

Chapter 1 - Ratio, Proportion, Indices, Logarithm

RATIO & PROPORTION

Past Year Questions

PYQ May 18

- (1) If $p : q$ is the sub-duplicate ratio of $p - x^2 : q - x^2$, then x^2 is
- a. $\frac{p}{p+q}$ b. $\frac{q}{p+q}$
 c. $\frac{qp}{p-q}$ d. None of these

PYQ Nov. 18

- (2) $\frac{3x-2}{5x+6}$ the duplicate ratio of $\frac{2}{3}$ then find the value x :
- a. 2 b. 6
 c. 5 d. 9

PYQ Nov. 18

- (3) If $x : y : z = 7 : 4 : 11$ then $\frac{x+y+z}{z}$ is
- a. 2 b. 3
 c. 4 d. 5

PYQ June 19

- (4) If the ratio of two numbers is 7 : 11. If 7 is added to each number then the new ratio will be 2 : 3 then the numbers are.
- a. 49, 77 b. 42, 45
 c. 43, 42 d. 39, 40

PYQ Nov. 19

- (5) The ratio of two numbers are 3 : 4. The difference of their squares is 28 greater no. is:
- ★ a. 8 b. 12
 c. 24 d. 64

PYQ Nov. 19

- (6) The price of scooter and moped are in the ratio 7 : 9. The price of moped is ₹ 1,600 more than that of scooter. Then the price of moped is:
- ★ a. ₹ 7,200 b. ₹ 5,600
 c. ₹ 800 d. ₹ 700

PYQ Nov. 20

- (7) If $a : b = 3 : 7$, then $3a + 2b : 4a + 5b = ?$
- a. 23 : 47 b. 27 : 43
 c. 24 : 51 d. 29 : 53

PYQ Nov. 20

- (8) ★ The ratio of number of boys and the number of girls in a school is found to be 15 : 32. How many boys and equal number of girls should be added to bring the ratio to 2/3?
- a. 19 b. 20
 c. 23 d. 27

PYQ Jan. 21

- (9) In a certain business A and B received profit in a certain ratio B and C received profits in the same ratio. If A gets ₹ 1600 and C gets ₹ 2500 then how much does B get?
- a. ₹ 2,000 b. ₹ 2,500
 c. ₹ 1,000 d. ₹ 1,500

PYQ Jan. 21

- (10) The ratio of two quantities is 15 : 17. If the consequent of its inverse ratio is 15, then the antecedent is;
- a. 15 b. $\sqrt{15}$
 c. 17 d. 14

PYQ July 21

- (11) The salaries of A, B and C are in the ratio 2 : 3 : 5. If increments of 15%, 10% and 20% are allowed respectively to their salary, then what will be the new ratio of their salaries?
- a. 23 : 33 : 60 b. 33 : 23 : 60
 c. 23 : 60 : 33 d. 33 : 60 : 23

PYQ July 21

- (12) If $A : B = 5 : 3$, $B : C = 6 : 7$ and $C : D = 14 : 9$ then the value of $A : B : C : D$ is:
- a. 20 : 14 : 12 : 9 b. 20 : 9 : 12 : 14
 c. 20 : 9 : 14 : 12 d. 20 : 12 : 14 : 9

PYQ July 21

- (13) ★ A vessel contained a solution of acid and water in which water was 64%. Four liters of the solution were taken out of the vessel and the same quantity of water was added. If the resulting solution contains 30% acid, the quantity (in liters) of the solution, in the beginning in the vessel, was
- a. 12 b. 36
 c. 24 d. 2

PYQ Dec. 21

- (14) ★ Incomes of R and S are in the ratio 7 : 9 and their expenditures are in the ratio 4 : 5. Their total expenditure is equal to income of R. What is the ratio of their savings?
- a. 23 : 36 b. 28 : 41

c. 31 : 43 d. 35 : 46
PYQ Dec. 21

- (15) A bag contains 105 coins containing some 50 paise, and 25 paise coins. The ratio of the number of these coins is 4 : 3. The total value (in ₹) in the bag is

a. 43.25 b. 41.25
c. 39.25 d. 35.25

PYQ Dec. 21

- (16) In a department, the number of males and females are in the ratio 3 : 2. If 2 males and 5 females join the department, then the ratio becomes 1 : 1. Initially, the number of females in the department is

a. 9 b. 6
c. 3 d. 8

PYQ June 22

- (17) A box contains 25 paise coins and '10' paise coins and 5 paise coins in ratios 3 : 2 : 1 and total money is ₹ 40. How many '5' paise coins are there?

a. 65 b. 55
c. 40 d. 50

PYQ June 22

- (18) If $x : y = 4 : 6$ and $z : x = 4 : 16$ find Y?

a. 4 b. 6
c. 16 d. 1

PYQ Dec 22

- (19) A group of 400 soldiers posted at border area had a provision for 31 days. After 28 days 280 soldiers from this group were called back. Find the number of days for which the remaining ration will be sufficient?

a. 3 b. 6
c. 8 d. 10

PYQ May 18

- (20) The mean proportional between 24 and 54 is:

a. 33 b. 34
c. 35 d. 36

PYQ Nov 20

- (21) If $a : b = 9 : 4$, then $\sqrt{\frac{a}{b}} + \sqrt{\frac{b}{a}} = ?$

a. $\frac{3}{2}$ b. $\frac{2}{3}$
c. $\frac{6}{13}$ d. $\frac{13}{6}$

PYQ June 24

- (22) A fraction becomes 1, when 3 are added to the numerator and 1 is added to the denominator, but when the numerator and denominator are decreased by 2 and 1, respectively, it becomes $\frac{1}{2}$. The denominator of the fraction is:

a. 5 b. 6
c. 7 d. 8

PYQ June 24

- (23) If the four number $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{10}$, and $\frac{1}{x}$ are proportional, then what is the value of x?

a. 14 b. 15
c. 10 d. $\frac{1}{12}$

PYQ Sep 24

- (24) The ratio of income of A and B is 5 : 4 and their expenditure is 3 : 2. If at the end of the year each saves ₹ 1,600, then the income of A is:

a. ₹ 3,600 b. ₹ 3,400
c. ₹ 4,000 d. ₹ 4,400

PYQ Sep 24

- (25) The mean proportional between $12x^2$ and $27y^2$ is:

a. $81xy$ b. $18xy$
c. $8xy$ d. $19.5xy$

Answer Key

1 d	2 b	3 a
4 a	5 a	6 a
7 a	8 a	9 a
10 c	11 a	12 d
13 c	14 d	15 b
16 b	17 c	18 b
19 d	20 d	21 d
22 c	23 b	24 c
25 b		

