CHAPTER : NUMBER SYSTEM

Topics

- Number system : Origin and significance
- Types of Numbers
- Prime Number. How?
- Problems on Rational numbers
- Divisibility rules
- HCF and LCM concept
- HCF and LCM of integers, decimals, fractions and expressions
- HCF LCM Word Problems
- Factors
- Cyclicity
- Magic of ZERO
- Remainder theorem

Q1: Which of these are prime numbers?

a. 349 is a Prime Number?
b. 881 is a Prime Number?
c. 979 is a Prime Number?
d. 1173 is a prime Number?

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Q2: Convert following non-terminating decimals into fractions.

a) 2.333333…………
b) 34.6767676767……..
c) 123.456456456456…..
d) 78.312121212……
e) 673.12444444444……….
f) 34.2316780823578123…
g) 32.55128639
h) 12.3333
i) 7.888899999999……….

Q3. Find out whether 54766987758726635 is divisible by 11

Q4. What shall be the minimum value of A so that 3A367820452 is divisible by 3?

Q5. What shall be the minimum value of B so that 336B94820452 is divisible by 11 ?

Q6. 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

(vii) $12xyzt$ and $18y^2zt^2$

(Viii) x^2-y^2 and $(x+y)^2$

(ix) 7.5, 12.5

(x) 3/20,   6/25,   9/10

Q7 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?

Q8: 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

Q9: 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

Q10: 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

Q11: 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

Q12: 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

Q13: What is the sum of two consecutive even numbers, the difference of whose squares is 84?
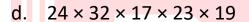
A.   42   B.   84   C.   46   D.   38

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Q14: Find the number of zeroes in the following cases:

a. 23!

b. 47!

c . 58!

d. 24 × 32 × 17 × 23 × 19

e. 8 × 15 × 23 × 17 × 25 × 22

f. 78 × 35 × 123 × 129 × 125 × 22

Q15: 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

Q16: Find the remainder when 73 + 75 + 78 + 57 + 197 is divided by 34.

(a) 32   (b) 4   (c) 15   (d) 28

Q17: Find the remainder when 73 × 75 × 78 × 57 × 197 × 37 is divided by 34.

(a) 32   (b) 30   (c) 15   (d) 28

Q18: Find the remainder when 43^{197} is divided by 7.

(a) 2   (b) 4   (c) 6   (d) 1

Q19: Find the remainder when 75^{80} is divided by 7.

(a) 4   (b) 3   (c) 2   (d) 6

Q20   The H.C.F of 777 and 1147 is:
a) 17
b) 27
c) 37
d) 47

Q21.   H.C.F. of 2923 and 3239 is:
a) 37
b) 73
c) 79
d) 47

Q23. 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
e) None of these

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Q24   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

Q25   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

Q26   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

Q27   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

Q28   Four bells toll at intervals of 6, 8, 12 and 18 minutes respectively. If they start tolling together at 12 a.m; find after what interval will they toll together and how many _times will they toll together in 6 hours?
   a) 4 times
   b) 5 times
   c) 6 times
   d) 8 times

Q29. 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

Q30.   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

Q31. 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

Q32. What least number must be subtracted from 13601, so that the remainder is divisible by 87?
A.23   B.31   C.29   D.37

Q33. 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

Q34. Find the remainder of $19^{77} \div 7$

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

Q35. Find the remainder of $(15^{23} + 23^{23}) \div 19$

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

Q36. Find the Unit digit of 287^{562581}

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

Q37. Find the remainder of $(51)^{203} \div 7$

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

Q38. Find the remainder of $(59)^{28} \div 7$

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

Q39. Find the remainder of $(21)^{875} \div 17$

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

Q40. The least number, which when divided by 12, 15, 20 and 54 leaves in each case a remainder of 8 is:

A.   504   B.   536

C.   544   D.   548

Q41. The greatest number which on dividing 1657 and 2037 leaves remainders 6 and 5 respectively is:

A.   123   B.   127

C.   235   D.   305

Q42. The greatest number which will divide 590, 908 and 1014 so as to leave the same remainder in each case is:

A.   43   B.   53

C.   59   D.   61

Q43. The greatest number that will divide 640, 710 and 1526 so as to leave 11, 7 and 9 as remainders respectively is:

A.   17   B.   27

C.   37   D.   47

ANSWERS

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