

NATIONAL MANAGEMENT COLLEGE, THUDUPATHI.

CA FOUNDATION

Monthly test 1

PAPER – 3: BUSINESS MATHEMATICS, LOGICAL REASONING AND STATISTICS

Time Allowed : 1 hour

Maximum Marks: 50

1. If $4^x = 5^y = 20^z$ then z is equal to

- a) xy b) $\frac{x+y}{xy}$ c) $\frac{1}{xy}$ d) $\frac{xy}{x+y}$

2. $\left(\frac{\sqrt{3}}{9}\right)^{\frac{5}{2}} \left(\frac{9}{3\sqrt{3}}\right)^{\frac{7}{2}} \times 9$ is equal to

- a) 1 b) $\sqrt{3}$ c) $3\sqrt{3}$ d) $\frac{3}{9\sqrt{3}}$

3. The third proportional between $(a^2 - b^2)$ and $(a + b)^2$ is

- a) $\frac{a+b}{a-b}$ b) $\frac{a-b}{a+b}$ c) $\frac{(a-b)^2}{a+b}$ d) $\frac{(a+b)^3}{a-b}$

4. If $2^x - 2^{x-1} = 4$ then $X^x =$

- a) 7 b) 3 c) 27 d) 9

5. The ages of two persons are in the ratio 5 : 7. 18 years ago their ages were in the ratio 8 : 13, their present ages (in years) are :

- a) 50 , 70 b) 70 , 50 c) 40 , 56 d) none

6. If $X = Y^a$, $Y = Z^b$ and $Z = X^c$ then abc is :

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

7. Fourth proportional to X, 2X, (X+1) is

- a) $(X + 2)$ b) $(X - 2)$ c) $(2X + 2)$ d) $(2X - 2)$

8. If $X = 3^{\frac{1}{3}} + 3^{\frac{-1}{3}}$ then find value of $3X^3 - 9x$

- a) 3 b) 9 c) 12 d) 10

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. What must be added to each term of the ratio 49 : 68, so that it becomes 3 : 4 =

- a) 3 b) 5 c) 8 d) 9

11. In a film shooting, A and B received money in a certain ratio and B and C also received the money in the same ratio. If A gets RS. 1,60,000 and C gets RS. 2,50,000. Find the amount received by B.

- a) 2,00,000 b) 2,50,000 c) 1,00,000 d) 1,50,000

12. If $A : B = 2 : 5$, then $(10A + 3B) : (5A + 2B)$ is equal to

- a) 7 : 4 b) 7 : 3 c) 6 : 5 d) 7 : 9

13. The value of $\frac{3^{n+1} + 3^n}{3^{n+3} - 3^{n+1}}$ is equal to

- a) 1/5 b) 1/6 c) 1/4 d) 1/9

14. Which of the numbers are not in proportion

- a) 6, 8, 5, 7 b) 7, 3, 14, 6 c) 18, 27, 12, 18 d) 8, 6, 12, 9

15. Find the value of x, if $x(x)^{1/2} = (x^{1/2})^x$

- a). 3 b) 4 c) 2 d) 6

16. Find two numbers such that mean proportional between them is 18 and third proportional between them is 144.

- a) 9, 36 b) 8, 32 c) 7, 28 d) 6, 24

17. The mean proportional between 24 and 54 is

- a) 33 b) 34 c) 35 d) 36

18. If $p^x = q$, $q^y = r$ and $r^z = p^6$, then the value of xyz will be :

- a) 0 b) 1 c) 3 d) 6

19. A fraction becomes 1/3 when 1 is subtracted from the numerator and it becomes 1/4 when 8 is added to its denominator. Find the fraction.

- (a) 4/12 (b) 3/13 (c) 5/12 (d) 11/7

20. Five years ago, A was thrice as old as B and ten years later, A shall be twice as old as B. What is the present age of A.

- (a) 20 (b) 50 (c) 60 (d) 40

21) $1.5x + 3.6y = 2.1$, $2.5(x+1) = 6y$

- (a) (0.2, 0.5) (b) (0.5, 0.2) (c) (2, 5) (d) (-2, -5)

22) $2x + 3y + 4z = 0$, $x + 2y - 5z = 0$, $10x + 16y - 6z = 0$

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

23) The sum of the digits in a three digit number is 12. If the digits are reversed the number is increased by 495 but reversing only of the ten's and unit digits increases the number by 36. The number is

- (a) 327 (b) 372 (c) 237 (d) 273

24) Two numbers are such that twice the greater number exceeds twice the smaller one by 18 and $\frac{1}{3}$ rd of the smaller and $\frac{1}{5}$ th of the greater number are together 21. The numbers are:

- (a) (36, 45) (b) (45, 36) (c) (50, 41) (d) (55, 46)

25) A number consisting of two digits is four times the sum of its digits and if 27 be added to it the digits are reversed. The number is :

- (a) 63 (b) 35 (c) 36 (d) 60

26) Of two numbers, $\frac{1}{5}$ th of the greater is equal to $\frac{1}{3}$ rd of the smaller and their sum is 16. The numbers are:

- (a) (6, 10) (b) (9, 7) (c) (12, 4) (d) (11, 5)

27) If $A:B = 2:3$, $B:C = 4:5$ and $C:D = 6:7$, then $A:B:C:D$ is

- a. 18:24:30:35 b. 16:24:30:35
c. 16:22:30:35 d. 16:24:15:35

28) The ratio of numbers of girls and boys participating in sports of a school is 4:5. If the number of girls is 212, determine the number of boys participating in the sports.