RATIO & PROPORTION

Mock Test Paper Questions

MTP May 18

- (1) P, Q and R three cities. The ratio of average temperature between P and Q is 11 : 12 and that between P and R is 9 : 8. The ratio between the average temperature Q and R

a. 22 : 27 b. 27 : 22
c. 32 : 33 d. None of these

MTP Nov 18

- (2) For
- $p, q, r, s > 0$
- the value of each ratio is

$$\star \quad \frac{p}{q+r} = \frac{q}{r+s} = \frac{r}{s+p} = \frac{s}{p+q}$$

- a. $1/2$ b. $1/3$
c. $1/4$ d. 1

MTP Nov 18

- (3) Let
- x, y
- and
- z
- are three positive numbers and

$$\star \quad P = \frac{x+y+z}{2}; \text{ if } (p-x):(p-y):(p-z) = 3:5:7$$

then the ratio of $x:y:z$ is

- a. $4:5:6$ b. $6:5:4$
c. $3:5:7$ d. $7:5:3$

MTP May 19

- (4) The ratio compounded of 2:3, 9:4, 5:6 and 8:10 is

- a. $1:1$ b. $1:5$
c. $3:8$ d. None of these

MTP May 19

- (5) The sub-triplicate ratio of 8:27

- a. $27:8$ b. $24:81$
c. $2:3$ d. none of these

MTP May 19 Series II

- (6) If
- $x:y:z = 2:3:5$
- if
- $x+y+z=60$
- , then the value of
- z

- a. 30 b. 15
c. 9 d. 12

MTP May 19 Series II

- (7) The ratio of two numbers is 15:19. If a certain number is added to each term of the ratio it become 8:9. What is the number added to each of the ratio?

- a. 6 b. 15
c. 17 d. 23

MTP Nov 19

- (8) The ratio of the earnings of two persons 3:2. If each saves
- $1/5^{\text{th}}$
- of their earnings, the ratio of their saving

- a. $2:3$ b. $3:2$
c. $4:5$ d. $5:4$

MTP Nov 19

- (9) If
- $x+y, y+z, z+x$
- are in the ratio 6:7:8 and
- $x+y$

- $+z=14$ then the value of x is.
a. 6 b. 7
c. 8 d. 10

Note: None of the options given in MTP are correct.
The right one is $14/3$

MTP May 20

- (10) The ratio of the prices of two houses was 16:23.

\star Two years later when the price of the first has increased by 10% and that of the second by ₹477, the ratio of the prices becomes 11:20. Find the original prices of the two houses.

- a. ₹ 848, ₹ 1,219
b. ₹ 838, ₹ 1,119
c. ₹ 828, ₹ 1,219
d. ₹ 848, ₹ 1,229

MTP May 20

- (11) If
- $a:b = 3:4$
- , the value of
- $(2a+3b):(3a+4b)$
- is

- a. $54:25$ b. $8:25$
c. $17:24$ d. $18:25$

MTP Nov 20

- (12) If
- $x:y = 2:3$
- , then find
- $(5x+2y):(3x-y)$

- a. $13/3$ b. $16/3$
c. $19/3$ d. $7/3$

MTP Nov 20

- (13) A bag contains ₹187 in the form 1 rupee, 50 paise and 10 paise coins in the ratio 3:4:5. Find the number of each type of coins.

- a. 102, 136, 170
b. 136, 102, 170
c. 170, 102, 136
d. None of these

MTP Nov 20

- (14) The ratio of the speed of the two trains is 2:5.

\star If the distances they travel are in the ratio 5:9, find the ratio of times taken by them.

- a. $2:9$ b. $18:25$
c. $25:18$ d. $10:45$

MTP March 21

- (15) Two nos. are in the ratio 7:8 if 3 is added to each of them, ratio becomes 8:9, the no. are

- a. 14,16 b. 24,27
c. 21,24 d. 16,18

MTP Apr 21

- (16) The ratio of the number of boys and girls in a school is 2:5. if there are 280 students in the school, find number of girls in the school

- a. 200 b. 250
c. 150 d. 100

MTP Apr 21

- (17) If
- $\frac{p}{q} = -\frac{2}{3}$
- , then the value of
- $\frac{2p+q}{2p-q}$
- is:

- a. 1 b. $-1/7$
c. $1/7$ d. 7

- (18) The salaries of A, B and C are of ratio 2:3:5. if the increments of 15%, 10% and 20% are done their respective salaries, then find new salaries.
- a. 23: 33: 60 b. 33: 23: 60
c. 23: 60: 33 d. 33: 60: 23

MTP Nov 21

- (19) The salary of P is 25% lower than that of Q and the salary of R is 20% higher than Q, the ratio of salary of R and P will be :
- a. 5: 8 b. 8: 5
c. 5: 3 d. 3: 5

MTP Oct 21

- (20) ☆ If $x: y = 3: 5$, then find $\left(\frac{1}{x} + \frac{1}{y}\right) : \left(\frac{1}{x} - \frac{1}{y}\right)$
- a. 2 b. 4
c. 6 d. 8

MTP Oct 21

- (21) If $A: B = 3: 4$ and $B: C = 7: 9$, $C: D = 2: 3$ and D is 50% more than E, find the ratio between A and E
- a. 2: 3 b. 7: 12
c. 3: 5 d. 4: 5

MTP March 22

- (22) 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

MTP March 22

- (23) The ratio compounded of 4: 5 and sub-duplicate of a: 9 is 8: 15. Then value of "a" is
- a. 2 b. 3
c. 4 d. 5

MTP March 22

- (24) If $\frac{3x-2}{5x-6}$ is the duplicate ratio of $2/3$ then the value of 'x' is
- a. 2 b. -6/7
c. 5 d. 9

MTP June 22

- (25) If $x: y = 2: 3$, then $(5x+2y) : (3x-y) =$
- a. 19: 3 b. 16: 3
c. 7: 2 d. 7: 3

- (26) A person has asset worth of ₹ 1,48,200. He wish to divide it amongst his wife, son and daughter in the ratio 3: 2: 1 respectively. From this assets share of his son will be:
- a. ₹ 24,700 b. ₹ 49,400
c. ₹ 74,100 d. ₹ 37,050

