of two consecutive even numbers, the difference of whose squares is 84?

A. 42 B. 84 C. 46 D. 38

20. Find HCF of 3x, 24x, 48xy.

21. Find the number of zeroes in the following cases:

a. 47!

b. 58!

c. $24 \times 32 \times 17 \times 23 \times 19$

d. $8 \times 15 \times 23 \times 17 \times 25 \times 22$

22. Find the Units digit in each of the following cases:

a. $(52)^{97} \times (43)^{72}$

(a) 2 (b) 6 (c) 8 (d) 4

b. $67 \times 37 \times 43 \times 91 \times 42 \times 33 \times 42$

(a) 2 (b) 6 (c) 8 (d) 4

c. $67 \times 35 \times 43 \times 91 \times 47 \times 33 \times 49$

(a) 1 (b) 9 (c) 5 (d) 6

d. $67 \times 35 \times 45 \times 91 \times 42 \times 33 \times 81$

(a) 2 (b) 4 (c) 0 (d) 8

e. $67 \times 35 \times 45 + 91 \times 42 \times 33 \times 82$

(a) 8 (b) 7 (c) 0 (d) 5

23. Find the remainder when 73 + 75 + 78 + 57 + 197 is divided by 34.
(a) 32 (b) 4 (c) 15 (d) 28

24. Find the remainder when 73 × 75 × 78 × 57 × 197 × 37 is divided by 34.
(a) 32 (b) 30 (c) 15 (d) 28

25. Find the remainder when 43^{197} is divided by 7.
(a) 2 (b) 4 (c) 6 (d) 1

26. Find the remainder when 75^{80} is divided by 7.
(a) 4 (b) 3 (c) 2 (d) 6

27 The H.C.F of 777 and 1147 is:
a) 17
b) 27
c) 37
d) 47

28. H.C.F. of 2923 and 3239 is:
a) 37
b) 73
c) 79
d) 47

29. A merchant has three kinds of wine; of the first kind 403 gallons, of the second 527 gallons and of the third 589 gallons. What is the least number of full casks of equal size in which this can be stored without mixing?

a) 11 gallons
b) 21 gallons
c) 31 gallons
d) 41 gallons

30 561/748 when reduced to lowest terms is:
a) 13/14
b) 3/4
c) 11/14
d) 3/24

31 The H.C.F of 1/2, 3/4, 5/6, 7/8, 9/10 is:
a) 1/2
b) 1/10
c) 9/120
d) 1/120

32 The L.C.M. of two numbers is 2310 and their H.C.F. is 30. If one number is 210, then the other is:
a) 16170
b) 2100
c) 1470
d) 330

33 The sum of two numbers is 216 and their H.C.F. is 27. The numbers are:

a) 54,162
b) 108,108
c) 27,189
d) None

34 The largest number which divides 77, 147, 252 to leave the same remainder in each case is:

a) 9
b) 15
c) 25
d) 35

35 The greatest number which will divide 590, 908 and 1014 so as to leave the same remainder in each case is:

a) 53
b) 106
c) 212
d) 424

36 Find the greatest number that will divide 804 and 1745 leaving remainders 5 and 6 respec_vely?

a) 17
b) 27
c) 37
d) 47

37 The greatest number that will divide 640, 710 and 1526 so as to leave 11, 7 and 9 as remainders respec_vely:

a) 17
b) 27
c) 37
d) 47

38 The sum of two numbers is 528 and their H.C.F. is 33. The number of pairs of such numbers sa_sfying the above condi_on is:

a) 6
b) 12
c) 8
d) 4

39 The product of two numbers is 19712 and their H.C.F is 16. The number of pairs of such numbers sa_sfying the above condi_on is:

a) 2
b) 3
c) 4
d) 5

40 The least number which when divided by 15, 27, 35 and 42 leaves in each case a remainder 7, is:

a) 1883
b) 1897
c) 1987
d) 2007

41 The smallest number which when increased by 8 is exactly divisible by 30, 45, 65 and 78 is:

a) 1152
b) 1160
c) 1162
d) 1170

42 The smallest number which when divided by 20, 25, 35 and 40 leaves the remainders 14, 19, 29 and 34 respec_vely is:

a) 1394
b) 1404
c) 1664
d) 1406

43. The greatest number of 4 digits, which is divisible by each one of the numbers 12, 18, 21 and 28 is:

a) 9848
b) 9864
c) 9828
d) 9636

44 The least number which when divided by 35, 45 and 55 leaves the remainders 18, 28 and 38 respec_vely is:

a) 3465
b) 3448
c) 3482
d) 3504

45. The least number of square _les required paving the ceiling of a room 15 m 17 cm long and 9 m 2 cm broad is:

a) 902
b) 656
c) 738
d) 814

46 What least number must be subtracted from 1837, so that the remainder when divided by 8, 12 and 15 will leave in each case the same remainder 5?

