1. Questions

Following questions contain two statements as statement I and statement II. You have to determine which statement/s is/are necessary to answer the question and give answer as,

Find the speed of the boat in still water.

Statement I: The speed of the boat in still water is 2 times the speed of the current.

Statement II: The time taken by the boat to cover 38 km in upstream is equal to the time taken by the boat to cover 114 km in downstream.

a. The data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
b. The data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
c. The data either in statement I alone or in statement II alone is sufficient to answer the question
d. The data in both statements I and II together are not sufficient to answer the question
e. The data in both statements I and II together are necessary to answer the question

2. Questions

Find the area of the square if the ratio of the length to the breadth of the rectangle is 8:5.

Statement I: The perimeter of the rectangle is 14 cm more than that of the square.

Statement II: The length of the rectangle is 10 cm more than the radius of the circle whose perimeter is 88 cm.

a. The data in both statements I and II together are necessary to answer the question
b. The data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
c. The data either in statement I alone or in statement II alone is sufficient to answer the question
d. The data in both statements I and II together are not sufficient to answer the question
e. The data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

3. Questions

A bag contains black, pink and yellow balls in the ratio of 1:3:1 respectively. Find the total number of balls in the bag.

Statement I: Two balls are randomly drawn from the bag and the probability of selecting a black and a pink ball is 1/4.

Statement II: The probability of drawing a yellow ball from the bag is 1/5.

a. The data in statement I alone is sufficient to answer the question, while the data in statement II alone

is not sufficient to answer the question

b. The data in both statements I and II together are not sufficient to answer the question

c. The data either in statement I alone or in statement II alone is sufficient to answer the question

d. The data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

e. The data in both statements I and II together are necessary to answer the question

4. Questions

Moni invested Rs.15000 partially in two different schemes A and B which offer simple interest at the rate of 6% and 8% per annum respectively. Find the amount invested by Moni in scheme A.

Statement I: The interest earned from scheme A after 2 years is Rs.440 less than the interest earned from scheme B after 2 years.

Statement II: The total interest earned from both the schemes after 2 years is Rs. 2120.

a. The data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

b. The data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

c. The data in both statements I and II together are not sufficient to answer the question

d. The data either in statement I alone or in statement II alone is sufficient to answer the question

e. The data in both statements I and II together are necessary to answer the question

5. Questions

Anil sold an article to a customer. Find the profit/loss percentage earned by Anil.

Statement I: Anil marked the article by 25% above its cost price.

Statement II: The ratio of the cost price to the selling price of the article is 4:5.

a. The data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question

b. The data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question

c. The data in both statements I and II together are not sufficient to answer the question

d. The data either in statement I alone or in statement II alone is sufficient to answer the question

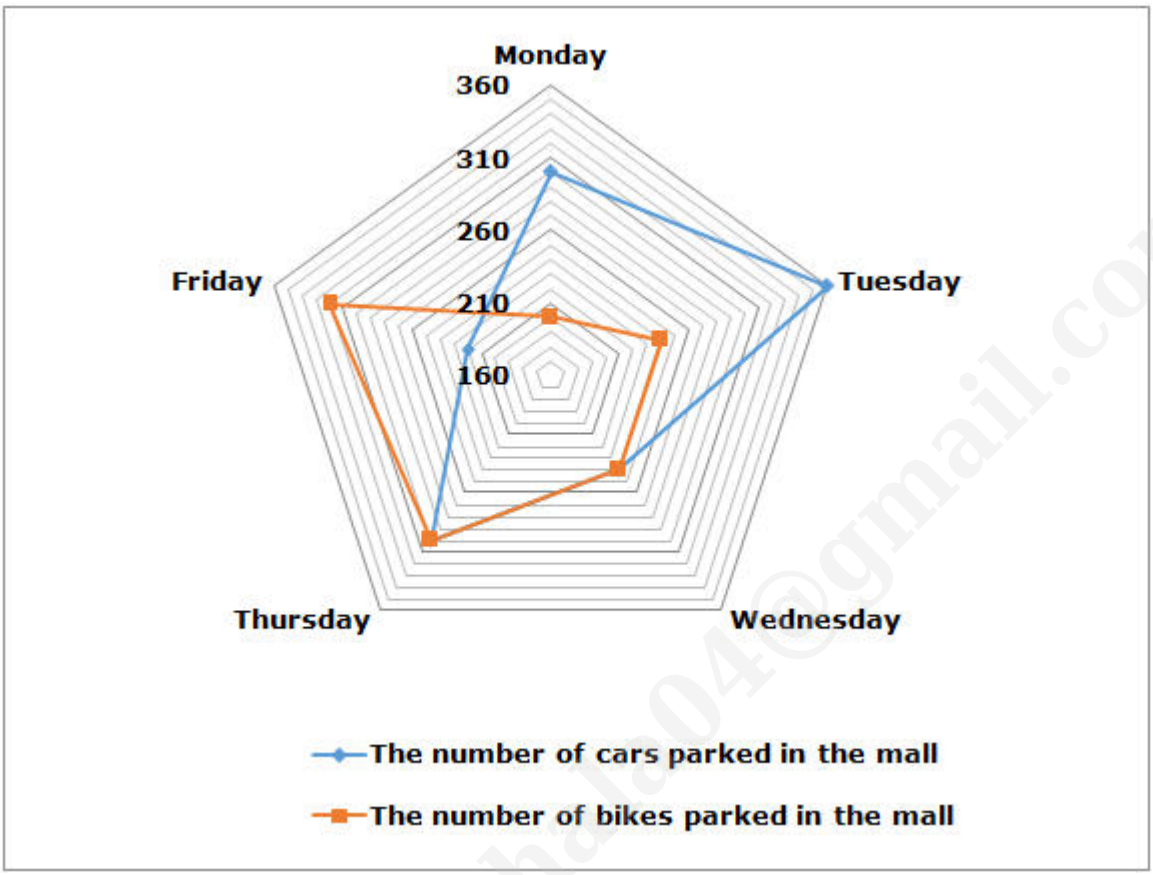
e. The data in both statements I and II together are necessary to answer the question

