21) The sum of two numbers is 45 and the mean proportional between them is 18. The numbers are **(C)(€)(N)**

a) (15, 30) b) (32, 13)
c) (36, 9) d) (25, 20)

22) If b is the mean proportion of a and c, then:

(a + b + c) (a – b + c) = _____

a) $a^2 + b^2 - c^2$ b) $a^2 - b^2 + c^2$
c) $a^2 + b^2 + c^2$ d) $a^2 - b^2 - c^2$

MODEL 4

23) If p/q = r/s = p-r/q-s, the process is called **(€)(M19-MTP)**

a) Subtrahendo b) Addendo
c) Invertendo d) None

24) If a/4=b/5 then **(€)**

a) a+4/a-4=b-5/b+5
b) a+4/a-4=b+5/b-5
c) a-4/a+4=b+5/b-5 d) None of these

25) If a: b = c: d = e: f = ... then by addendo each of these ratios is equal to **(€)**

a) (a+ c+ e+....): (b + d + f +...)
b) (a – c – e - ...): (b – d – f - ....)
c) (a) or (b) d) (a) and (b)

MODEL 5

26) If A = B/2 = C/5, then A : B : C is: **(C) (€)**

a) 3 : 5 : 2 b) 2 : 5 : 3
c) 1 : 2 : 5 d) None

27) If x: y=2:3, Y: Z=4:3 then X: Y: Z is **(C) (€)**

a) 2:3:4 b) 4:3:2
c) 3:2:4 d) 8:12:9

28) If a: b = n_1: d_1 and b: c = n_2 : d_2 then **(€)**

a) a: b: c = n_1 d_1: n_2 d_2: d_2 d_2
b) a: b: c = n_1 d_2: n_2 d_1: d_2 d_1
c) a: b: c = n_1 n_2: d_1 n_2: d_1 d_2
d) None of these

29) If the salary of P is 25% less than Q and that of R is 20% higher than Q the Ratio of salaries of R & P **(N21-MTP)**

a) 5:8 b) 8:5 c) 5:3 d) 3:5

MODEL 6

30) If x: y = 3:5, then find (1/x+1/y): (1/x-1/y)? **(C)(N21-MTP1) (N)**

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

31) What is the value of $\frac{p+q}{p-q}$ if $\frac{p}{q} = 7$ is: **(C) (N) (N23-MTP1)(S24-MTP1)**

a) 4: 3 b) 2: 3 c) 2: 6 d) 7: 8

32) If a: b = 3: 4, the value of (2a+3b): (3a+4b) is: **(C) (€) (M20-MTP)**

a) 18: 25 b) 8: 25
c) 17: 24 d) 54: 25

33) If A: B = 2:5, then (10A + 3B): (5A + 2B) is: **(C) (M22-MTP1) (N)**

a) 7:4 b) 7:3 c) 6:5 d) 7:2

34) If p/q = -2/3 then the value of (2p+q)/(2p-q) is: **(C)(M21-MTP2) (N)**

a) 1 b) -1/7 c) 1/7 d) 7

35) If p/q = 2/3 then the value of (2p+q)/(2p-q) is: **(C)(N22-MTP1)**

a) 1/7 b) -1/7 c) 1 d) 7

36) If x: y = 3: 4, the value of $x^2y + xy^2$: $x^3 + y^3$ is: **(N23-MTP1) (C) (€)**

a) 13: 12 b) 12: 13
c) 21 : 31 d) None

37) If x:y = 4: 6 and 2: x = 1: 2 the y = _ **(C) (J22)**

a) 4 b) 6 c) $\frac{1}{3}$ d) $\frac{3}{2}$

38) If x/2 = y/3 = z/7, then the value of (2x - 5y + 4z)/2y is: **(N23-MTP1) (C) (€)**

a) 6/23 b) 23/6
c) 3/2 d) 17/6

39) If $\frac{a}{3} = \frac{b}{4} = \frac{c}{5}$ then $\frac{2a+3b+2c}{4a-b+2c}$ is: **(C) (M19-MTP)**

a) 14/9 b) 17/9
c) 19/9 d) 19/7

40) What must be added to each of the terms of ratio 49:68 so as to become 3:4? **(C)(N22-MTP1) (D23-MTP2)**

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

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53) A bag contains 25 paise, 10 paise and 5 paise coins in the ratio 3:2:1. The total value is ₹ 40, the number of 5 paise coins is? **(C)(J22) (N22-MTP1)**

a) 45 b) 48 c) 40 d) 20

54) A bag contains coins of denominations of 1 rupee, 2 rupee and 5 rupees. Their numbers are in the ratio 4:3:2 . If bag has a total of Rs. 1800. then find the number of 2-rupee coins? **(N)(J24-MTP1)(C)**

a) 270 b) 230 c) 180 d) 210

55) The ratio of no. of boys and the no. of girls in a school is found to be 15: 32. How many boys and equal no. of girls should be added to bring the ratio to 2/3? **(C)(D20)(S24-MTP1)**

a) 20 b) 19 c) 23 d) 27

C.Q: How many boys and equal no. of girls should be added to bring the ratio to 3/4?

