1. Questions

Study the following data carefully and answer the questions given below:

The given pie chart shows the degree distribution of the number of Jio users who newly joined in five different years i.e. 2019, 2020, 2021, 2022 and 2023 out of the total number of Jio users who newly joined in the given five years together is 240

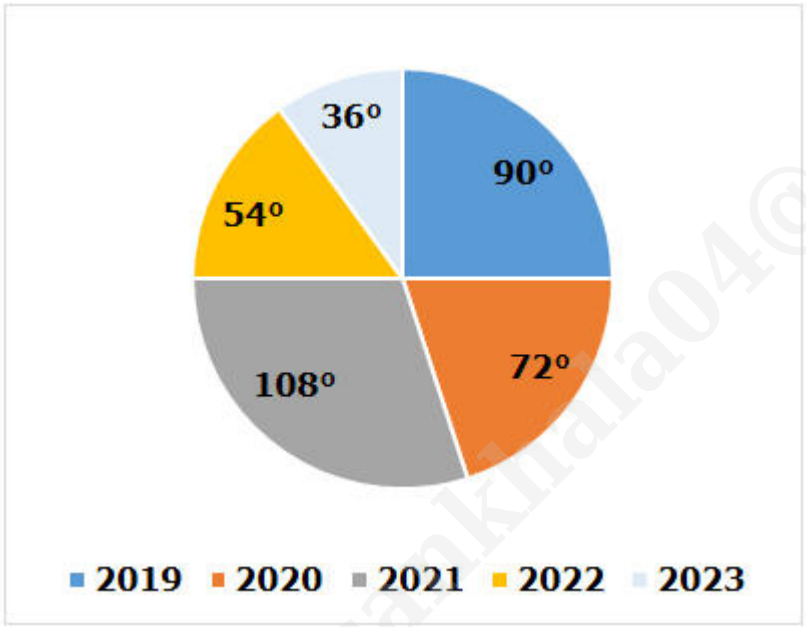
Note:

I). The number of Jio users in 2018 is 500

II). The number of male users in each year is 30 more than that of females.

III). The total number of Jio users in each year = the sum of the number of Jio users who newly joined and old Jio users.

IV). No one's left in the Jio users



Find the ratio of the sum of the number of male Jio users who newly joined in 2019 and 2020 together to the number of female Jio users who newly joined in 2021.

a. 2:5

b. 3:2

c. 5:3

d. 4:5

e. 2:1

2. Questions

If the number of male Jio users who joined newly are married in 2023 is 5 more than that of female Jio users and 1 less than the number of female Jio users who joined newly, are unmarried in 2023, then find the number of male Jio users who joined newly, are unmarried in 2023?

a. 5

b. 6

c. 3

d. 4

e. 8

3. Questions

If the average number of Jio users who newly joined in 2022 and 2024 together is 40, then find the number of male Jio users (new + old) in 2024?

a. 364

b. 427

c. 412

d. 388

e. 407

4. Questions

Find the difference between the total number of Jio users in 2020 and the sum of the number of female Jio users in 2021 and 2022 together?

a. 60

b. 54

c. 63

d. 71

e. 58

5. Questions

Find the average number of Jio users in 2019, 2021 and 2023 together.