MTP June 22

- (27) ☆ X, Y, Z together starts a business, if X invests 3 times as much as Y invests and Y invests two third of what Z invests, then the ratio of capitals of X, Y, Z is
- a. 3: 9: 2 b. 6: 3: 2
c. 3: 6: 2 d. 6: 2: 3

MTP Dec 22 - Series I

- (28) A bag contains 25 paise, 10 paise, and 5 paise in a ratio of 3: 2: 1. The total value of ₹ 40, the number of 5 paise coins is
- a. 45 b. 48
c. 40 d. 20

MTP Dec 22 - Series I

- (29) 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

MTP Dec 22 Series II

- (30) The ratio of two numbers are 3: 4. The difference of their squares is 28. Greater number is:
- a. 8 b. 12
c. 24 d. 64

MTP Dec 22 Series II

- (31) ☆ The price of scooter and moped are in the ratio 7: 9. The price of moped is ₹ 1600 more than that of scooter. Then the price of moped is:
- a. ₹ 7200 b. ₹ 5600
c. ₹ 800 d. ₹ 700

MTP June 2023 Series I

- (32) Four persons A, B, C, D wish to share a sum in the ratio of 5:2:4:3. If D gets ₹ 1000 less than C, then the share of B?
- a. 2000 b. 1200
c. 2400 d. 3000

MTP June 2023 Series II

- (33) The monthly incomes of A & B are in the ratio 4: 5 are their monthly expenditures are in the ratio 5: 7. If each saves ₹ 150 per month, find their monthly incomes.
- a. (40, 50) b. (50, 40)

- c. (400, 500) d. None of these

MTP June 2023 Series II

- (34) Two vessels containing water and milk in the ratio 2 : 3 and 4 : 5 are mixed in the ratio 1 : 2. The ratio of milk and water in the resulting mixture.

- a. 58 : 77 b. 77 : 58
c. 68 : 77 d. None of these

MTP June 2023 Series II

- (35) If $(x - 9) : (3x + 6)$ is the duplicate ratio of 4 : 9, find the value of x

- a. $x = 9$ b. $x = 16$
c. $x = 36$ d. $x = 25$

MTP May 18

- (36) 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. $\frac{(a+b)^3}{a-b}$

MTP May 19

- (37) If $\frac{p}{q} = \frac{r}{s} = \frac{p-r}{q-s}$, the process is called

- a. Subtrahendo b. Componendo
c. Alternendo d. none of these

MTP May 19 Series II

- (38) If $\frac{a}{3} = \frac{b}{4} = \frac{c}{5}$ then $\frac{2a+3b+2c}{4a-b+2c}$ is

- a. $\frac{11}{19}$ b. $\frac{17}{19}$
c. $\frac{14}{9}$ d. $\frac{19}{7}$

MTP Nov 19

- (39) The third proportional to 15 and 20 is

- a. 80/3 b. 80
c. 80/7 d. 120

MTP March 21

- (40) Which of the numbers are not in proportions?

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

MTP Apr 21

- (41) The third proportional to 9 and 25

- a. 80/3 b. 80
c. 80/7 d. None of these

MTP Nov 21

- (42) If $A : B = 5 : 3$, $B : C = 6 : 7$ and $C : D = 14 : 9$ then the value of $A : B : C : D$

- a. 20 : 14 : 12 : 9 b. 20 : 9 : 12 : 14
c. 20 : 9 : 14 : 12 d. 20 : 12 : 14 : 9

MTP Dec 22 - Series I

- (43) If $\frac{p}{q} = \frac{2}{3}$ then the value of $\frac{2p+q}{2p-q}$

- a. $\frac{1}{7}$ b. $-\frac{1}{7}$
c. 1 d. 7

MTP Dec 22 - Series II

- (44) A sum of money is to be distributed among A, B, C, D in the proportion of 5 : 2 : 4 : 3. If C gets ₹ 1,000 more than D, what is B's share?

- a. ₹ 2,000 b. ₹ 1,500
c. ₹ 2,500 d. ₹ 1,000

MTP Jun 23 - Series I

- (45) Four persons A, B, C, D wish to share a sum in the ratio of 5 : 2 : 4 : 3. If D gets ₹ 1000 less than C, then the share of B?

- a. 2000 b. 1200
c. 2400 d. 3000

MTP Jun 23 - Series I

- (46) The mean proportional between $12x^2$ and $27y^2$

- a. $18xy$ b. $81xy$
c. $8xy$ d. $9xy$

MTP Jun 23 - Series II

- (47) The monthly incomes of A & B are in the ratio 4 : 5 are their monthly expenditures are in the ratio 5 : 7. If each saves ₹ 150 per month, find their monthly incomes.

- a. (40, 50) b. (50, 40)
c. (400, 500) d. None of these

MTP Jun 23 - Series II

- (48) Two vessels containing water and milk in the ratio 2 : 3 and 4 : 5 are mixed in the ratio 1 : 2. The ratio of milk and water in the resulting mixture.

- a. 58 : 77 b. 77 : 58
c. 68 : 77 d. None of these

MTP Jun 23 - Series II

- (49) If $(x - 9) : (3x + 6)$ is the duplicate ratio of 4 : 9, find the value of x

- a. $x = 9$ b. $x = 16$
c. $x = 36$ d. $x = 25$

MTP Dec 2023 Series I

(50) What is the value of $\frac{p+q}{p-q}$ if $\frac{p}{q} = 7$

- a. $\frac{4}{3}$ b. $\frac{2}{3}$
c. $\frac{2}{6}$ d. $\frac{7}{8}$

MTP Dec 2023 Series I

(51) If $x/2 = y/3 = z/7$, then the value of $(2x - 5y + 4z)/2y$ is

- a. $\frac{6}{23}$ b. $\frac{23}{6}$
c. $\frac{3}{2}$ d. $\frac{17}{6}$

MTP Dec 2023 Series II

(52) If four numbers $\frac{1}{2}, \frac{1}{3}, \frac{1}{5}, \frac{1}{x}$ are proportional then $x =$

- a. $\frac{6}{5}$ b. $\frac{5}{6}$
c. $\frac{15}{2}$ d. None of these

MTP Dec 2023 Series II

(53) A box contains 276 coins of 5 rupees, 2 rupees and 1 rupee. The value of each kind of coins are in the ratio 2:3:5 respectively. The number of 2 rupees coin is

- a. 52 b. 62
c. 76 d. 85

MTP Dec 2023 Series II

(54) 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

MTP June 24 Series I

(55) The students in three classes are in the ratio 2 : 3 : 5. If 40 students are increased in each class the ratio changes to 4 : 5 : 7. Originally the total number of students was

- a. 180 b. 400
c. 100 d. 200

MTP June 24 Series I

(56) A bag contains coins of denominations 1 rupee, 2 rupee and 5 rupees. Their numbers are in the ratio 4:3:2. If bag has total of Rs. 1800 then find the number of 2 rupee coins?