6. Questions

Study the following information carefully and answer the questions.

The radar graph shows the number of bikes parked in the mall on five different days namely Monday, Tuesday, Wednesday, Thursday and Friday and also given the number of cars parked in the mall from Monday to Friday.

Note: The total number of vehicles parked in the mall = The number of bikes parked in the mall + The number of cars parked in the mall



Out of the total number of vehicles parked in the mall on Thursday, 24% are red and the rest of them are black. If there are two types of vehicles parked in the mall on Thursday: electric and fuel and the ratio of the number of black colour electric vehicles to fuel vehicles parked in the mall on Thursday is 10:9, then find the difference between the number of black colour electric vehicles and red colour vehicles parked in the mall on Thursday.

a. 96

b. 69

c. 76

d. 81

e. 64

7. Questions

If the average number of cars, bikes and scooters parked in the mall on Friday is 220, then find the average of the number of scooters parked in the mall on Friday and the number of bikes parked in the mall on Monday.

a. 124

b. 138

c. 160

d. 152

e. 178

8. Questions

The ratio of the number of cars parked in the mall on Tuesday to Saturday is 9:11. If 32% of the total number of vehicles (cars + bikes) parked in the mall on Saturday are cars, then find the number of bikes parked in the mall on Saturday.

a. 808

b. 845

c. 798

d. 896

e. 935

9. Questions

In all five days, there are two types of vehicles parked in the mall: electric and petrol and the ratio of the number of petrol and electric cars parked in the mall on Monday to Wednesday is 10:9 and 5:3 respectively. Find the difference between the number of electric cars and petrol cars parked in the mall on Wednesday.

a. 132

b. 120

c. 110

d. 144

e. 176

10. Questions

Find the average number of vehicles parked in the mall on Monday and Friday.

a. 440

b. 480

c. 472

d. 520

e. 536

11. Questions

Study the following information carefully and answer the questions.

The given table chart shows the number of branches in five different companies namely A, B, C, D and E in 2022 and also given the average number of employees in each branch in these five companies in 2022 and also given the ratio of the total number of male employees to female employees in these five companies in 2022.

Companies	Number of branches	Average number of employees in each branch	Ratio of the total number of male employees to female employees
P	54	435	-
Q	45	-	3:2
R	-	532	-
S	-	-	6:5
T	42	525	4:3

If the average number of employees in each branch in Company P is 27 less than that of Company Q and the total number of male employees in Company P is 576 more than that of Company Q, then find the ratio of the total number of male to female employees in Company P.

a. 4:3

b. 3:7

c. 5:6

d. 4:1

e. 5:4

12. Questions

If the sum of the number of branches in Companies R and T is 107 and the total number of female employees in Company R is 6510 more than that of Company T, then find the total number of male employees in Company R.

a. 17620

b. 18620

c. 17700

d. 18560

e. 18240

13. Questions

If the ratio of the number of branches in Company Q to Company S is 9:11 and the difference

between the total number of male and female employees in Company S is 3060, then find the average number of employees in each branch in Company S.

a. 588
b. 612
c. 620
d. 568
e. 545

14. Questions

In 2023, the total number of male employees in Company T is increased by 5% while the total number of female employees in Company T is decreased by 20% as compared to 2022. Find the total number of employees in Company T in 2023.

a. 19790
b. 20880
c. 21790
d. 20790
e. 20080

15. Questions

The ratio of the total number of male to female employees in Company S and R is the same. If the number of branches in Company R is 22, then find the total number of female employees in Company R.

