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

a. 20

b. 30

c. 38

d. 48

e. 52

2. Rs. 73689 are divided between A and B in the ratio 4:7. What is the difference between thrice the share of A and twice the share of B?

a. Rs. 36699

b. Rs. 46893

c. Rs. 20097

d. Rs. 26796

e. Rs. 13398

3. The total number of students in a school is 31700. If the ratio of boys to the girls in the school is 743:842 respectively, what is the total number of girls in the school?

a. 14860

b. 16480

c. 15340

d. Cannot be determined

e. None of these

Direction (4-6):Study the following information and answer the questions that follow:

A sum of Rs. 10,980 is to be divided amongst A, B and C in the ratio 7:3:5 respectively

4. How much is C's share?

a. Rs. 3,600

b.Rs. 3,006

c. Rs. 3,650

d.Rs. 3,660

e. Rs. 3,124

5. What is the sum of B's and C's share? a. Rs. 5,685

b.Rs. 5,865

c.Rs. 5,897

d.Rs. 5,873

e.Rs. 5,856

6. What is the difference between A's and B's shares? a. Rs. 2,196

b. Rs. 2,928

c.Rs. 2,961

d.Rs. 2,289

e.Rs. 2,982

7. A sum of Rs. 221 is divided among X, Y, and Z such that X gets Rs. 52 more than Y. Y gets Rs. 26 more than Z. The ratio of the shares of X, Y, and Z respectively is

a. 9:5:3

b. 9:3:5

c. 5:9:3

d. 10:6:5

e. None of these

8. If 50% of a certain number is equal to 3/4th of the other number, what is the ratio between the number?

a. 3:2

b. 2:5

c. 5:2

d. 3:4

e. None of these

9.Ratio of the earning of A and B is 4: 7 respectively. If the earnings of A increase by 50% and the earnings of B decrease by 25%, the new ratio of their earnings becomes 8:7 respectively. What are A's earnings?

a. 26000

b. 28000

c. 21000

d. Data inadequate

e. None of these

10.The cost of making an article is divided between materials, labour, and overheads in the ratio of 3:4:1. If the material cost Rs. 234, then the labor cost? a. Rs. 176

b. Rs 312

a. 8

b. 6

c. 4

d. 5

e. None of these

14.The price of sugar is increased by 20%. If the expenditure is not allowed to increase, the ratio between the reduction in consumption and the original consumption is?

a. 1:3

b. 1:4

c. 1:6

d. 1:5

c. Rs. 78

d. Rs. 390

e. None of these

11.The ages of Mira, Tina, and Sania are in the ratio of 6: 4: 7 respectively. If the sum of their ages is 34 years, what is Sania's age?

a. 12 yr.

b. 10 yr.

c. 18 yr.

d. 8 yr.

e. None of these

12.In a school the number of boys and that of the girls are in the respective ratio of 2:3. If the number of boys is increased by 20% and that of girls is increased by 10%, what will be the new ratio of the number of boys to that of the girls?

a. 14:5

b. 5:8

c. 13:4

d. Data inadequate

e. None of these

13.When x is subtracted from the numbers 9, 15, and 27, the remainders are in continued proportion. What is the value of x?

e. None of these

15.The ratio between the two numbers is 2:3. If each number is increased by 4, the ratio between then become 5:7, the difference between numbers. a. 8

b. 6

c. 4

d. 2

e. None of these

16.Seats for Mathematics, Physics, and Biology in a school are in the ratio 5: 7: 8. There is a proposal to increase these seats by 40%, 50%, and 75% respectively. What will be the ratio of increased

seats?

a. 2:3:4

b. 6:7:8

c. 6:8:9

d. Cannot be determined

e. None of these

17.The salaries A, B, and C are in the ratio 2 : 3: 5. If their salaries were increased by 15%, 10%, and 20% respectively, what will be the new respective ratio of their salaries?

a. 3:3:10

b. 23:33:60

c. 10:11:20

d. Cannot be determined

e. None of these

18.Production of company A is 120% of the production of company B and 80% of the production of company C. What is the ratio between the productions of companies A, B, and C respectively?