- a. 270 b. 230
c. 180 d. 210

MTP June 24 Series II

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

- a. 11:9 b. 8:5
c. 7:5 d. 7:4

MTP June 24 Series III

(58) P, Q and R three cities. The ratio of average temperature between P and Q is 11: 12 and that between P and R is 9:8. The ratio between the average temperature Q and R

- a. 22 : 27 b. 27 : 22
c. 32 : 33 d. None of these

MTP June 24 Series III

(59) 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. $\frac{(a+b)^3}{a-b}$

RTP Sep 24

(60) If $1/2, 1/3, 1/5$ and $1/x$ are in proportion, then the value of x will be

- a. $\frac{15}{2}$ b. $\frac{6}{5}$
c. $\frac{10}{3}$ d. $\frac{5}{6}$

MTP Sep 24 Series I

(61) What is the value of $\frac{p+q}{p-q}$ if $\frac{p}{q} = 7$

- a. $\frac{2}{3}$ b. $\frac{4}{3}$
c. $\frac{2}{6}$ d. $\frac{7}{8}$

MTP Sep 24 Series I

(62) If four no. $\frac{1}{2}, \frac{1}{3}, \frac{1}{5}, \frac{1}{x}$ are proportional then $x =$

- a. $\frac{6}{5}$ b. $\frac{5}{6}$
c. $\frac{15}{2}$ d. None of these

MTP Sep 24 Series I

(63) The ratio of number of boys and number of girls in a school is found to be 15:32. How many boys and equal number of girls should be added to bring the ratio to 2/3?

- a. 19 b. 20
c. 23 d. 27

MTP Sep 24 Series II

(64) A bag contains 23 number of coins in the form of 1 rupee, 2 rupee and 5 rupee coins. The total sum of the coins is ₹ 43. The ratio between 1 rupee and 2 rupees coins is 3 : 2, Then the number of 1 rupee coins.

- a. 12 b. 8
c. 10 d. 16

Answer Key

1 b	2 a	3 b
4 a	5 c	6 a
7 c	8 b	9 b
10 a	11 d	12 b
13 a	14 c	15 c
16 a	17 c	18 a
19 b	20 b	21 b
22 a	23 c	24 b
25 b	26 b	27 d
28 c	29 c	30 a
31 a	32 a	33 c
34 b	35 d	36 d
37 a	38 c	39 a
40 a	41 d	42 d
43 d	44 a	45 a
46 a	47 c	48 b
49 d	50 a	51 d
52 c	53 b	54 c
55 d	56 a	57 a
58 b	59 d	60 a
61 b	62 c	63 a
64 a		

INDICES

Past Exam Questions

PYQ May 18

(1) $\frac{2^n + 2^{n-1}}{2^{n+1} - 2^n}$

★

- a. $\frac{1}{2}$ b. $\frac{3}{2}$
c. $\frac{2}{3}$ d. $\frac{1}{3}$

PYQ Nov. 18

(2) $\frac{2^{m+1} \times 3^{2m-n+3} \times 5^{n+m+4} \times 6^{2n+m}}{6^{2m+n} \times 10^{n+1} \times 15^{m+3}}$

★

- a. 3^{2m-2n} b. 6
c. 1 d. None of these

PYQ June 19

(3) If $2^{x^2} = 3^{y^2} = 12^{z^2}$ then

- a. $\frac{1}{x^2} + \frac{1}{y^2} = \frac{1}{z^2}$ b. $\frac{1}{x^2} + \frac{2}{y^2} = \frac{1}{z^2}$
c. $\frac{2}{x^2} + \frac{1}{y^2} = \frac{1}{z^2}$ d. None of these

PYQ June 19

(4) If $P = x^{1/3} + x^{-1/3}$ then $P^3 - 3P =$

- a. 3 b. $\frac{1}{2} \left(x + \frac{1}{x} \right)$
c. $\left(x + \frac{1}{x} \right)$ d. $2 \left(x + \frac{1}{x} \right)$

PYQ Nov. 19

(5)

★

Value of $\left[\frac{9^{n+\frac{1}{4}} \cdot \sqrt{3 \cdot 3^n}}{3 \cdot \sqrt{3^{-n}}} \right]^{\frac{1}{n}}$

- a. 9 b. 27
c. 81 d. 3

PYQ Nov. 19

(6)

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If $X = \sqrt{3} + \frac{1}{\sqrt{3}}$ then $\left(X - \frac{\sqrt{126}}{\sqrt{42}} \right)$

$\left(X - \frac{1}{x - \frac{2\sqrt{3}}{3}} \right) = ?$

- a. $\frac{5}{6}$ b. $\frac{6}{5}$
c. $\frac{2}{3}$ d. $-\frac{3}{5}$

PYQ Nov. 20

(7)

Find the value of a from the following:

$\sqrt{(9)^{-5}} \times \sqrt{(3)^{-7}} - \sqrt{(3)^{-a}}$

- a. 11 b. 13
c. 15 d. 17

PYQ Jan. 21

(8)

Find the value of $3t^{-1} / t^{-1/3}$

- a. $\frac{3}{t^{2/3}}$ b. $\frac{3}{t^{3/2}}$
c. $\frac{3}{t^{1/3}}$ d. $\frac{3}{t^2}$

PYQ July 21

(9)

If $xy + yz + zx = -1$ then the value of

★

$\left(\frac{x+y}{1+xy} + \frac{z+y}{1+zy} + \frac{x+z}{1+zx} \right)$ is:

- a. xyz b. $-\frac{1}{yz}$
c. $\frac{1}{xyz}$ d. $\frac{1}{x+y+z}$

PYQ Dec. 21

- (10) Let $a = (\sqrt{5} + \sqrt{3})/(\sqrt{5} - \sqrt{3})$ and $b = (\sqrt{5} - \sqrt{3})/(\sqrt{5} + \sqrt{3})$. What is the value of $a^2 + b^2$?
- a. 64 b. 62
c. 60 d. 254