a. 4320
b. 5328
c. 5240
d. 5320
e. 4856

16. Questions

Mixture A contains 68% milk and the rest of the quantity as water. Mixture B contains water and milk in the ratio of 16:9. Both mixtures are mixed, then the quantity of milk in the final mixture becomes 48%. Find the initial quantity of mixture B if the initial quantity of mixture B is 180 liters more than that of mixture A.

a. 330 liters
b. 525 liters

c. 315 liters

d. 450 liters

e. 250 liters

17. Questions

Two years ago, the average age of Tom, Sam and Vinu is 25 years. The ratio of the present age of Tom to Sam is 5:4. The age of Tom before 7 years and the age of Sam after 4 years is in the ratio of 3:4. Find the age of Vinu after 6 years.

a. 36 years

b. 42 years

c. 31 years

d. 26 years

e. 25 years

18. Questions

Sai started his journey from point P to point Q and the distance between both points is 180 km. He covered 66.67% of the distance with a speed of 60 km/hr and covered the rest of the distance with a speed of x km/hr. If the total time taken by Sai to cover the distance is 3.5 hours, then find the time taken by him to cover the same distance with a speed of (x/2) km/hr.

a. 6 hours

b. 9 hours

c. 4.5 hours

d. 18 hours

e. 7 hours

19. Questions

A box contains 13 blue balls, x green balls and y black balls. If the probability of selecting a green ball is 3/10 and the probability of selecting a black ball is 3/8, then find the total number of balls in the box.

a. 30

b. 50

c. 36

d. 40

e. 25

20. Questions

The ratio of the cost price of an earbud to a headphone is 8:3. The vendor sells both the products by marking it 20% above its cost price and earns an overall profit of (x + 9)%. If the vendor gives a discount of x% on the overall marked price, then find the value of x.

a. 5

b. 15

c. 12.5

d. 7.5

e. 10

21. Questions

P, Q and R are hired to do a certain piece of work for Rs.6975. All of them started working together and finished the work in 20 days and P received Rs.2325 for his work. In how many days Q alone can complete the work if R alone can complete the same work in 50 days?

a. 60 days

b. 75 days

c. 45 days

d. 54 days

e. 81 days

22. Questions

The average expenses of A, B, C and D is Rs.3600. The sum of the expenses of C and D is 40% more than the sum of the expenses of A and B. The ratio of the expenses of B to C is 3:4. If the expenses of B and D are the same, then find the difference between the expenses of A and D.

a. Rs.920

b. Rs.2160

c. Rs.1440

d. Rs.1200

e. Rs.1750

23. Questions

The height of the cylinder is 18.18% of the circumference of the circle. If the radius of the cylinder is 3/4th of the radius of the circle and the area of the circle is 616 cm^2, then find the curved surface area of the cylinder.

a. 1056 cm^2

b. 1240 cm^2

c. 1156 cm^2

d. 1225 cm^2

e. 1032 cm^2

24. Questions

The speed of the boat in still water is 4 times more than the speed of the stream. The boat can cover 72 km in downstream and 96 km in upstream together in 12 hours. If the speed of the boat in still water is reduced by 40%, then find the time taken by the boat to cover162 km in upstream.

a. 22 hours

b. 13.5 hours

c. 27 hours

d. 24 hours

e. 18 hours

25. Questions

The ratio of the investment of A, B and C is 3:2:4 respectively. After 4 months, A and B increased their investment by 20% and after 4 more months, B and C decreased their investment by 25%. If the total profit after one year is Rs.1644, then find the difference between the profit obtained by A and C.

a. Rs. 40

b. Rs. 80

c. Rs. 63

d. Rs. 48

e. Rs. 55

26. Questions

What approximate value should come in the place of (?) in the following questions?

$329.8 + 5.2 * \sqrt{255.78} - 59.9\%$ of $550.2 = 19.76^4 \div ?$

a. 1800

b. 2000

c. 2160

d. 1440

e. 1560

27. Questions

39.9% of 290.2 – 1199.82÷ 14.8+ 45.3% of 199.9= ?

a. 142

b. 151

c. 164

d. 171

e. 126

28. Questions

$\sqrt[4]{}$4096.3 – 1755.78 + 63.12 * 49.29= ? + $\sqrt[4]{}$2400.97

a. 1264

b. 1332

c. 1456

d. 1521

e. 1308

29. Questions

[(56.24 * 35.78 ÷ 71.8) + 16.25 – 8.17] * 5.03 ÷ 2.15 = ?

a. 36

b. 75

c. 38

d. 90

e. 46

30. Questions

? * 9.97 –17.78^2 ÷ √8.76= 35.88 * 6.87

a. 24

b. 80

c. 63

d. 18

e. 36

31. Questions

What value should come in the place of (?) in the following number series?