a. 6:5:9

b. 6:5:4

c. 12:10:15

d. 10:12:15

e. None of these

19.The ratio between 2 numbers is 4 : 3 and their L.C.M. is 264. The second number is

a. 66

b. 44

c. 55

d. 88

e. None of these

20.Two numbers are respectively 30% and 20% more than a third number. Find the ratio of two numbers.

a. 12: 13

b. 13: 12

c. 3: 2

d. 2 : 3

e. None of the above

21.What number has to be added to each term of 4: 7 to make the ratio 5: 6?

a. 13

b. 12

c. 10

d. 11

e. None of these

22.If a : b = 9 : 5 and b : c = 7 : 4, then a : b : c = ?

a. 14 : 10 : 17

b. 35: 63: 20

c. 63: 35: 20

d. 20: 36: 63

e. None of the above

23.In the 45 liters mixture of milk and water, the ratio of milk and water is 5: 4. Find the quantity of water required to be added so that the resultant mixture will be in the ratio 4: 5.

a. 7.75 litres

b. 11.25 litres

c. 9.25 litres

d. 12.50 litres

e. None of these

24.Two natural numbers are in the ratio of 4: 7 and their product is 112. Find both the numbers. a. 4 and 7

b. 8 and 14

c. 12 and 21

d. 16 and 28

25.A starts a business with Rs.3500. After 5 months, B joins with A as his partner. After one year the profit is divided in the ratio 2 : 3. What is B's contribution to capital?

a. Rs.8000

b. Rs.8500

c. Rs.9000

d. Rs.7500

26.The monthly income of A and B are in the ratio of

4 : 3 and their monthly expenditure is in the ratio of 3: 2. If each of them saves Rs.6000 per month, the income of B is

a. 12000

b. 24000

c. 18000

d. 36000

27. If you are asked to divide Rs. 13950 among three of your friends, such that, 2nd friend should get double of 1st friend and 3rd friend should get Rs. 50 less than the double of 2nd friend's share. How much you'll have to give your 1st friend?

a. Rs. 2010

b. Rs. 2050

c. Rs. 1950

d. Rs. 2000

e. None of the above

28. The fourth proportional to 8, 12, and 16 is:

a. 24

b. 32

c. 20

d. None of these

29.Incomes of two companies A and B are in the ratio of 5:8. Had the income of company A been more by Rs.25 lakh, the ratio of their incomes would have been 5:4. What is the income of company B? a. Rs.80 lakh

b. Rs.50 lakh

c. Rs.40 lakh

d. Rs.60 lakh

e. None of these

30.Salaries of A, B, and C were in the ratio 3:5:7 respectively. If their salaries were increased by 50%, 60%,

equal to 6 times Birju's share which is equal to 8 times Makhon's share. How much Sanju got? a. 124

b. 248

c. 224

d. 186

e. None of these

32. Salaries of Rajesh and Sunil are in the ratio of 2:3. If the salary of each one is increased by Rs.4000 the new ratio becomes 40:57. What is Sunil's present salary?

a. Rs.17000

b. Rs.20000

c. Rs.25500

d. Cannot be determined

e. None of these

33.In the squadron of Indian Air Force the ratio of Sukhoi is to Mig and Jaguar together is 5:7 and the ratio of Jaguar is to Sukhoi and Mig together is 1:2. Find the ratio of Sukhoi and Mig?

a. 2:7

b. 3:5

c. 3:1

d. 5:3

e. None of these

34.The no. of pens in three different pencil boxes in the ratio of 1:2:3. Find the ratio in which the number of pens in the first and the second boxes must be increased so that the new ratio becomes 3:2:1.

a. 1:3

b. 2:1

c. 2:3

d. 3:4

e. None of these

35.The sum of the three numbers is 98. If the ratio between the first and second be 2:3 and that between the second and the third be 5:8, then find the second number.