PYQ Dec. 21

- (11) The value of $\frac{6^{n+4} + 3^{n+3} \times 2^{n+3}}{5 \times 6^n + 6^n}$ is
- a. 232 b. 242
c. 252 d. 262

PYQ Dec. 21

- (12) If $\left(\frac{3a}{2b}\right)^{2x-4} = \left(\frac{2b}{3a}\right)^{2x-4}$, for some a and b , then the value of x is
- a. 8 b. 6
c. 4 d. 2

PYQ Dec. 21

- (13) The value of $\left(1 - \sqrt[3]{0.027} \left(\frac{5}{6}\right) \left(\frac{1}{2}\right)^2\right)$ is
- a. 11/16 b. 13/16
c. 15/16 d. 1

PYQ June 22

- (14) If $(\sqrt{3})^{18} = (\sqrt{9})^x$, find x ?
- a. 18 b. 9
c. 8 d. 19

PYQ Dec 22

- (15) By simplifying $(2a^3b^4)^6 / [(4a^3b)^2 \times (a^2b^2)]$, the answer will be:
- a. $4a^2b^3$ b. $4a^6b^4$
c. $4a^{30}b^{20}$ d. $4a^{10}b^{20}$

PYQ Jun 23

- (16) If $\sqrt[3]{a} + \sqrt[3]{b} + \sqrt[3]{c} = 0$ then the value of $\left(\frac{a+b+c}{3}\right)^3$ is equal to
- a. abc b. $9abc$
c. $1/(abc)$ d. $(1/9)abc$

PYQ Jun 23

- (17) If $x = y^a, y = z^b, z = x^c$, then the value of abc is
- a. 1 b. 2
c. 3 d. 4

PYQ Dec 21

- (18) If $2^x = 4^y = 8^z$ and $\frac{1}{2x} + \frac{1}{4y} + \frac{1}{6z} = \frac{24}{7}$, then the value of z is:
- a. $\frac{7}{16}$ b. $\frac{7}{32}$
c. $\frac{7}{48}$ d. $\frac{7}{64}$

PYQ Dec 23

- (19) If $\frac{9^n \times 3^5 \times (27)^5}{3 \times (81)^4} = 27$, then the value of n is
- a. 2 b. 0
c. 3 d. 4

PYQ Dec 23

- (20) Given $x = \frac{\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}}$ and $y = \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$. Then find the value of $\frac{1}{x^2} + \frac{1}{y^2}$
- a. 63 b. 61
c. 62 d. 60

PYQ June 24

- (21) If $2^x = 4^y = 8^z$ and $\frac{1}{2x} + \frac{1}{4y} + \frac{1}{6z} = \frac{24}{7}$ then the value of z is:
- a. 7/16 b. 7/32
c. 7/48 d. 7/64

PYQ Sep 24

- (22) What is the value of $\left(\frac{x^b}{x^c}\right)^{(b+c-a)} \times \left(\frac{x^c}{x^a}\right)^{(c+a-b)} \times \left(\frac{x^a}{x^b}\right)^{(a+b-c)}$
- a. $x^{(a+b+c)}$ b. x^{abc}
c. -1 d. 1

Answer Key

1 b	2 c	3 c
4 c	5 b	6 a
7 d	8 a	9 c
10 b	11 c	12 d
13 c	14 b	15 d
16 a	17 a	18 c
19 b	20 c	21 c
22 d		

Mock Test Paper Questions

(1) If $x = \sqrt{\sqrt{6} + 6 + (\sqrt{7 + 2\sqrt{6}})} - \sqrt{6}$ then the value of x is

- MTP May 19, ICAI SM**

$$\left(\frac{x^a}{x^b}\right)^{(a^2+ab+b^2)} \times \left(\frac{x^b}{x^c}\right)^{(b^2+bc+c^2)} \times \left(\frac{x^c}{x^a}\right)^{(c^2+ac+a^2)}$$

- MTP May 19 Series II**

(3) Simplify $\frac{2^n + 2^{n-1}}{2^{n+1} + 2^n} =$

- MTP May 19 Series II

(4) If $2^a = 3^b = 12^c$ then $\frac{1}{a} + \frac{1}{b} =$

- MTP Nov 19

(5) If $2^x = 3^y = 6^z$ then $\frac{1}{x} + \frac{1}{y} =$

- a. $\frac{1}{z}$ b. $\frac{1}{z} - \frac{1}{x}$
c. $\frac{1}{z} + \frac{1}{x}$ d. 0

MTP May 20

(6) $5^{16} + 125^5$ is divisible by which of the following

- | | | | |
|----|---|----|---|
| a. | 5 | b. | 6 |
| c. | 8 | d. | 9 |

Note: Conceptually option a and b both are correct.
As per answer key we will choose option b

(7) If $pqr = a^x$, $qrs = a^y$ and $rsp = a^z$, then find
★ the value of $(pqrs)^{1/2}$

- a. $a^{(x+y+z)}$ b. $a^{\sqrt{(x+y+z)}}$
c. $a^{\sqrt[4]{(x+y+z)}}$ d. $(a^{(x+y+z)})^{1/4}$

(8) Find the value of $(x + y)$, if

$$\star \left(x + \frac{y^3}{x^2} \right)^{-1} - \left(\frac{x^2}{y} + \frac{y^2}{x} \right)^{-1} + \left(\frac{x^3}{y^2} + y \right)^{-1} = \frac{1}{3}$$

- a. $\frac{1}{3}$ b. 3
c. $\frac{1}{2}$ d. 2

MTP March 21, PYQ May 18

(9) The Value of $\frac{2^n + 2^{n-1}}{2^{n+1} - 2^n}$ is

- a. $1/2$ b. $3/2$
c. $2/3$ d. 2

MTP March 21

(10) If $3^x = 5^y = 75^z$ then

- a. $x + y - z = 0$ b. $\frac{2}{x} + \frac{1}{y} = \frac{1}{z}$
- c. $\frac{1}{x} + \frac{2}{y} = \frac{1}{z}$ d. $\frac{2}{x} + \frac{1}{z} = \frac{1}{y}$

MTP Dec 23 Series II

(11) If $(25)^{150} = (25x)^{50}$; then the value of x will be:

- a. 5^3 b. 5^4
c. 5^2 d. 5

MTP Apr 21

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

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

MTP Oct 21

(13) Find the value of $\sqrt{6561} + \sqrt[4]{6561} + \sqrt[8]{6561}$

- a. 81 b. 93
c. 121 d. 243

MTP Oct 21

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

- a. 1 b. 3
c. $3/2$ d. $2/3$

MTP March 22

- (15) If $p = x^{1/3} + x^{-1/3}$ then find value of $3p^3 - 9p$
- a. 3 b. $1/2(x+1/x)$
c. $3(x+1/x)$ d. $2(x+1/x)$