a) 12
b) 22
c) 32
d) 42

47 The circumferences of the fore and hind wheels of a carriage are 6 (3/14) meters and 8 (1/18) meters respec_vely. At any given moment, a chalk mark is put on the point of contact of each wheel with the ground. Find the distance traveled by the carriage so that both the chalk marks are again on the ground at the same _me:

a) 435 m
b) 217.5 m
c) 870 m
d) 277.5 m

48 Four bells toll at intervals of 6, 8, 12 and 18 minutes respectively. If they start tolling together at 12 a.m; find a□er what interval will they toll together and how many _mes will they toll together in 6 hours?

a) 4 times
b) 5 times
c) 6 times
d) 8 times

49 Three persons A, B and C run along a circular path 12 km long. They start their race from the same point and at the same _me with a speed of 3 km/hr, 7 km/hr and 13 km/hr respec_vely. After what _me will they meet again?

a) 6 hours
b) 8 hours
c) 12 hours
d) They never meet again

50 The LCM of two numbers is 14 _mes their HCF. The sum of LCM and HCF is 600. If one number is 80, then the other is:

a) 160
b) 60
c) 40
d) 280

51 What greatest number can be subtracted from 10000, so that the remainder may be divisible by 32, 36, 48 and 54?

a) 9136
b) 9316
c) 1360
d) 8640

52 What is the greatest length which is contained a whole number of _mes exactly in both 7½ meters and 4¼ meters?

a) 25 cm
b) 26 cm
c) 30 cm
d) 42 cm

53 The circumferences of the fore and hind wheels of a carriage are 12/5 and 24/7 meters respec_vely. A chalk mark is put on the point of contact of each wheel with the ground at any given moment. How far will the carriage have traveled so that their chalk marks may be again on the ground at the same _me?

a) 16 meters
b) 24 meters
c) 26 meters
d) 42 meters

54 The LCM of two numbers is 14 _mes their HCF. The sum of LCM and HCF is 600. If one number is 80, then the other is:

a) 160
b) 60
c) 40
d) 280

55 Find the greatest number that will divide 728 and 900, leaving the remainders 8 and 4 respectively?

a) 16
b) 15
c) 14
d) 24

56. Find the HCF of $12a^2 b^3 c^4$, $24a^8 b^6 c^2$, $20a^2 b^8 c^{10} d^3$

a)4 $a^2 b^3 c^4$ b)6 $a^2 b^3 c^4$ c)4 $a^2 b^3 c^2$ d)6 $a^4 b^3 c^4$ e) none

57. Find the greatest number that on dividing 150 , 190, and 245 leaves remainder of 6, 2 and 5 respectively?

a) 42 b)43 c)48 d)46 e)none

58. Find the greatest number that on dividing 480 , 600, and 800 leaves same remainder in same case?

a)42 b)40 c)45 d)46 e)none

59. 48 rose plant, 72 marigold plant and 108 lotus plant have to be planted in row such that each row has equal number of plants and each row has plant of particular variety only, what is the least number of rows required?

a)17 b)13 c)18 d)19 e)none

60. Find the LCM of $12a^2 b^3 c^4$, $15a^8 b^6 c^2$, $20a^2 b^8 c^{10} d^3$

a)$60\ a^8 b^8 c^{10}$ b)$60\ a^8 b^8 c^{10} d^3$ c)$60\ a^2 b^3 c^2$
d)$60\ a^4 b^3 c^4$ e) none

61. Find the least 3-digit number that when divided 10 , 12, and 15 leaves a remainder of 5 in same case?

a)425 b)120 c)125 d)14
e)none

62. Find the least 3-digit number that when divided 10 , 20, and 15 leaves a remainder of 8,13 and 18 in each case?

a)130 b)120 c)118 d)114
e)none

63. Find the least 3-digit number that when divided 15 , 20, and 25 leaves a remainder of 10,15 and 20 in each case?

a)290 b)295 c)265 d)270
e)none

64.Find the least number that when divided 8 and 11 leaves a remainder of 6 and 8 in each case?

a)30 b)18 c)38 d)34
e)none

65. Find the least 3-digit number that when divided 8 and 11 leaves a remainder of 6 and 8 in each case? a)130 b)118 c)138 d)134 e)no

66. The largest 4 digit number exactly divisible by 88 is:
A.9944 B.9768 C.9988 D.8888

67. Which of the following is a prime number?
A.33 B.81 C.93 D.97

68. The difference between the local value and the face value of 7 in the numeral 32675149 is
A.75142 B.64851 C.5149 D.69993

69. What least number must be subtracted from 13601, so that the remainder is divisible by 87?
A.23 B.31 C.29 D.37

70. If the number 97215 * 6 is completely divisible by 11, then the smallest whole number in
Place of * will be:
A.3 B.2 C.1 D.5

71. Find the remainder of $19^{77} \div 7$

a)2 b)3 c)4 d)5
e)none

72. Find the remainder of $(15^{23} + 23^{23}) \div 19$

a)0 b)3 c)4 d)5
e)none

73. Find the Unit digit of 287^{562581}

a)7 b)9 C.1 D.3 E. None

74. Find the remainder of $(51)^{203} \div 7$

a)4 b)1 c)2 d)6 e)none

75. Find the remainder of $(59)^{28} \div 7$

a)4 b)1 c)2 d)6 e)none

76. Find the remainder of $(21)^{875} \div 17$

a)8 b)13 c)9 d)6 e)none