a. 42

b. 50

c. 35

d. 30

36.A man spends his two months' income in three months, if his monthly income is Rs. 6000, then his annual saving is:

a. 18000

b. 24000

c. 12000

d. 36000

37.The sum of 1/5th of the number and 25% of another number is equal to 40% of the first number. What is the ratio of the first number and the second number?

a. 4 : 3

b. 5: 2

c. 5: 4

d. 6: 5

38.A bucket contains a mixture of two liquids A & B in the proportion 5 : 3. If 16 liters of the mixture is replaced by 16 liters of liquid B, then the ratio of the two liquids becomes 3: 5. How much of the liquid B was there in the bucket?

a. 16.5 l

b. 18 l

c. 14.5 l

d. 15 l

e. None of these

39.In a college the number of students studying Arts, Commerce and Science are in the ratio of 3: 5: 8 respectively. If the number of students studying Arts, Commerce, and Science is increased by 20%, 40%, and 25 % respectively, what will be the new ratio of students in Arts, Commerce and Science respectively? a. 4:8:5

b. 3:10:10

c. 4:18:5

d. 32:35:25

e. None of these

40.The students in three classes are in the ratio 4: 6 : 9. If 12 students are increased in each class, the ratio changes to 7 : 9 : 12. Then the total number of students in the three classes before the increase is? a. 95

b. 76

c. 100

d. 114

e. None of these

41. Some apples are to be distributed among some boys. If two more apples are available, each boy gets six apples. If five fewer apples are available, each boy gets five apples. How many apples are available? a. 30

b. 40

c. 45

d. 50

e. None of these

42.Reena and Shaloo are partners in a business. Reena invests Rs. 35,000 for 8 months and shaloo invests Rs.42,000 for 10 months. Out of a profit of Rs.31,570. Reena's share is

a. Rs.9471

b. Rs.12,628

c. Rs.18,040

d. Rs.18,942

e. None of these

43.A and B enter into a partnership and invested Rs. 1400 and Rs. 1800 respectively. If they split half of the profit equally for their efforts and the remaining balance in the ratio of their investments and B got Rs. 47 more than A. what was the profit made by the company?

a.Rs. 376

b.Rs. 652

c.Rs. 752

d.Rs. 954

e.Rs. 854

44.A starts a business with Rs.3500 and after 5 months, B joins with A as his partner. After a year, the profit is divided in the ratio 2 : 3. What is B's contribution in the capital?

a. Rs.7500

b. Rs.8000

c. Rs.8500

d. Rs.9000

e. None of these

45.A started a business with a capital of Rs. 20000 Four months later B joined as a partner with a capital of Rs. 10000. What is the share of A out of total profit of Rs. 4000 at the end of the year.

a.Rs. 5000

b.Rs. 1200

c.Rs. 3000

d.Rs. 1800

e.Rs. 2850

46.Three partners started a business with Rs. 80000. At the end of the year, they receive Rs. 1800, Rs.3000 and Rs.4800 as profit. Find the investment of the second person.

a.Rs. 27000

b.Rs. 40000

c.Rs. 15000

d.Rs. 32000

e. None of these

47.M and N start a business with Rs. 5000 and Rs. 7000 respectively. After 4 months O joins the business with Rs. 9000. At the end of the year, O gets Rs. 1800 as his share of profit then find the difference between profit got by N and M?

a.Rs. 600

b.Rs. 300

c.Rs. 1200

d.Rs. 1500

e.Rs. 1250

48.A and B started a joint business. Investment of A was six times than that of B and tenure of investment by A was also four times that of B. If B got a profit of Rs. 8000 then, the total profit was?

a.Rs. 240000

b.Rs. 160000

c.Rs. 200000

d.Rs. 280000

e.Rs. 245000

49.A and B established a firm together. A's investment was thrice that of B's. A also kept the investment for twice as much time as B. If B got a profit of 4000, what was the total profit? a.30,000

b.28,000

c.40,000

d.45,000

50.Riya and sima invested in a partnership business.