MTP March 22

- (16) 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. $1/9$

MTP March 22

- (17) The value of
★ $\frac{x^2 - (y-z)^2}{(x+z)^2 - y^2} + \frac{y^2 - (x-z)^2}{(x+y)^2 - z^2} + \frac{z^2 - (x-y)^2}{(y+z)^2 - x^2}$ is

- a. 0 b. 1
c. -1 d. ∞

MTP March 22

- (18) If $abc = 2$ then the value of

★ $\frac{1}{1+a+2b^{-1}} + \frac{1}{1+\frac{1}{2}b+c^{-1}} + \frac{1}{1+c+a^{-1}}$ is

- a. 1 b. 2
c. 3 d. $1/2$

MTP June 22

- (19) If $(25)^{150} = (25x)^{50}$, then the value of x will be:

- a. 5^3 b. 5^4
c. 5^2 d. 5

MTP June 22

- (20) The value of

$\left(\frac{y^a}{y^b}\right)^{a^2+ab+b^2} \times \left(\frac{y^b}{y^c}\right)^{b^2+bc+c^2} \times \left(\frac{y^c}{y^a}\right)^{c^2+ca+a^2}$ is

equal to

- a. y b. -1
c. 1 d. none of these

MTP Nov 22 - Series I

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

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

MTP Nov 22 - Series I

- (22) Find The value of $\frac{3t^{-1}}{t^{-\frac{1}{3}}}$

- a. $\frac{3}{t^{\frac{2}{3}}}$ b. $\frac{3}{t^{\frac{3}{2}}}$
c. $\frac{3}{t^{\frac{1}{3}}}$ d. $\frac{3}{t^2}$

MTP Nov 22 - Series I

- (23) If $2^x \times 3^y \times 5^z = 720$ then the value of x, y, z?

- a. 4,2,1 b. 1,2,4
c. 2,4,1 d. 1,4,2

MTP Nov 22 Series II

- (24) Value of $\left[9^{n+\frac{1}{4}} \cdot \frac{\sqrt{3} \cdot 3^n}{3 \cdot \sqrt{3} \cdot 3^{-n}}\right]^{\frac{1}{n}}$

- a. 9 b. 27
c. 81 d. 3

MTP June 23 Series I

- (25) The value of $\frac{64(b^4 a^3)^6}{[4(a^3 b)^2 \times (ab)^2]}$

- a. $16a^{10}b^{20}$ b. $4a^{20}b^{10}$
c. $8a^{10}b^{20}$ d. $4a^{10}b^{20}$

MTP June 23 Series II

- (26) Value of $\frac{(a^{1/8} + a^{-1/8})(a^{1/8} - a^{-1/8}) \times (a^{1/4} + a^{-1/4})(a^{1/2} + a^{-1/2})}{(a^{1/4} + a^{-1/4})(a^{1/2} + a^{-1/2})}$ is:

- a. $a + \frac{1}{a}$ b. $a - \frac{1}{a}$
c. $a^2 + \frac{1}{a^2}$ d. $a^2 - \frac{1}{a^2}$

MTP June 23 Series II

- (27) If $(25)^{150} = (25x)^{50}$ then the value of x will be

- a. 5^3 b. 5^4
c. 5^2 d. 5

MTP Dec 2023 Series I

- (28) If $x:y = 3:4$, the value of $x^2y + xy^2 : x^3 + y^3$ is

- a. 13:12 b. 12:13
c. 21:31 d. None of these

MTP Dec 2023 Series I

- (29) If $a^x = b, b^y = c, c^z = a$, then xyz is

- a. 1 b. 2
c. 3 d. None of these

MTP Dec 23 Series II

- (30) If $x = 2 + \sqrt{3}$ and $y = 2 - \sqrt{3}$ then value of $x^2 + y^2 =$
- a. 14 b. 4
c. 2 d. 6

RTP Sep 24

- (31) If $p = x^{1/3} + x^{-1/3}$, then find value of $3p^3 - 9p$
- a. 3 b. $1/2(x + 1/x)$
c. $(x + 1/x)$ d. $2((x + 1/x))$

MTP Sep 24 Series I

- (32) If $x = 2 + \sqrt{3}$ and $y = 2 - \sqrt{3}$ then value of $x^2 + y^2 =$
- a. 14 b. 4
c. 2 d. 6

MTP Sep 24 Series II

- (33) On Simplification

C $\frac{1}{1+z^{a-b}+z^{a-c}} + \frac{1}{1+z^{b-c}+z^{b-a}} + \frac{1}{1+z^{c-a}+z^{c-b}}$
would reduce to

a. $\frac{1}{z^2(a+b+c)}$ b. $\frac{1}{z(a+b+c)}$
c. 1 d. 0

MTP Sep 24 Series II

- (34) $(18)^{3.5} \div (27)^{3.5} \times 6^{3.5} = 2^x$, then the value of x is:
- a. 3.5 b. 4.5
c. 6 d. 7

MTP Sep 24 Series II

- (35) The value of $\frac{(243)^{0.13} \times (243)^{0.07}}{(7)^{0.25} \times (49)^{0.075} \times (343)^{0.2}}$ is:
- a. $\frac{3}{7}$ b. $\frac{7}{3}$
c. $1\frac{3}{7}$ d. $2\frac{2}{7}$

MTP Sep 24 Series II

- (36) The number of prime factors in $\frac{6^{12} \times (35)^{28} \times (15)^{16}}{(14)^{12} \times (21)^{11}}$ is:
- a. 56 b. 66
c. 112 d. None of these

Answer Key

1 a	2 a	3 d
4 b	5 a	6 b
7 d	8 b	9 b
10 c	11 b	12 a
13 b	14 c	15 c

16 b	17 b	18 a
19 b	20 c	21 a
22 a	23 a	24 b
25 a	26 b	27 b
28 b	29 a	30 a
31 c	32 a	33 c
34 d	35 a	36 b

LOGARITHM

Past Exam Questions

PYQ May 18

- (1) The value of the expression :