56) 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? **(N)(J24-MTP1)**

a) 180 b) 400 c) 100 d) 200

57) An employer reduces the number of employees in the ratio of 9:8 and increases their wages in the ratio of 14:15. In what ratio is the wages will decrease? **(C)**

a) 20:22 b) 20:33
c) 21:20 d) None

58) A and B can do a piece of work in 10 days, B and C in 15 days C and A in 20 days, then C alone can do the same work in how many days? **(C)**

a) 120 days b) 60 days
c) 30 days d) 80 days

MODEL 8

59) If x varies inversely with Y and if Y = 3, then $x = 8$. The value of Y when $x = 2$ is: **(C)**

a) 24 b) 18
c) 12 d) None

60) If x is inversely related with square of y for x = 1 and y = 2, then find the value of x when y=6? **(C)**

a) 3 b) 9 c) 1/3 d) 1/9

61) If $x \propto a^2$, then $a \propto$

a) x^4 b) $\sqrt{x}$
c) $\frac{1}{\sqrt{x}}$ d) None

62) If $x \propto \frac{1}{\sqrt{a}}$, then $a \propto$

a) x^2 b) $\sqrt{x}$ c) $\frac{1}{x}$ d) $\frac{1}{x^2}$

63) If x is proportional directly to Y and inversely with z; y = 5, z = 9 then $x = \frac{1}{6}$. The relation among x, y, z is:

a) $x = \frac{3y}{10z}$ b) $x = \frac{10z}{3y}$
c) $x = \frac{5y}{3z}$ d) None of these

MODEL 9

64) The monthly incomes of A& B are in the ratio 4: 5 and their monthly expenditures are in the ratio 5 : 7. If each saves ₹ 150 per month, find their monthly incomes. **(C) (M23-MTP2)**

a) (40; 50) b) (50; 40)
c) (400; 500) d) None

65) The incomes x and y are in the ratio 3: 2 and their expenditures are in the ratio 5 : 3. If each saves Rs.1500 then Y's income is: **(S24)(C)**

a) 5000 b) 6000
c) 7000 d) None

C.Q: What is Y's expenditure?

66) Three Employees A, B and C of a firm receive variable incentive money in the ratio 3:4:5. Then the Management also gave a fixed incentive of ₹4,000 to each of them. As a result, now the total incentive amount of A, B and C becomes in the ratio 5:6:7. How much amount did B get as variable incentive? **(N)(JAN25)**

a) ₹ 2,000 b) ₹ 4,000
c) ₹ 6,000 d) ₹ 8,000

41) The number which when subtracted from each of the terms of the ratio 19: 31 reducing it to 1: 4 is (C) (€)

a) 15 b) 5
c) 1 d) None

42) The ratio of two numbers is 7: 10 and their difference is 105. The numbers are: (C) (€)

a) (200, 305) b) (185, 290)
c) (245, 350) d) None of these

43) The ages of two persons are in the ratio 5: 7, eighteen years ago their ages were in the ratio of 8: 13, their present ages (in years) are: (J24-MTP1)(C)

a) 50, 70 b) 70, 50
c) 40, 56 d) None

44) The sum of the squares of three numbers is 116 and their ratio is 2: 3: 4. The numbers are: (C)

a) 2,3,4 b) 4,6,8
c) 4,9,16 d) 8,12,16

45) The ratio of the prices of two houses was 16: 23. Two years later when the price of the first has increased by 10% and that of the second by Rs.477, the ratio of the prices becomes 11: 20. Find the original prices of the two houses. (C) (€-Ex) (M20-MTP)

a) Rs.848, Rs.1219 b) Rs.880, Rs.1230
c) Rs.836, Rs.1125 d) None of these

C.Q: How much price of 2nd house after increment.

MODEL 7

46) 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? (C) (M21-MTP2) (N)

a) 200 b) 250 c) 150 d) 100

C.Q: Find number of boys in the school?

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

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

48) Kanchan started a business investing Rs. 9000. After five months, Sameer joined with a capital of Rs. 8000. If at the end of the year, they earn a profit of Rs. 6970, then what will be the share of Sameer in the profit? (C) (€)

a) Rs. 1883.78 b) Rs. 2380
c) Rs. 3690 d) Rs. 3864

49) Simran Started a software business by investing Rs.50, 000. After six months, Nanda joined her with capital of Rs. 80,000. After three years, they earned a profit of Rs.24,500. What was Simran's share in the profit? (C) (€)

a) Rs.9423 b) Rs.10500
c) Rs.12,500 d) Rs.14,000

50) A, B and C enter into partnership by investing in the ratio of 3:2:4. After one year, B invests another Rs.2,70, 000 and C, at the end of 2 years, also invests Rs.2,70, 000. At the end of three years, profits are shared in the ratio of 3:4: 5. Find the initial investment of each.

a) 2,70,000 : 1,80,000; 3, 60,000 (C) (€)
b) 2,70,000 : 1,50,000; 3, 60,000
c) 2,50,000 : 1,80,000; 3, 60,000
d) 2,70,000 : 1,80,000; 3, 00,000

51) A sum of Rs.86700 is to be divided amor A, B and C in such a manner that for ever rupee that A gets, B gets 90 paise and for every rupee that B gets, C gets 110 paise. B's share is: (C)

a) Rs.26010 b) Rs.27000
c) Rs.30000 d) None

C.Q: A's share is:

52) 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 coins is: (C)(D23-MTP2) (N)

a) 52 b) 60 c) 76 d) 85