a. 620

b. 556

c. 660

d. 384

e. 480

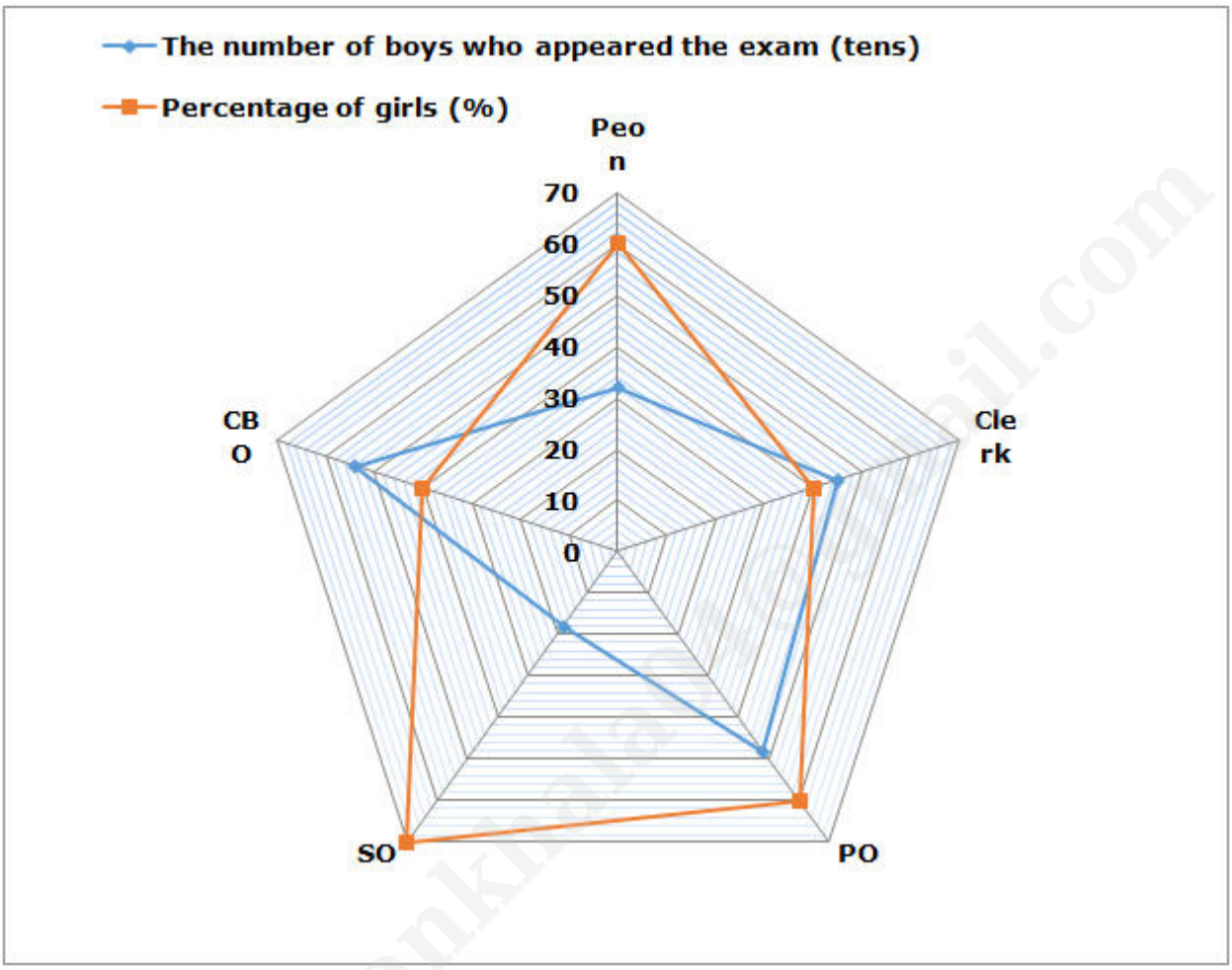
6. Questions

Study the following data carefully and answer the questions given below:

The given radar graph shows the number of boys who appeared and the percentage of girls out of the total number of students who appeared in five different exams i.e. Peon, Clerk, PO, SO and CBO

Note:

The total number of students who appeared in the exam = The sum of the number of boys + The sum of the number of girls who appeared in the exam.