☆ $a^{\log_a b \cdot \log_b c \cdot \log_c d \cdot \log_d a}$

a. t
b. $abcdt$
c. $(a + b + c + d + t)$
d. None of these

PYQ May 18

- (2) The value of $\log_4 9 \cdot \log_3 2$ is

a. 3 b. 2
c. 9 d. 1

PYQ Nov. 18

- (3) $\log_2 \log_2 \log_2 16 = ?$

a. 0 b. 3
c. 1 d. 2

PYQ June 19

- (4) The value of

☆ $\log_5 \left(1 + \frac{1}{5} \right) + \log_5 \left(1 + \frac{1}{6} \right) + \dots + \log_5 \left(1 + \frac{1}{624} \right)$

a. 2 b. 3
c. 5 d. 0

PYQ June 19

- (5) $\log_{2\sqrt{2}}(512) : \log_{3\sqrt{3}} 324 =$

a. 128 : 81 b. 2 : 3
c. 3 : 2 d. None of these

PYQ Nov. 19

- (6) $\log_{0.01} 10,000 = ?$

a. 2 b. -2
c. 4 d. -4

PYQ Nov. 20

- (7) If $\log_a \sqrt{3} = 1/6$ find the value of a :
 a. 9 b. 81
 c. 27 d. 3

PYQ Nov. 20

- (8) $\log 9 + \log 5$ is expressed as:
 a. $\log 4$ b. $\log 9/5$
 c. $\log 5/9$ d. $\log 45$

PYQ Jan. 21

- (9) If $\log_a(ab) = x$, then $\log_b(ab)$ is
 ☆ a. $1/x$ b. $\frac{x}{1+x}$
 c. $x/x-1$ d. None of these

PYQ July 21

- (10) If $\log_4 x + \log_{16} x + \log_{64} x + \log_{256} x = \frac{25}{6}$
 then the value of x is
 a. 64 b. 4
 c. 16 d. 2

PYQ Dec. 21

- (11) If $\log_{10} 3 = x$ and $\log_{10} 4 = y$, then the
 value of $\log_{10} 120$ can be expressed as
 a. $x-y+1$ b. $x+y+1$
 c. $x+y-1$ d. $2x+y-1$

PYQ Dec. 21

- (12) Find the value of $\log(x^6)$, if
 ☆ $\log(x) + 2\log(x^2) + 3\log(x^3) = 14$
 a. 3 b. 4
 c. 5 d. 6

PYQ June 22

- (13) $\log\left(\frac{p^2}{qr}\right) + \log\left(\frac{q^2}{pr}\right) + \log\left(\frac{r^2}{pq}\right)$ is:
 a. pqr b. 0
 c. 1 d. None of these

PYQ June 22

- (14) $\log \sqrt{3} = 6^{-1}$ base a , then ' a ' will be:
 a. 27 b. 36
 c. 15 d. 1

PYQ June 22

- (15) $\log_{\sqrt{2}} 64$ is equal to:
 a. 12 b. 6
 c. 1 d. 8

PYQ Dec 22

- (16) If $\log_{10} 2 = y$ and $\log_{10} 3 = x$, then the
 ☆ value of $\log_{10} 15$ is:
 a. $x-y+1$ b. $x+y+1$

c. $x-y-1$ d. $y-x+1$

PYQ Dec 22

- (17) $\log_3^4 \cdot \log_4^5 \cdot \log_5^6 \cdot \log_6^7 \cdot \log_7^8 \cdot \log_8^9$ equal to:
 a. 3 b. 2
 c. 1 d. 0

PYQ Jun 23

- (18) The value of $[\log_{10}(5\log_{10} 100)]^2$ is:
 a. 3 b. 2
 c. 1 d. 0

PYQ Jun 23

- (19) Given that $\log_{10} x = m+n-1$ and
 $\log_{10} y = m-n$, the value of $\log_{10}(100x/y^2)$
 is expressed in terms of m and n as
 a. $1-m+3n$ b. $m-1+3n$
 c. $m+3n+1$ d. m^2-n^2

PYQ Jun 24

- (20) If $\log_a b = 3$ and $\log_b c = 2$, then $\log_a c$ is:
 a. 5 b. 6
 c. 9 d. 1

PYQ Sep 24

- (21) $\log_2 \log_2 \log_4 256 + 2\log_{\sqrt{2}} 2$ is equal to:
 a. 3 b. 2
 c. 5 d. 7

Answer Key

1 a	2 d	3 c
4 b	5 c	6 b
7 c	8 d	9 c
10 c	11 b	12 d
13 b	14 a	15 a
16 a	17 b	18 c
19 a	20 b	21 c

LOGARITHM

Mock Test Paper Questions

MTP May 18

- (1) The value of $\log_{0.1} 0.001$
 a. 3 b. 2
 c. 4 d. $1/3$

MTP May 18

- (2) if $\log_4 x = \frac{-3}{2}$ then x is
 a. $1/8$ b. $1/4$
 c. $1/2$ d. $1/3$

MTP Nov 18

- (3) If $\log_7 \log_5 (\sqrt{x+5} + \sqrt{x}) = 0$ the value of x is
 ☆ a. 0 b. 1
 c. $1/4$ d. 4

MTP May 19

- (4) If $a = \log_{24} 12$, $b = \log_{36} 24$, $\log_{48} 36$ then prove that $1 + abc =$
 a. $2bc$ b. $2ca$
 c. $2ba$ d. $3bc$

MTP May 19 Series II

- (5) The value of $\log_{64} 512$ is
 a. 9 b. $9/2$
 c. $9/4$ d. $3/2$

MTP May 19 Series II

- (6) The value of $(\log_b a \cdot \log_c b \cdot \log_a c)^3 =$
 a. 1 b. 3
 c. $(\log_b c)^3$ d. $(\log_c b)^3$

MTP Nov 19

- (7) If $\log_9 x + \log_3 x = \frac{3}{2}$ then x is.
 a. 0 b. 3
 c. $9/4$ d. 1

MTP May 20

- (8) Given that $\log_{10} 2 = x$ and $\log_{10} 3 = y$, the value of $\log_{10} 60$ is expressed as
 a. $x - y + 1$ b. $x + y + 1$
 c. $x - y - 1$ d. none of these

MTP Nov 20

- (9) $\log_e x + \log(1+x) = 0$ is equivalent to
 ☆ a. $x^2 + x + e = 0$
 b. $x^2 + x - e = 0$
 c. $x^2 + x + 1 = 0$
 d. $x^2 + x - 1 = 0$