- a. 256 b. 265 c. 251 d. 263

29) Price of each article of type P, Q, and R is Rs. 300, Rs. 180 and Rs. 120 respectively. Suresh buys articles of each type in the ratio 3:2:3 in Rs. 6480. How many articles of type Q did he purchase?

- a. 8 b. 14 c. 20 d. None

30) The ratio of $1\text{ year }6\text{ months} : 2\text{ years} : 2\text{ year }6\text{ months}$ is _____

- (a) 3:4:5 (b) 2:3:5 (c) 2:4:5 (d) None

31) Which of the following statements is not correct?

- a) $\log_{10} 10 = 1$ b) $\log_{10} (2 \times 3) = \log_{10} (2+3)$
c) $\log_{10} 1 = 0$ d) $\log (1+2+3) = \log 1 + \log 2 + \log 3$

32) If a, b, c are consecutive positive integers, then $\log(1+ca) = ?$

- a) $2 \log b$ b) $\log(b/2)$ c) $\log b$ d) none of these

33) $\log_{2\sqrt{2}} (512) : \log_{3\sqrt{2}} (324)$ then,

- (a) $128 : 81$ (b) $2 : 3$ (c) $3 : 2$ (d) None

34) $\left(\frac{3a}{2b}\right)^{2x-4} = \left(\frac{2b}{3a}\right)^{2x-4}$ for some a and b , then the value of x is

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

35) $\frac{\log_3 8}{\log_9 16 \cdot \log_4 10} =$

- a) $5 \log_9 2$ b) $3 \cdot \log_{10} 2$ c) $4 \log_8 5$ d) none

36) 729 ml of a mixture contains milk and water in the ratio $7 : 2$. How much more water is to be added to get a new mixture containing milk and water in the ratio of $7 : 3$?

- a) 60 ml b) 70 ml c) 81 ml d) 90 ml

37) 680 has been divided among A, B, C such that A gets $\frac{2}{3}$ of what B gets and B gets $\frac{1}{4}$ of what C gets. What is the share of C ?

- a) 60 b) 480 c) 120 d) 160

38) Divide 50 into two parts such that the sum of their reciprocals is $\frac{1}{12}$. The numbers are

- a) (24, 26) b) (28, 22) c) (27, 23) d) (20, 30)

39) y is older than x by 7 years 15 years back x 's age was $\frac{3}{4}$ of y 's age. Their present ages are:

- a) ($x=36, y=43$) b) ($x=50, y=43$)
c) ($x=43, y=50$) d) ($x=40, y=47$)

40) Shruti purchased several number of three articles P, Q and R in the proportion $3 : 2 : 3$. If the unit costs of the articles P, Q and R are 200, Rs. 90 and Rs. 60 respectively, how many articles of Q must have been purchased in the total purchases of Rs. 4800?

- a. 8 b. 10 c. 12 d. 14

41) The ratio of the number of ladies to gents at a party was 1:2 but when 2 ladies and 2 gents left, the ratio became 1:3. How many people were at the party originally?

- a. 36 b. 24 c. 12 d. 6

42) The compound ratio of $\frac{2}{3}$, $\frac{6}{7}$, $\frac{1}{3}$ and $\frac{1}{8}$ is given by?

- a. $\frac{1}{32}$ b. $\frac{1}{42}$ c. $\frac{1}{16}$ d. $\frac{12}{71}$

43) If $\log_2(\log_3(\log_2 x)) = 1$, then x is equal to _____

- a. 512 b. 128 c. 12 d. 0

44) The sum of three numbers is 98. If the ratio of the first to second is 2:3 and that of the second to the third is 5:8, then the second number is:

- a. 20 b. 30 c. 48 d. 58

45) $(0.04)^{-1.5}$ is _____

- a) 25 b) 125 c) 250 d) 625

46) If $5x + 3y = 3$, then find $32^x \cdot 8^y$

- a) 4 b) 8 c) 32 d) 16

47) In a library, the ratio of number of story books to that of non-story books was 4:3 and total number of story books was 1248. When some more story books were bought, the ratio became 5:3. Find the number of story books bought

- a. 312 b. 321 c. 936 d. 1560

48) mean proportional between 24 and 54 is

- a) 33 b) 34 c) 35 d) 36

49) The triplicate ratio of 1:2 is?

- a. 8:1 b. 1:8 c. 2:1 d. 1:2

50)) The mean proportional between 2 and 8,

- (a) 4 (b) 16 (c) 3 (d) 1