QB365 Question Bank Software Study Materials

Numbers and Sequences 50 Important 1 Marks Questions With Answers (Book Back and Creative)

10th Standard

Maths

Total Marks : 50

Multiple Choice Question

50 x 1 = 50

1) Euclid's division lemma states that for positive integers a and b, there exist unique integers q and r such that a = bq + r , where r must satisfy

(a) $1 < r < b$ (b) $0 < r < b$ **(c) $0 \leq r < b$** (d) $0 < r \leq b$

2) Using Euclid's division lemma, if the cube of any positive integer is divided by 9 then the possible remainders are

(a) 0, 1, 8 (b) 1, 4, 8 (c) 0, 1, 3 (d) 0, 1, 3

3) If the HCF of 65 and 117 is expressible in the form of 65m - 117 , then the value of m is

(a) 4 **(b) 2** (c) 1 (d) 3

4) The sum of the exponents of the prime factors in the prime factorization of 1729 is

(a) 1 (b) 2 **(c) 3** (d) 4

5) The least number that is divisible by all the numbers from 1 to 10 (both inclusive) is

(a) 2025 (b) 5220 (c) 5025 **(d) 2520**

6) $7^{4k} \equiv$ _____ (mod 100)

(a) 1 (b) 2 (c) 3 (d) 4

7) Given $F_1 = 1$, $F_2 = 3$ and $F_n = F_{n-1} + F_{n-2}$ then F_5 is

(a) 3 (b) 5 (c) 8 **(d) 11**

8) The first term of an arithmetic progression is unity and the common difference is 4. Which of the following will be a term of this A.P.

(a) 4551 (b) 10091 **(c) 7881** (d) 13531

9) If 6 times of 6^{th} term of an A.P. is equal to 7 times the 7^{th} term, then the 13^{th} term of the A.P. is

(a) 0 (b) 6 (c) 7 (d) 13

10) An A.P. consists of 31 terms. If its 16^{th} term is m, then the sum of all the terms of this A.P. is

(a) 16 m (b) 62 m **(c) 31 m** (d) $\frac{31}{2}$ m

11) In an A.P., the first term is 1 and the common difference is 4. How many terms of the A.P. must be taken for their sum to be equal to 120?

(a) 6 (b) 7 **(c) 8** (d) 9

12) If $A = 2^{65}$ and $B = 2^{64} + 2^{63} + 2^{62} + \ldots + 2^0$ Which of the following is true?

(a) B is 2^{64} more than A (b) A and B are equal (c) B is larger than A by 1 **(d) A is larger than B by 1**

13) The next term of the sequence $\frac{3}{16}, \frac{1}{8}, \frac{1}{12}, \frac{1}{18}, \ldots..$ is

(a) $\frac{1}{24}$ **(b) $\frac{1}{27}$** (c) $\frac{2}{3}$ (d) $\frac{1}{81}$

14) If the sequence $t_1, t_2, t_3 \ldots$ are in A.P. then the sequence $t_6, t_{12}, t_{18}, \ldots.$ is

(a) a Geometric Progression **(b) an Arithmetic Progression**

(a) a Geometric Progression **(b) an Arithmetic Progression**

(c) neither an Arithmetic Progression nor a Geometric Progression (d) a constant sequence

15) The value of $(1^3 + 2^3 + 3^3 + ... + 15^3) - (1 + 2 + 3 + ... + 15)$is

(a) 14400 (b) 14200 **(c) 14280** (d) 14520

16) -74 = _____ (mod 7)

(a) 4 (b) 3 (c) -4 (d) 1

17) If t_n is the n^{th} term of A.P, then $t_{2n} - t_n$ is _____.

(a) 2nd (b) nd (c) a+nd (d) 2a+2nd

18) A sequence is a function defined on the set of _____

(a) real numbers (b) natural numbers (c) whole numbers (d) integers

19) If m and n are the two positive integers then m^2 and n^2 are _____

(a) Co-prime (b) Not co-prime (c) Even (d) odd

20) If 3 is the least prime factor of number and 7 is least prime factor of b, then the least prime factor a + b is _____

(a) a + b (b) 2 (c) 5 (d) 10

21) The difference between the remainders when 6002 and 601 are divided by 6 is _____

(a) 2 **(b) 1** (c) 0 (d) 3

22) In the arithemetic series Sn = k + 2k + 3k +...+ 100, k is positive integer and k is a factor 100 then S_n is _____

(a) $1000\frac{10}{k}$ (b) $5000\frac{50}{k}$ (c) $\frac{1000}{k} + 10$ **(d)** $\frac{5000}{k} + 50$

23) How many terms are there in the G.P : 5, 20, 80, 320,..., 20480

(a) 5 (b) 6 **(c) 7** (d) 9

24) Sum of infinite terms of G.P is 12 and the first term is 8. What is the fourth term of the G.P?