Riya invests Rs. 70,000 for 8months and sima invests Rs. 84,000 for 10 months. Out of a profit of Rs. 63140, Riya's share is:

a. Rs 25000

b. Rs 25256

c. Rs 24500

d. Rs 25270

e. None of these

Answer with Solution

Solution (1-50)

1. B

2. E

C's share = (5 /15) × 10980 = Rs. 3660

5. E

(B + C)'s share = [(3+5) / 15] × 10980

=(8 /15) × 10980 = Rs. 5856

6. B

Required difference = Rs. [(7-3) / 15] × 10980 = Rs. 2928

7. A

221 is divided among X, Y and Z.

Y gets Rs.(Z + 26)

X gets Rs. (Z + 26 + 52) = Rs. (Z + 78)

According to the question

Z + 78 + Z +26 + Z = 221

=> 3Z + 104 = 221

=> Z = 117/3

=> Z = 39

X = 39 + 78 = 117

Y = 39 + 26 = 65

Z = 39

117 : 65 : 39 = 9 : 5 : 3

8. A

Let the one number be x and another number y

Then, 50% of x = 3y/4

=> 50 * x/100 = 3y/4

=> x/y = 3/2 = 3:2

9. D

Let the original earnings of A and B be Rs. 4x and Rs. 7x.

New earnings of A = 150% 0f Rs. 4x = (150/100 * 4x) = Rs. 6x

New earnings of B = 75% of Rs. 7x = (75/100 * 7x) = Rs. 21x/4

6x:21x/4 = 8:7

This does not give x. So, the given data is inadequate.

10. B

Cost of making is divided among material :labour : overheads = 3: 4: 1

2 X share of B – 3 X share of A.

= 2 X 7/11 - 3 X 4/11

= 14/11 - 12/11 = 2/11

=> 2/11 * 73689 = 6699 X 2 = 13398.

3. E

Boys : Girls = 743 : 842

Total number of students = 31700

Number of girls = [842 / (743 +842)] × 31700 = (842 / 1585) × 31700

= 16840

4. D

Total material cosy = Rs. 234

3x = 234

=> x = 78

=> Labor cost = 4 X 78 = Rs. 312

11. E

Ratio of the ages of Mira, Tina and Sania = 6: 4: 7

Let there age be 6x: 4x: 7x

According to the question,

6x + 4x + 7x = 34

=> 17x = 34

=> x = 2

Sania age = 7x = 7 *2 = 14 yr.

12. E

Ratio of boys and girls in the school = 2:3

New, increased value = 2 * 120/100: 3 * 110/100= 240 : 330

=>24 : 33 = 8:11

13. E

From the given question:

(9 – x)/(15 – x) = (15 – x)/(27 – x)

=> (15 – x)2 = (9 – x)(27 – x)

=> 225 – 30x + x2 = 243 + x2 - 36x

=> 6x = 18

=> x = 3

14. C

Let the price of sugar was Rs. x per kg.

After increase in price, new price per kg = x + x * 20/100 = 6x/5

For Rs. 6x/5 we get 1 kg. Of sugar

For Rs. 1 we get 5/6x kg. Of sugar

For Rs. x we get 5/6 kg. Of sugar

Decrease in consumption of sugar = 1 - 5/6 = 1/6

So, the required ratio = 1/6:1 = 1/6

15. A

Ratio between two numbers = 2:3

Let x is the common factor between the

ratio (2x + 4)/(3x + 4) = 5/7

=> 14x + 28 = 15x + 20

=> x = 8

=> Required difference = (3x-2x) = 8

16. A

let the number of seats for Mathematics, Physics and Biology be 5x, 7x and 8x respectively.

Number of increased seats are (140% of 5x), (150% of 7x) and (175% of 8x).