?, 18, 41, 105, 210, 356

a. 32

b. 35

c. 36

d. 38

e. 28

32. Questions

11, 28, 57, 104, ?, 276

a. 170

b. 164

c. 160

d. 175

e. 154

33. Questions

64, ?, 210, 342, 524, 764

a. 112

b. 117

c. 108

d. 124

e. 120

34. Questions

3, ?, 45, 97, 213, 454

a. 20

b. 12

c. 9

d. 27

e. 17

35. Questions

25, 30, 58, 105, 169, ?

a. 204

b. 240

c. 246

d. 232

e. 216

36. Questions

Following question contains two equations as I and II.You have to solve both equations and determine the relationship between them and give answer as,

I). $2x^2 - 9x - 126 = 0$

II). $2y^2 + 19y + 45 = 0$

a. $x \geq y$

b. $x \leq y$

c. $x < y$

d. x = y or the relation cannot be established

e. $x > y$

37. Questions

I). $x^2 = \sqrt{256}$

II). $y^2 - 33y + 272 = 0$

a. $x > y$

b. $x \geq y$

c. $x < y$

d. x = y or the relation cannot be established

e. $x \leq y$

38. Questions

I). $x^2 + 7x - 450 = 0$

II). $y^2 - 43y + 450 = 0$

a. $x > y$

b. $x \geq y$

c. $x \leq y$

d. x = y or the relation cannot be established

e. $x < y$

39. Questions

I). $x^2 - 29x + 208 = 0$

II). $y^2 + 16^2 = 24^2 - 151$

a. $x > y$

b. $x \geq y$

c. $x < y$

d. x = y or the relation cannot be established

e. $x \leq y$

40. Questions

I). $5x + 7 = 3y$

II). $7x + 8 = 4y$

a. $x > y$

b. $x \geq y$

c. $x \leq y$

d. $x < y$

e. x = y or the relation cannot be established

Explanations:

1. Questions

Answer: D

Statement I:

Let the speed of the stream be x km/hr

So, the speed of the boat in still water = 2x km/hr

So, the data in statement I alone is not sufficient to answer the question.

Statement II:

So, the data in statement II alone is not sufficient to answer the question.

Both statements I and II:

38/(2x – x) = 114/(2x + x)

38/x = 38/x

The data in both statements I and II together are not sufficient to answer the question.

Hence, option D

2. Questions

Answer: A

Let the length and breadth of the rectangle be 8x cm and 5x cm respectively.

Statement I:

Perimeter of the square + 14 = Perimeter of the rectangle.

So,the data in statement I alone is not sufficient to answer the question.

Statement II:

Perimeter of the circle = 2πr

2 *(22/7) * r = 88

r = 14 cm

The length of the rectangle = 14 + 10 = 24 cm

The breadth of the rectangle = 24 * (5/8) = 15 cm

So, the data in statement II alone is not sufficient to answer the question.

Both statements I and II,

Perimeter of the rectangle = 2 * (24 + 15) = 78 cm

Perimeter of the square = 78 – 14 = 64 cm

The side of the square = 64/4 = 16 cm

The area of the square = 16 * 16 = 256 cm^2

So, the data in both statements I and II together are necessary to answer the question.

Hence, option A

3. Questions

Answer: A

Let the number of black, pink and yellow balls in the bag be x, 3x and x respectively.

Statement I:

According to the data,

$(xC_1 * 3xC_1)/ 5xC_2 = 1/4$

$(2x * 3x)/ \{5x * (5x – 1)\} = 1/4$

$24x = 25x – 5$

$x = 5$

The total number balls in the bag = $x + 3x + x = 5 * 5 = 25$

So, the data in statement I alone is sufficient to answer the question.

Statement II:

According to the data,

$xC_1/5xC_1 = 1/5$

$1/5 = 1/5$

So, the data in statement II alone is not sufficient to answer the question.

Hence, the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.

Hence, option A

4. Questions

Answer: D

Let the amount invested by Moni in scheme A be Rs. x

So, the amount invested by Moni in scheme B = Rs. (15000 – x)

Statement I:

According to the data,

$(15000 – x) * (8/100) * 2 – x * (6/100) * 2 = 440$

$(2400 – 0.16x) – 0.12x = 440$

$1960 = 0.28x$

$x = 7000$

The amount invested by Moni in scheme A = Rs.7000

So, the data in statement I alone is sufficient to answer the question.

Statement II:

According to the data,

$(15000 – x) * (8/100) * 2 + x * (6/100) * 2 = 2120$

$(2400 – 0.16x) + 0.12x = 2120$

$280 = 0.04x$

x = 7000

The amount invested by Moni in scheme A = Rs.7000

So, the data in statement II alone is sufficient to answer the question.

So, the data either in statement I alone or in statement II alone is sufficient to answer the question.

Hence, option D

5. Questions

Answer: B

Statement I:

Let the cost price of the article be Rs. x.

So, the marked price of the article = x * (125/100) = Rs. 1.25x

So, the data in statement I alone is not sufficient to answer the question.