MTP March 21

- (10) If $x^2 + y^2 = 7xy$, then $\log \frac{1}{3}(x+y) =$ then x is
 a. $(\log x + \log y)$
 b. $\frac{1}{2}(\log x + \log y)$
 c. $\frac{1}{3}(\log x + \log y)$
 d. $3(\log x / \log y)$

MTP Apr 21

- (11) The Value $\frac{\log_3 8}{\log_9 16 \cdot \log_4 10}$ is
 a. $3 \log_{10} 2$ b. $7 \log_{10} 3$
 c. $3 \log_e z$ d. None

MTP Nov. 21

- (12) If $\log_{10} 5 + \log_{10} (5x+1) = \log_{10} (x+5) + 1$, then x is equal to
 a. 1 b. 3
 c. 5 d. 10

MTP Oct 21

- (13) Find the value of $\log \frac{x^n}{y^n} + \log \frac{y^n}{z^n} + \log \frac{z^n}{x^n}$
 a. -1 b. 0
 c. 1 d. 2

MTP March 22

- (14) Find the value of

$$\left[\log_{10} \sqrt{25} - \log_{10} (2^3) + \log_{10} (4)^2 \right]$$

 a. x b. 10
 c. 1 d. None

MTP June 22

- (15) If $x = \log_{24} 12$, $y = \log_{36} 24$, $z = \log_{48} 36$, then $xyz + 1 =$
 a. $2xy$ b. $2xz$
 c. $2yz$ d. 2

MTP Dec 22 - Series I

- (16) $\log_a \sqrt{3} = \frac{1}{6}$, find the value of a
 a. 9 b. 81
 c. 27 d. 3

MTP Dec 22 - Series I

- (17) $\log \frac{p^2}{qr} + \log \frac{q^2}{pr} + \log \frac{r^2}{pq} =$
 a. pqr b. $1/pqr$
 c. 1 d. 0

MTP Dec 22 Series II

- (18) $\log_{0.01} 10000 = ?$
 a. 2 b. -2
 c. 4 d. -4

MTP Jun 23 Series I

- (19) If $\log_3 4 \cdot \log_4 5 \cdot \log_5 6 \cdot \log_6 7 \cdot \log_7 8 \cdot \log_8 9 = x$, then find the value of x
 a. 4 b. 2
 c. 3 d. 1

MTP Jun 23 Series I

- (20) If $\frac{1}{2} \log_{10} 4 = y$ and if $\frac{1}{2} \log_{10} 9 = x$, then the value of $\log_{10} 15$
 a. $x - y + 1$ b. $x + y - 1$
 c. $x + y + 1$ d. $y - x + 1$

MTP Jun 23 Series II

- (21) $7\log\left(\frac{16}{15}\right) + 5\log\left(\frac{25}{24}\right) + 3\log\left(\frac{81}{80}\right)$ is equal
 a. 0
 b. 1
 c. $\log 2$
 d. $\log 3$

MTP Jun 23 Series II

- (22) $\log_4(x^2 + x) - \log_4(x + 1) = 2$ find x
 a. 16
 b. 0
 c. -1
 d. None of these

MTP Jun 23 Series II

- (23) 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. 1.830

MTP Dec 23 Series II

- (24) Given that $\log_{10} 2 = x$ and $\log_{10} 3 = y$ the value of $\log_{10} 120$ is expressed as
 a. $2x - y + 1$
 b. $2x + y + 1$
 c. $2x - y - 1$
 d. None of these

MTP Dec 23 Series I

- (25) The simplified value of $2\log_{10} 5 + \log_{10} 8 - \frac{1}{2}\log_{10} 4$ is
 a. $\frac{1}{2}$
 b. 4
 c. 2
 d. None of these

MTP Dec 23 Series I

- (26) ☆ If $\log\left(\frac{a+b}{4}\right) = \frac{1}{2}(\log a + \log b)$ then $\frac{a}{b} + \frac{b}{a}$
 a. 12
 b. 14
 c. 16
 d. 8

MTP Dec 23 Series II

- (27) On solving the equation $\log t + \log(t - 3) = 1$ we get the value of t as
 a. 5
 b. 2
 c. 3
 d. 0

MTP Dec 23 Series II

- (28) If $\log 2 = 0.3010$ and $\log 3 = 0.4771$, then the value of $\log 24$ is:
 a. 1.0791
 b. 1.7323
 c. 1.3801
 d. 1.8301

MTP June 24 Series I

- (29) If $\log_4(x^2 + x) - \log_4(x + 1) = 2$ then the value of x is
 a. 2
 b. 3
 c. 16
 d. 8

MTP June 24 Series I

- (30) If $\frac{a-b}{2} = \frac{1}{2}(\log a + \log b)$, the value of $a^2 + b^2$ is
 a. $6ab$
 b. $8ab$
 c. $6a^2b^2$
 d. None of these

MTP June 24 Series II

- (31) If $\log_4 x = -3/2$ Then x is
 A a. $\frac{1}{8}$
 b. $\frac{1}{4}$
 c. $\frac{1}{2}$
 d. $\frac{1}{3}$

MTP Sep 24 Series I

- (32) Given that $\log_{10} 2 = x$ and $\log_{10} 3 = y$, the value of $\log_{10} 120$ is expressed as
 A a. $2x - y + 1$
 b. $2x + y + 1$
 c. $2x - y - 1$
 d. None of these

MTP Sep 24 Series II

- (33) A $\log \frac{a^2}{bc} - \log \frac{ca}{b^2} + \log \frac{c^2}{ab} =$
 a. 0
 b. 1
 c. $\log a$
 d. None of these

MTP Sep 24 Series II

- (34) B $\frac{1}{\log_{xy}(xyz)} + \log_{yz} yz + \frac{1}{\log_{xz}(xyz)} = ?$
 ☆ a. 1
 b. 2
 c. 3
 d. None of these

MTP Sep 24 Series II

- (35) If $n = m!$ where (' m ' is a positive integer > 2) then the value of:
 A $\frac{1}{\log_2 n} + \frac{1}{\log_3 n} + \frac{1}{\log_4 n} + \dots + \frac{1}{\log_m n}$
 ☆ a. 1
 b. 0
 c. -1
 d. 2

Answer Key

1 a	2 a	3 d
4 a	5 d	6 a
7 b	8 b	9 d
10 b	11 a	12 b
13 b	14 c	15 c
16 c	17 d	18 b
19 b	20 a	21 c
22 a	23 a	24 b
25 b	26 b	27 a
28 c	29 c	30 a
31 a	32 b	33 a
34 b	35 a	