⇒ (140/100) * 5x : (150/100) * 7x : (175/100) * 8x

⇒ The required ratio =7x : 21x/2 : 14x

⇒14x : 21x : 28x

⇒2 : 3 : 4

17. B

Ratio of salaries of A, B and C = 2:3:5

Ratio after increasing in the value

= 2 * 115/100 : 3 * 110/100 : 5 * 120/100

= 230: 330: 600

= 23:33:60

18. C

Let the production of company B be x and that of company C be y

Production of company A is 120% of B = 120% of x = 6x/5

Production of company A is 80% of C = 80% of y = 4y/5

=> 6x/5 = 4y/5

=> y = 3x/2

Required ratio = 6x/5 : x : y = 6x/5 : x : 3x/2 = 12 : 10 : 15

19. A

Let the numbers be 4x and 3x

Their L.C.M. is 12x

And it is given as L.C.M. = 264.

Therefore, 12x = 264

Which gives, x = 22

Therefore, the 2nd number becomes,

3x = 3*22

=66

20. B

Let the 3rd number be x

As per statement,

1st number = (130/100) * x

2nd number = (120/100) * x

Their ratio = [(130/100) * x] : [(120/100) * x]

= 13 : 12

21. D

Let the number to be added be x

As per statement,

(4 + x) / (7 + x) = 5/6

Cross multiplying, we get

24 + 6x = 35 + 5x

6x – 5x = 35 – 24

x = 11

22. C

a : b = 9 : 5 and b : c = 7 : 4

In order to combine these ratios into a proportion,

We need to have value of b as same in both the ratios

L.C,M. of 5 and 7 is 35,

So, multiplying 1st ratio by 7, we get

a : b = 63 : 35

And multiplying 2nd ratio by 5, we get

b : c = 35 : 20

Therefore, a : b : c = 63 : 35 : 20.

23. B

The ratio of milk and water is 5 : 4, The total quantity is 45 litres.

9’s=45=>1’s=5

So Milk=25, Water=20

25/(20+x)=4/5 (Here x is the quantity of water to be added)

=>x=11.25 litres

Formula Method:

Quantity of water required to be added

X (ad – bc)/c (a+b) = 45(5×5 – 4×4)/ 4(5+4)

= 45×9/4×9 = 11.25 Litres

24. B

Let, Natural numbers are 4x and 7x, then

4x * 7x = 112

28x2 = 112

x2 = 4

=> x = 2

=> Numbers are 8 and 14

25. C

Let B invested Rs. x

Therefore, Ratio of their investment = 12 * 3500 : x * 7

Since, the profit is divided in the ratio = 2 : 3

Therefore, (12 * 3500) / 7x = 2 / 3

=> B’s contribution = x = Rs.9000

26. C

Let Monthly income of A = 4x

And, Monthly income of B = 3x

Also, Monthly expenditure of A = 3y

And, Monthly expenditure of B = 2y

Since the both save Rs.6000 each per month,

Therefore, 4x – 3y = 6000

Also, 3x – 2y = 6000

By solving the equations, we get,

x = 6000 and y = 6000

=> Monthly income of B = 3x = 3 * 6000 = Rs.18000

27. D

Let the ratio be x : 2x : 4x – 50

x + 2x + 4x – 50 = 13950

=> x = Rs. 2000 = share of 1st friend

28. A

Let the 4th proportional be x

Then, 8/12 = 16/x Solving the given equation = > x = 24 **29. C**

Let the incomes be 5x and 8x

And, (5x+25)/8x = 5/4

20x+100 = 40x

X = 5

Income of company B = 8x = Rs.40 lakh

30. E

Let the salaries of A, B, C be 300k, 500k and 700k respectively.

After increment salary of A = 300k + 50% of 300k = 450k

B = 500k + 60% of 500k = 800k

C = 700k + 50% of 700k = 1050k

Hence the new ratio is = 450k : 800k : 1050k = 9:16:21

31. A

Solution: 12 Sanju = 6 Birju = 8 Makhon (LCM = 24)

So, Sanju= 2 , Birju= 4, Makhon = 3

Sanju: Birju: Makhon =2:4:3

Therefore, Sanju's share is 2/9*558 = 124.