Statement II:

Let the cost price and selling price of the article be Rs. 4x and Rs. 5x respectively.

Profit Percentage = [(5x – 4x)/4x] * 100

= (x/4x) * 100 = 25%

So, the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.

Hence, option B

6. Questions

The total number of vehicles parked on Monday = 300 + 200 = 500

The total number of vehicles parked on Tuesday = 360 + 240 = 600

The total number of vehicles parked on Wednesday = 240 + 240 = 480

The total number of vehicles parked on Thursday = 300 + 300 = 600

The total number of vehicles parked on Friday = 220 + 320 = 540

Days	The total number of vehicles parked in the mall	The number of cars parked in the mall	The number of bikes parked in the mall
Monday	500	300	200
Tuesday	600	360	240
Wednesday	480	240	240
Thursday	600	300	300
Friday	540	220	320

Answer: A

The total number of vehicles parked in the mall on Thursday = 600

The number of red colour vehicles parked in the mall on Thursday = 600 * (24/100) = 144

The number of black colour vehicles parked in the mall on Thursday = 600 – 144 = 456

The number of black colour electric vehicles parked in the mall on Thursday= 456 * 10/(10 + 9)= 456 * (10/19) = 240

Required difference = 240 – 144 = 96

7. Questions

The total number of vehicles parked on Monday = 300 + 200 = 500

The total number of vehicles parked on Tuesday = 360 + 240 = 600

The total number of vehicles parked on Wednesday = 240 + 240 = 480

The total number of vehicles parked on Thursday = 300 + 300 = 600

The total number of vehicles parked on Friday = 220 + 320 = 540

Days	The total number of vehicles parked in the mall	The number of cars parked in the mall	The number of bikes parked in the mall
Monday	500	300	200
Tuesday	600	360	240
Wednesday	480	240	240
Thursday	600	300	300
Friday	540	220	320

Answer: C

The sum of the number of vehicles (cars + bikes + scooters) parked in the mall on Friday = 220 * 3 = 660

The number of scooters parked in the mall on Friday = 660 – 540 = 120

Required average = (200 + 120)/2 = 160

8. Questions

The total number of vehicles parked on Monday = 300 + 200 = 500

The total number of vehicles parked on Tuesday = 360 + 240 = 600

The total number of vehicles parked on Wednesday = 240 + 240 = 480

The total number of vehicles parked on Thursday = 300 + 300 = 600

The total number of vehicles parked on Friday = 220 + 320 = 540

Days	The total number of vehicles parked in the mall	The number of cars parked in the mall	The number of bikes parked in the mall
Monday	500	300	200
Tuesday	600	360	240
Wednesday	480	240	240
Thursday	600	300	300
Friday	540	220	320

Answer: E

The number of cars parked in the mall on Saturday = 360 * (11/9) = 440

The number of bikes parked in the mall on Saturday = 440 * [(100 – 32)/32] = 440 * (68/32) = 935

9. Questions

The total number of vehicles parked on Monday = 300 + 200 = 500

The total number of vehicles parked on Tuesday = 360 + 240 = 600

The total number of vehicles parked on Wednesday = 240 + 240 = 480

The total number of vehicles parked on Thursday = 300 + 300 = 600

The total number of vehicles parked on Friday = 220 + 320 = 540

Days	The total number of vehicles parked in the mall	The number of cars parked in the mall	The number of bikes parked in the mall
Monday	500	300	200
Tuesday	600	360	240
Wednesday	480	240	240
Thursday	600	300	300
Friday	540	220	320

Answer: B

Let the number of petrol cars parked in the mall on Monday and Wednesday be 10x and 9x respectively.

Let the number of electric cars parked in the mall on Monday and Wednesday be 5y and 3y respectively.

10x + 5y = 300

2x + y = 60 ----> (1)

9x + 3y = 240

3x + y = 80 ----> (2)

By solving equation (1) & (2), we get

x = 20

y = 20

The number of petrol cars parked in the mall on Wednesday = 9 * 20 = 180

The number of electric cars parked in the mall on Wednesday = 3 * 20 = 60

Required difference = 180 – 60 = 120

10. Questions

The total number of vehicles parked on Monday = 300 + 200 = 500

The total number of vehicles parked on Tuesday = 360 + 240 = 600

The total number of vehicles parked on Wednesday = 240 + 240 = 480

The total number of vehicles parked on Thursday = 300 + 300 = 600

The total number of vehicles parked on Friday = 220 + 320 = 540

Days	The total number of vehicles parked in the mall	The number of cars parked in the mall	The number of bikes parked in the mall
Monday	500	300	200
Tuesday	600	360	240
Wednesday	480	240	240
Thursday	600	300	300
Friday	540	220	320

Answer: D

Required average = (500 + 540)/2 = 1040/2= 520

11. Questions

The total number of employees in Company P = 54 * 435 = 23490

Company T:

