CA FOUNDATION

J.K. SHAH TEST SERIES
Evaluate Learn Succeed

SUBJECT-**Maths, Logical Reasoning & Stats**

Test Code – CFN 9266
(Date :)

(Marks - 50)

TOPICS : Ratio, Proportion, Indices, Surds & Logarithm, Equations, Matrices

1. Calculate the duplicate ratio of $\frac{x}{4} : \frac{y}{5}$.

    (a) $4x^2 : 5y^2$ (b) $16x^2 : 25y^2$ (c) $25x^2 : 16y^2$ (d) none of these

2. If $\frac{A}{3} = \frac{B}{4} = \frac{C}{5}$, then $\frac{2A+B+C}{C}$ is

    (a) 2   (b) 3   (c) 5   (d) 6

3. If $a^{1/3} + b^{1/3} + c^{1/3} = 0$ then the value of $(a + b + c)^3$ is

    (a) abc   (b) 9bac   (c) 27abc   (d) $\frac{1}{27abc}$

4. The value of $\frac{1}{\log_a(ab)} + \frac{1}{\log_b(ab)}$ is

    (a) 0   (b) 1   (c) –1   (d) None

5. If $\frac{8^n \times 2^3 \times (16)^{-1}}{2^n \times 4^2} = \frac{1}{4}$, then the value of n is

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

6. Ratio between 25 hours and 45 minutes is

    (a) 5 : 9   (b) 100 : 3   (c) cannot be determined   (d) None

7. The logarithm of 21952 to the base of $2\sqrt{7}$ and 19683 to the base of $3\sqrt{3}$ are

    (a) Equal   (b) Not equal   (c) Have a difference of 2269   (d) None

8. If $\frac{a}{b} = \frac{4}{3}$ and $\frac{x}{y} = \frac{7}{5}$ then, find $\frac{2ax-3by}{ax+by}$.

    (a) 116 : 31   (b) 19 : 37   (c) 11 : 43   (d) 18 : 35

9. If $2^x \times 3^y \times 5^z = 360$ Then what is the value of x, y, z ?

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

10. $\left(\frac{2}{5}\right)^5 \div \left(\frac{2}{5}\right)^{10}$ is equal to

    (a) $\left(\frac{2}{5}\right)^5$ (b) $\left(\frac{5}{2}\right)^5$ (c) $\frac{32}{25}$ (d) $\frac{625}{32}$

11. If 10% of x = 20% of y, then x : y is equal to

    (a) 1 : 2   (b) 2 : 1   (c) 5 : 1   (d) 10 : 1

12. If $\log_2 x + \log_4 x + \log_{16} x = \frac{21}{4}$ then the value of x is

    (a) 23   (b) 20   (c) 1   (d) 8

13. A person has assets worth Rs. 1,48,200. He wish to divide it amongst his wife, son and daughter in the ratio 3 : 2 : 1 respectively. From this assets the share of his son will be

(a) Rs. 74,100 (b) Rs. 37,050 (c) Rs. 49,400 (d) Rs. 24,700

14. Which of the following is true?

(a) $x^{2/3} = \sqrt[3]{x^2}$ (b) $x^{2/3} = \sqrt{x^3}$ (c) $x^{2/3} > \sqrt{x^3}$ (d) $x^{2/3} > \sqrt[3]{x^2}$

15. Rs. 407 are to be divided among A, B and C so that their shares are in the ratio $\frac{1}{4} : \frac{1}{5} : \frac{1}{6}$. The respective shares of A,B, C are :

(a) Rs. 165, Rs. 132, Rs. 110 (b) Rs. 165, Rs. 110, Rs. 132

(c) Rs. 132, Rs. 110, Rs. 165 (d) Rs. 110, Rs. 132, Rs. 165

16. If $\log_x Y = 100$ and $\log_2 x = 10$, then the value of 'Y' is :

(a) 2^{10} (b) 2^{100} (c) $2^{1,000}$ (d) $2^{10,000}$

17. Which of the numbers are not in proportion ?

(a) 6, 8, 5, 7 (b) 7,14, 16, 32 (c) 18,27,12, 18 (d) 8,6,12,9

18. If $a = 5^{1/3} + 5^{-1/3}$, then the value of $5a^3 - 15a$ is equal to

(a) 25 (b) 26 (c) 27 (d) 28

19. If A : B = 8 : 15, B : C = 5 : 8 and C : D = 4 : 5, then A : D is equal to

(a) 2 : 7 (b) 4 : 15 (c) 8 : 15 (d) 15 : 4

20. log (25/4) is equal to

(a) log 25/log 4 (b) log 25 – log 4 (c) 25/4 (d) none of these

21. If $\frac{2}{3} = \frac{4}{6}$, then If $\frac{2}{4} = \frac{3}{6}$ is by

(a) invertendo (b) componendo (c) dividend (d) alternendo

22. The expenditure and savings of a person are in the ratio of 4 : 1. If his savings are increased by 25% of his income, then what is the new ratio of his expenditure and savings ?