(a) $\frac{8}{27}$ (b) $\frac{4}{27}$ (c) $\frac{8}{20}$ (d) $\frac{1}{3}$

25) The sum of first n terms of the series a, 3a, 5a...is _____

(a) na (b) (2n - 1)a **(c) n^2 - a** (d) n^2a^2

26) If p, q, r, x, y, z are in A.P, then 5p + 3, 5r + 3, 5x + 3, 5y + 3, 5z + 3 form _____

(a) a G.P **(b) an A.P** (c) a constant sequence (d) neither an A.P nor a G.P

27) In an A.P if the p^{th} term is q and the q^{th} term is p, then its n^{th} term is _____

(a) p+q-n (b) p+q+n (c) p-q+n (d) p-q-n

28) Sum of first n terms of the series $\sqrt{2} + \sqrt{8} + \sqrt{18} + ...$ is _____

(a) $\frac{n(n+1)}{2}$ (b) $\sqrt{n}$ (c) $\frac{n(n+1)}{\sqrt{2}}$ (d) 1

29) HCF of two equal positive integers k, k is _____

(a) k (b) 1 (c) 0 (d) none of the above

30) Euclid's division lemma cail be used to find the _____ of any two positive integers

(a) HCF (b) Multiples (c) Both (d) None of these

31) Euclid's division lemma is not applicable for which values of b?

(a) Positive integer **(b) Zero** (c) Negative integer (d) All of these

32) Using Euclid's division lemma HCF of 455 and 42 canbe expressed as_____

(a) 455 = 42 x 9 + 77 (b) 455 = 42 x 10 + 35 **(c) 455 = 42 x 11 - 7** (d) 455 = 42 x 12 - 49

33) The number 132 is to be written as product of its prime factors. Which of the following is correct?

(a) 132 = 2 x 6 x 11 **(b) $132 = 2^2 \times 3 \times 11$** (c) $132 = 2^2 \times 3^2 \times 5$ (d) 132 = 3 x 4 x 11

34) 25 + 37 $\equiv$ _____ (mod 12)

(a) 2 (b) 3 (c) 1 (d) 62

35) What does 144 reduces to mod 11?

(a) 144 **(b) 1** (c) 2 (d) 143

36) First term and common difference in the sequence 7, 10, 13,....

(a) 1, 7 (b) 7, 10 **(c) 7, 3** (d) 13, 10

37) The common differences of the A.P. $\frac{1}{3}, \frac{1-3b}{3}, \frac{1-6b}{3}$,...is

(a) $\frac{1}{3}$ (b) $\frac{-1}{3}$ **(c) - b** (d) b

38) The sum of n terms of an A.P. is $3n^2 + 5n$, then which of its term is 164?

(a) 26^{th} **(b) 27^{th}** (c) 28^{th} (d) None of these

39) The first, second and last term of an A.P. are a, b and 2a respectively, its sum is _____

(a) $\frac{ab}{2(b-a)}$ (b) $\frac{ab}{b-a}$ **(c)** $\frac{3ab}{2(b-a)}$ (d) None of these

40) 7^{th} term of a G.P. 2, 6, 18 . . is _____

(a) 5832 (b) 2919 **(c) 1458** (d) 729

41) The sequence -3, -3, -3 ..... is _____

(a) an A. P only (b) a G.P only (c) neither A.P nor G.P **(d) both A.P and G.P**

42) Sum of n terms of a G.P. is _____

(a) $\frac{n}{2}[2a + (n-1)d]$ **(b)** $\frac{a(1-r^n)}{1-r}$ (c) $\frac{2ab}{(a+b)}$ (d) $\frac{a+b}{2}$

43) $\frac{5+9+13+\ldots \text{ton terms}}{7+9+11+\ldots \text{to } (n+1) \text{ terms}} = \frac{17}{16}$ then n = ?

(a) 8 **(b) 7** (c) 10 (d) 11

44) The sum of first n odd natural number is _____

(a) 2n -1 (b) 2n + 1 **(c) n^2** (d) $n^2 - 1$

45) $1^2 + 2^2 + 3^2 ..... + n^2 = ?$

(a) $\left[\frac{n(n+1)}{2}\right]^2$ (b) $\frac{n(n+1)}{2}$ (c) n^2 **(d)** $\frac{n(n+1)(2n+1)}{6}$

46) If 2 + 4 + 6 + ... 2k = 90, then the value of k is _____

(a) 8 **(b) 9** (c) 10 (d) 11

47) Statement I - A sequence can be considered as a function defined on the set of natural numbers.
Statement II - Though all the sequences are functions, not all the functions are sequences.

(a) Statement I is true and Statement II is false (b) Statement I is false and Statement II is true

(c) Both the statements are true (d) Both the statements are false.

48) The Value of r_1 such that $1 + r + r^2 + r^3 +$_____ = 3/4

(a) 1/3 (b) -1/3 (c) 3 **(d) -3**

49) If two positive integers a and b are written as $a = x^3y^2$ and $b = xy^3$, where x, y are prime numbers, then the result obtained by dividing the product of the positive integers by the LCM (a, b) is

(a) xy **(b) xy^2** (c) x^3y^3 (d) x^2y^2

50) Two APs have the same common difference. The first term of one of these is –1 and that of the other is – 8. The difference between their 4th terms is

(a) 1 (b) -7 **(c) 7** (d) 9