The total number of employees = 42 * 525 = 22050

The total number of male employees = 22050 * 4/(4 + 3) = 22050 * 4/7 = 12600

The total number of female employees = 22050 * (3/7) = 9450

Answer: E

The average number of employees in each branch in Company Q = 435 + 27 = 462

The total number of employees in Company Q = 462 * 45 = 20790

The total number of male employees in Company Q = 462 * 45 * (3/5) = 12474

The total number of male employees in Company P = 576 + 12474 = 13050

The total number of employees in Company P =435 * 54 = 23490

The total number of female employees in Company P = 23490 – 13050 = 10440

Required ratio = 13050:10440 = 5:4

12. Questions

The total number of employees in Company P = 54 * 435 = 23490

Company T:

The total number of employees = 42 * 525 = 22050

The total number of male employees = 22050 * 4/(4 + 3) = 22050 * 4/7 = 12600

The total number of female employees = 22050 * (3/7) = 9450

Answer: B

The number of branches in Company R = 107 – 42 = 65

The total number of female employees in Company R = 6510 +9450 = 15960

The total number of employees in Company R = 65 * 532 = 34580

The total number of male employees in Company R = 34580 – 15960 = 18620

13. Questions

The total number of employees in Company P = 54 * 435 = 23490

Company T:

The total number of employees = 42 * 525 = 22050

The total number of male employees = 22050 * 4/(4 + 3) = 22050 * 4/7 = 12600

The total number of female employees = 22050 * (3/7) = 9450

Answer: B

The number of branches in Company S = 45 * (11/9) = 55

The total number of employees in Company S= 3060 * 11/(6 – 5) = 3060 * 11 = 33660

The average number of employees in each branch in Company S = 33660/55 = 612

14. Questions

The total number of employees in Company P = 54 * 435 = 23490

Company T:

The total number of employees = 42 * 525 = 22050

The total number of male employees = 22050 * 4/(4 + 3) = 22050 * 4/7 = 12600

The total number of female employees = 22050 * (3/7) = 9450

Answer: D

The total number of male employees in Company T in 2023 = 12600 * (105/100) = 13230

The total number of female employees in Company T in 2023 = 9450 * (80/100) = 7560

The total number of employees in Company T in 2023 = 13230 + 7560 = 20790

15. Questions

The total number of employees in Company P = 54 * 435 = 23490

Company T:

The total number of employees = 42 * 525 = 22050

The total number of male employees = 22050 * 4/(4 + 3) = 22050 * 4/7 = 12600

The total number of female employees = 22050 * (3/7) = 9450

Answer: D

The ratio of the total number of male to female employees in Company R = 6:5

The total number of employees in Company R = 532 * 22 = 11704

The total number of female employees in Company R = 11704 * (5/11) = 5320

16. Questions

Answer: D

The ratio of the initial quantity of milk to water in mixture A = 68 : (100 – 68) = 68:32 = 17:8

The ratio of the quantity of milk to water in the final mixture = 48 : (100 – 48) = 48:52 = 12:13

Let the initial quantity of milk in mixture A = 17/(17 + 8) = 17/25

And the initial quantity of milk in mixture B = 9/(16 + 9) = 9/25

And the quantity of milk in the final mixture = 12/(12 + 13) = 12/25

Using the allegation method,

17/25 9/25

12/25

3/25 5/25

Required ratio = (3/25):(5/25) = 3:5

The initial quantity of mixture B = 180 * 5/(5 – 3) = 180 * 5/2 = 450 liters

17. Questions

Answer: B

Let the present ages of Tom and Sam be 5x years and 4x years respectively.

According to the question,

$(5x - 7)/ (4x + 4) = 3/4$

$5x - 7 = 3 * (x + 1)$

$5x - 3x = 3 + 7$

$2x = 10$

$x = 5$

The present age of Tom = 5 * 5 = 25 years

The present age of Sam = 4 * 5 = 20 years

The sum of the present age of Tom, Sam and Vinu = 25 * 3 + 2 * 3 = 75 + 6 = 81 years

The present age of Vinu = 81 – 25 – 20 = 36 years

The age of Vinu after 6 years = 36 + 6 = 42 years

18. Questions

Answer: B

The distance covered by Sai at the speed of 60 km/hr =180 * 66.66/100 =(2/3) * 180 = 120 km

According to the question,

$120/60 + (180 - 120)/x = 3.5$

$2 + 60/x = 3.5$

$60/x = 1.5$

$x = 40$

Required time taken = 180/(40/2) = 180/20 = 9 hours

19. Questions

Answer: D

The total number of balls in the box = 13 + x + y

$xC_1/(13 + x + y)C_1 = 3/10$

$x = 3/10 * (13 + x + y)$

$10x = 39 + 3x + 3y$ ---(1)

$yC_1/(13 + x + y)C_1 = 3/8$

$y = 3/8 * (13 + x + y)$

$8y = 39 + 3x + 3y$ ---(2)

From equations (1) and (2),

$8y = 10x$

$x/y = 8/10 = 4/5$

Let the number of green and black balls in the box be 4a and 5a respectively.