32. E

Let the salaries of Rajesh and Sunil be 2x and 3x respectively, then

A: B = 2:3

(2x+4000)/(3x+4000) = 40/57

114x + 228000 = 120x + 160000

6x = Rs.68000

3x = Rs.34000

33. D

S : (M+J) = 5:7

=> 7S = 5M + 5J …. (1)

J:(S+M) = 1:2

=> 2J = S+M …. (2)

By solving 1 and 2

S:M:J = 5:3:4

So, S:M = 5:3

34. B

let the no. of pens in 1st, 2nd and 3rd pencil box be x, 2x and 3x respectively and let the required no. be 3y, 2y and y.

The quantity f pens in the third pencil box would remain the same, hence

3x=y or x =(y/3)

Quantity of pens in the boxes originally is x, 2x and 3x

When x=(y/3), hence quantity is x=(y/3), 2x=(2y/3), 3x=y

i.e (y/3), (2y/3), y

The required number of pens is 3y, 2y and y in

Increase in 1st box=3y-(y/3)=(8/3)y&

Increase in 2nd box = 2y-(2y/3)=(4/3)y

Ratio of increase = (8y/3)L4/3)y=2:1

35. D

Let three numbers be A, B and C

B: C = 5:8

A: B: C = 10: 15: 24

And A+B+C = 98

The second number is = 98/ (10 + 15 + 24) = 30

36. B

If he spends two months income in three months it means he saves third month income in three month

He saves 6000 in every three months. So in 1 year he saves 6000 X 4 = Rs. 24000

37. C

Let the numbers be 100A and 100B then,

20A + 25B = 40A

25B = 20A

A/B = 5/4

100A : 100B

500 : 400

38. D

Let bucket contains 5x and 3x of liquids A and B respectively.

When 16 litres of mixture is replaced, A and B has a mixture is

[5x – (5/8)*16] = (5x – 10)

[3x – (3/8)*16] = (3x – 6)

Ratio (5x – 10)/(3x – 6+16) = 3/5

(5x – 10)/(3x +10) = 3/5

X=5.

So, quantity of liquid B initially,15

39. E

Let the number of students in Arts, Commerce and Science be 3x, 5x and 8x respectively.

After, increasing their respective numbers,

Required ratio is

=> 3x * 120/100 : 5x * 140/100 : 8x * 125/100

= 360 : 700 : 1000

= 18 : 35 : 50

40. B

Let the original number of students be 4x, 6x and 9x.

Now, according to the question,

(4x + 12)/(6x + 12)=7/9

⇒ 42x + 84 = 36x + 108

⇒ 42x – 36x = 108 – 84

⇒ 6x = 24

⇒ x = 4

∴Required number of students = 4x + 6x + 9x = 19x = 19 × 4 = 76

41. B

Solution: suppose no. of apples = x

So, no. of students – (x+2)/6 = (x-5)/5; => x=40 **42. B**

Ratio of their shares =(35000×8):(42000×10)

= 2 : 3

Reena’s share = Rs.(31570 ×2/5) = Rs.12628.

43. C

Ratio of investment of A and B is 7: 9

Total profit = K

$$\frac{9}{16} \times \frac{K}{2} - \frac{7K}{16 \times 2} = 47$$

$2K = 47 \times 16 \times 2$

K = Rs. 752

44. D

Let B's capital be Rs.x.

Then, 3500×12 / 7x=2/3

3500×12×3=2×7x

⇔14x = 126000

x = 9000

Ratio of their shares = (70000 x 8) : (84000 x 10) = 2 : 3.

Reena's share = Rs.63140 x 2/5 = Rs. 25256

45. C

46. E

The ratio of profit of the three persons = 1800 : 3000 : 4800 = 3 : 5 : 8

Investment of the second person = (5/16) × 80000 = Rs. 25000

47. A

48. C

49. B

Let B's investment= X then A's investment= 3X

let'stim for B = t then, A's time= 2t

A:B

3X x 2t : X x t

6:1

B's share= 1/7 x total = 4000

Total=28,000

50. B