(a) 8 : 5 (b) 7 : 5 (c) 7 : 4 (d) 11 : 9

23. $\log_{(1/5)} 625 =$

(a) 4 (b) – 4 (c) 25 (d) – 25

24. If $x = 1 + \sqrt{2}$, then $(1 + x)(1 - x)$ is equal to

(a) $-2 - 2\sqrt{2}$ (b) $2 + \sqrt{2}$ (c) $2 + 2\sqrt{2}$ (d) $2 - 2\sqrt{2}$

25. The third proportional to 49 and 21 is

(a) 49 (b) 21 (c) 9 (d) 3

26. If $\frac{1}{4} \log_2 a = \frac{1}{6} \log_2 b = -\frac{1}{24} \log_2 c$ the value of $a^3 b^2 c$ is

(a) 0 (b) 1 (c) –1 (d) None

27. Find the value of : $[1 - \{1 - (1 - x^2)^{-1}\}^{-1}]^{-\frac{1}{2}}$ is

(a)   1/x   (b)   x   (c)   1   (d)   none of these

28. 4, *, 9, 13 ½ are in proportion. Then * is

(a)   6   (b)   8   (c)   9   (d)   none of these

29. The value of $\log_6 6$ is

(a)   0   (b)   1   (c)   2   (d)   None of these

30. Simplified value of $(27)^{2/3} \times \sqrt{9} \times \sqrt[3]{9^3} \times 9^{1/2}$ is

(a)   9   (b)   1/9   (c)   1   (d)   none of these

31. In 40 litres mixture of glycerine and water, the ratio of glycerine and water is 3 : 1. The quantity of water added in the mixture in order to make this ratio 2 : 1 is

(a)   15 litres   (b)   10 litres   (c) 8 litres   (d)   5 litres

32. $p^{a-b} \times p^{b-c} \times p^{c-a}$ is equal to

(a)   p   (b)   1   (c)   0   (d)   none of these

33. If $\log \frac{m}{n} + \log \frac{n}{m} = \log (m + n)$ then

(a)   m + n = 1   (b) $\frac{m}{n} = 1$ (c)   m − n = 1   (d) $m^2 - n^2 = 1$

34. The compounded into of 4 : 9, the duplicate ratio of 3 : 4, the triplicate ratio of 2 : 3 and sub duplicate ratio of 9 : 64 is

(a)   2 : 7   (b)   7 : 2   (c)   1 : 36   (d) none of these

35. If $2^x - 2^{x-1} = 32$, then the value of x is

(a)   4   (b)   5   (c)   6   (d)   7

36. The integral part of a logarithm is called _____, and the decimal part of a logarithm is called _____.
(a)   Mantissa, Characteristic   (b)   Characteristic, Mantissa
(c)   Whole, Decimal   (d)   None of these

37. Given log 2 = 0.3010 and log 3 = 0.4771 then the value of log 24

(a)   1.3081   (b)   1.1038   (c)   1.3801   (d)   1.8301

38. If a= $\sqrt[3]{\sqrt{2} + 1} - \sqrt[3]{\sqrt{2} - 1}$ then the value of a^3 +3a-2 is

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

39. In a ratio, which is equal to 3 : 4, if the antecedent is 12, then the consequent is :

(a)   9   (b)   16   (c)   20   (d)   24

40. The simplification of $\log_2 16\sqrt{8}$ + $\log_5 \frac{\sqrt[4]{25}}{625}$ is

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

41. Let E_1, E_2 are two linear equation in two variables x and y. (0,1) is a solution for both the equation E_1 & E_2 .(2, -1) is a solution of equation E_1 only and (-2,-1) is a solution of equation E_2 , only then E_1, E_2 are _____.

(a) x = 0, y = 1

(b) 2x − y = -1, 4x + y = 1

(c) x + y = 1, x − y = -1

(d) x + 2y = 2, x + y = 1

42. If the matrix AB is zero, then

(a) A = 0 or B = 0

(b) A = 0 and B = 0

(c) It is not necessary that either A = 0 or B = 0

(d) All these Statements are wrong

43. Six years hence a man's age will be three times the age of his son and three years ago he was nine times as old as his son. Find their present ages.

(a) 35, 4   (b) 30, 6   (c) 40,8   (d) None of these

44. If A = $\begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 1 \\ 1 & 1 & 1 \end{bmatrix}$, then A^2 equals

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

45. The sides of an equilateral triangle are shortened by 12 units, 13 units and 14 units respectively and a right angled triangle is formed. The side of the equilateral triangle is :

(a) 17 units   (b) 16 units   (c) 15 units   (d) 18 units

46. If A = $\begin{bmatrix} a & 0 & 0 \\ 0 & a & 0 \\ 0 & 0 & a \end{bmatrix}$, then A^n =

(a) $\begin{bmatrix} a^n & 0 & 0 \\ 0 & a^n & 0 \\ 0 & 0 & a \end{bmatrix}$

(b) $\begin{bmatrix} a^n & 0 & 0 \\ 0 & a & 0 \\ 0 & 0 & a \end{bmatrix}$

(c) $\begin{bmatrix} a^n & 0 & 0 \\ 0 & a^n & 0 \\ 0 & 0 & a^n \end{bmatrix}$

(d) $\begin{bmatrix} na & 0 & 0 \\ 0 & na & 0 \\ 0 & 0 & na \end{bmatrix}$

47. For quadratic equation $ax^2 + bx + c = 0$, if the sum of its roots is equal to the sum of the squares of their reciprocals, then the value of $\frac{b^2}{ac} + \frac{bc}{a^2}$ is

(a) -2   (b) 2   (c) 1   (d) -1

48. If A = $\begin{bmatrix} 1 & -2 & 3 \\ -4 & 2 & 5 \end{bmatrix}$, B = $\begin{bmatrix} 2 & 3 \\ 4 & 5 \\ 2 & 1 \end{bmatrix}$, then

(a) AB, BA exist and are equal

(b) AB, BA exist but not equal

(c) AB exists and BA does not exist

(d) AB does not exist and BA exists

49. If $(2 + \sqrt{3})$ is a root of a quadratic equation $x^2 + px + q = 0$ then find the value of p and q.

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

50. If difference between a number and its positive square root is 12; the numbers are

(a) 9   (b) 16   (c) 25   (d) None