$4aC_1/(13 + 4a + 5a)C_1 = 3/10$

$40a = 39 + 27a$

$a = 39/13 = 3$

The total number of balls in the box = (13 + 4 * 3 + 5 * 3) = 40

20. Questions

Answer: A

Let the cost price of an earbud and the headphone be Rs. 8z and Rs. 3z respectively.

The marked price of an earbud = 8z * (120/100) = Rs. 9.6z

The marked price of the headphone = 3z * (120/100) = Rs. 3.6z

According to the question,

(9.6z + 3.6z) * [(100 – x)/100] = (8z + 3z) * [(109 + x)/100]

13.2z * (100 – x) = 11z * (109 + x)

1.2 * (100 – x) = (109 + x)

120 – 109 = x + 1.2x

11 = 2.2x

x = 110/22

x = 5

21. Questions

Answer: B

Ratio of the efficiency of P, Q and R together to the efficiency of P alone = 6975:2325 = 3:1

Ratio of the time taken by P, Q and R together to complete the work to the time taken by P alone to complete the work = 1:3

The time taken by P alone to complete the work = 3/1* 20 = 60 days

Time taken by Q alone to complete the work = 1/20 – 1/60 – 1/50 = (15 – 5 – 6)/300 = 4/300 = 1/75 = 75 days

22. Questions

Answer: D

The total expenses of A, B, C and D = 3600 * 4 = Rs.14400

Let the expenses of B and C be 3x and 4x respectively.

And the expenses of D = 3x

The sum of the expenses of A and B = (3x + 4x) * 100/140 = 7x * 5/7 = 5x

The expenses of A = 5x – 3x = 2x

14400 = 5x + 7x

x = 1200

Required difference = 3x – 2x = 1200

23. Questions

Answer: A

According to the question,

Area of the circle = 616 cm^2

(22/7) * r^2 = 616

r^2 = 7 * 7 * 4

r = 7 * 2 = 14 cm

The radius of the circle = 14 cm

Circumference of the circle = 2πr = 2 * (22/7) * 14 = 88 cm

The height of the cylinder = 88 * 18.18/100 = (2/11) * 88 = 16 cm

The radius of the cylinder = (3/4) * 14 = 21/2 = 10.5 cm

The curved surface area of the cylinder = 2πrh = 2 * (22/7) * 10.5 * 16 = 1056 cm^2

24. Questions

Answer: C

Let the speed of the stream be x km/hr.

So, the speed of the boat in still water = 4 * x + x = 5x km/hr

According to the question,

72/(5x + x) + 96/(5x – x) = 12

6/ 6x + 8/4x = 1

1/x + 2/x = 1

x = 3

The original speed of the boat in still water = 5 * 3 = 15 km/hr

The decreased speed of the boat in still water = 15 * (100-40)/100 = 9 km/hr

Required time taken = 162/(9 – 3) = 162/6 = 27 hours

25. Questions

Answer: D

Let the initial investment of A, B and C be Rs. 3x, Rs. 2x and Rs. 4x respectively.

According to the question,

The profit ratio of A, B and C = [(3x * 4) + (3x * (120/100) * 8)]: [(2x * 4) + (2x * (120/100) * 4) + (2x * 120/100 * 75/100 * 4}]: [(4x * 8) + (4x * (75/100) * 4]

= [3x + (3x * 1.2 * 2)]: [2x + (2x * 1.2) + 1.8x]: [(4x * 2) + (4x * 0.75)]

= 10.2x: 6.2x: 11x = 102:62:110= 51:31:55

Difference between the profit obtained by A and C = (55 – 51)/(51 + 31 + 55) * 1644 = 4/137 * 1644 = Rs.48

26. Questions

Answer: B

$329.8 + 5.2 * \sqrt{255.78} – 59.9\%$ of $550.2 = 19.76^4 \div ?$

$330 + 5 * \sqrt{256} – 60 * 550/100 = 20^4 \div ?$

$330 + 5 * 16 – 330 = 160000 \div ?$

$? = 160000/80$

$? = 2000$

Hence, option B

27. Questions

Answer: E

39.9% of 290.2 – 1199.82÷ 14.8 + 45.3% of 199.9 = ?

(40/100) * 290 – 1200/15+ (45/100) * 200 = ?

116 - 80 + 90 = ?

? = 126

Hence, option E

28. Questions

Answer: B

$\sqrt[4]{4096.3} – 1755.78 + 63.12 * 49.29 = ? + \sqrt[4]{2400.97}$

$\sqrt[4]{4096} – 1756 + 63 * 49 = ? + \sqrt[4]{2401}$

$8 – 1756 + 3087 = ? + 7$

$? = 1 + 1331$

$? = 1332$

Hence, option B

29. Questions

Answer: D

[(56.24 * 35.78 ÷ 71.8) + 16.25 – 8.17] * 5.03 ÷ 2.15 = ?

[(56 * 36/72) + 16 – 8] * 5 ÷ 2 = ?

(28 + 8) * 5/2 = ?

36 * (5/2) = ?

? = 90

Hence, option D

30. Questions

Answer: E

? * 9.97–17.78^2 ÷ √8.76= 35.88 * 6.87

? * 10 - (1/3) * 18^2 = 36 * 7

? * 10 – 324/3 = 252

? * 10 = 252 + 108

? = 360/10

? = 36

Hence, option E

31. Questions

Answer: C

The given series follows the following pattern: common double difference

36 18 41 105 210 356

-18 +23 +64 +105 +146

+41 +41 +41 +41

Hence, option C

32. Questions

Answer: D

The given series follows the following pattern:

1^3 + 10 = 11

2^3 + 20 = 28

3^3 + 30 = 57

$4^3 + 40 = 104$

$5^3 + 50 = \mathbf{175}$

$6^3 + 60 = 276$

Hence, option D

33. Questions

Answer: E

The given series follows the following pattern:

64 **120** 210 342 524 764

+56 +90 +132 +182 +240

+34 +42 +50 58

+8 +8 +8

Alternate method:

64 + (7 * 8) = 120

120 + (9 * 10) = 210

210 + (11 * 12) = 342

342 + (13 * 14) = 524

524 + (15 * 16) = 764

Hence, option E

34. Questions

Answer: A

The given series follows the following pattern:

3 **20** 45 97 213 454

+17 +25 +52 +116 +241

+8 +27 +64 +125

Hence, option A

35. Questions

Answer: C

The given series follows the following pattern:

25 30 58 105 169 **246**

+5 +28 +47 +64 +77

+23 +19 +17 +13

Hence, option C

36. Questions

Answer: D

From I,

$2x^2 - 9x - 126 = 0$

$2x^2 + 12x - 21x - 126 = 0$

$2x (x + 6) - 21 (x + 6) = 0$

$(x + 6) (2x - 21) = 0$

$x = -6, +21/2$

From II,

$2y^2 + 19y + 45 = 0$

$2y^2 + 10y + 9y + 45 = 0$

$2y (y + 5) + 9 (y + 5) = 0$

$(y + 5) (2y + 9) = 0$

$y = -5, -9/2$

x	relation	Y
-6	<	-5
-6	<	-9/2
+21/2	>	-5
+21/2	>	-9/2

So, the relationship between x and y cannot be determined.

Hence, option D

37. Questions

Answer: C

From I,

$x^2 = \sqrt{256}$

$x^2 = 16$

$x = +4, -4$

From II,

$y^2 - 33y + 272 = 0$

$y^2 - 17y - 16y + 272 = 0$

$y(y - 17) - 16(y - 17) = 0$

$(y - 17)(y - 16) = 0$

$y = +17, +16$

x	Relation	y
+4	<	+17
+4	<	+16
-4	<	+17
-4	<	+16

So, $x < y$

Hence, option C

38. Questions

Answer: C

From I,

$x^2 + 7x - 450 = 0$

$x^2 + 25x - 18x - 450 = 0$

$x(x + 25) - 18(x + 25) = 0$

$(x + 25)(x - 18) = 0$

$x = -25, +18$

From II,

$y^2 - 43y + 450 = 0$

$y^2 - 25y - 18y + 450 = 0$

$y(y - 25) - 18(y - 25) = 0$

$(y - 25)(y - 18) = 0$

$y = +25, +18$

x	Relation	y
-25	<	+25
-25	<	+18
+18	<	+25
+18	=	+18

So, $x \leq y$

Hence, option C

39. Questions

Answer: B

From I,

$x^2 - 29x + 208 = 0$

$x^2 - 13x - 16x + 208 = 0$

$x(x - 13) - 16 (x - 13) = 0$

$(x - 13) (x - 16) = 0$

$x = +13, +16$

From II,

$y^2 + 16^2 = 24^2 - 151$

$y^2 = 576 - 151 - 256$

$y^2 = 169$

$y = +13, -13$

x	relation	y
+13	=	+13
+13	>	-13
+16	>	+13
+16	>	-13

So, $x \geq y$

Hence, option B

40. Questions

Answer: D

From I,

5x + 7 = 3y

3y – 5x = 7 ----> (1)

From II,

7x + 8 = 4y

4y – 7x = 8 ----> (2)

By solving equation (1) * -4 and equation (2) * 3, we get

-12y + 20x = -28

12y – 21x = 24

x = 4

Value of x apply on equation (1), we get

3y = 7 + 20

y = 27/3 = 9

So, x < y

Hence, option D