If the number of students who failed in Peon is 80 and the ratio of the number of boys to girls who passed in Peon is 2:3 respectively, then find the number of girls who failed in Peon is what percent of the number of girls who appeared in Peon?

a. 22%

b. 8%

c. 17%

d. 12%

e. 10%

7. Questions

If 75% of students who applied for CBO were appeared in the exam and the number of girls who applied in CBO is 60% of that of boys, then find the difference betweenthe number of boys and girls who did not appear in CBO?

a. 120

b. 150

c. 160

d. 140

e. 130

8. Questions

If the number of boys and girls who passed in SO are 4x and 10x respectively, the number of girls who failed in SO is twice that of boys and the number of students who failed in SO is y% of the total number of students who appeared in SO, then find the value of y.

a. 56

b. 44

c. 30

d. 18

e. 36

9. Questions

Find the ratio of the difference of the number of boys who appeared in PO and clerk to the average number of girls who appeared in PO and clerk together.

a. 11:17

b. 1:17

c. 13:17

d. 7:11

e. 13:7

10. Questions

If 4% of students were not appeared in PO out of total number of students who applied, then find the difference between the number of students who applied in PO and the number of boys who appeared in clerk?

a. 630

b. 440

c. 720

d. 800

e. 560

11. Questions

Study the following data carefully and answer the questions given below:

The ratio of the speed of boat A in still water to the speed of the stream is 16:9. The time taken by the boat A to travel (D + 80) km in downstream and (D – 28) km in upstream arethe same. The speed of boat B in still water is 37.5% less than that of boat A. When boat B covers the distance of 180 km in still water in 3 hours.Both boats are travelling in same river.

If the speed of the stream is 33.33% decreased, the boat B travels to cover (m – 10) km in downstream for 2 hours 30 minutes, then find the value of m.

a. 216

b. 220

c. 250

d. 272

e. 204

12. Questions

If boat B can travel (D + 20) km, then find the time taken by boat B to travel in upstream.

a. 13 hours

b. 15 hours

c. 18 hours

d. 22 hours

e. 11 hours

13. Questions

Find the value of $(0.1D)^2$ - 50% of D – 2

a. 12

b. 5

c. 18

d. 7

e. 8

14. Questions

The boat C takes 6 hours to cover 3D km in downstream. If the speed of the stream is 12 km/hr, then find the distance covered by the boat C in 12 hours while traveling in upstream.

a. 140 km

b. 182 km

c. 176 km

d. 132 km

e. 156 km

15. Questions

If boat B travels in 2D/5 hours while traveling in upstream and the speed of the stream is 6 km/hr less, then find the distance covered by boat B.

a. (6D – 20) km

b. (6D + 6) km

c. (7D – 112) km

d. (4D + 14) km

e. (5D – 14) km

16. Questions

A merchant mixed (5x + 20) kg of sand mixed with (50 – x) kg of cement and the cost price of the whole mixture is Rs. 4050. If the cost price of 1 kg of cement is 5 times that of sand, then find the difference between the cost price (per kg) of sand and cement.

a. Rs. 64

b. Rs. 60

c. Rs. 54

d. Rs. 52

e. Rs. 70

17. Questions

The present average age of three persons namely Ram, Sam and Tom is 43 years and the ratio of the present ages of Ram and Tom is 5:6 respectively. If the present age of Sam is 7 years less than that of Tom, then find the age of Sam after 3 years.

a. 52 years

b. 48 years

c. 40 years

d. 44 years

e. 41 years

18. Questions

A biker covers the first half of his journey with a speed of 5x km/hr and the rest half with a speed of (5x – 12) km/hr. If the average speed of the biker for the whole journey is 53 (1/3) km/hr, then find the value of x. (x is an integer)

a. 15

b. 8

c. 12

d. 18

e. 10

19. Questions

In a basket, there are four types of fruits i.e. guava, apple, straw berry and Pineapple. The probability of picking a guava or a pineapple is 1/2 and they are in the ratio of 5:7 respectively. The total number of apples and straw berries together is 60 less than the total number of fruits, then find the probability of picking a guava.

a. 7/24

b. 6/25

c. 3/23

d. 4/27

e. 5/24

20. Questions

Varun bought a laptop at a certain price, marked it 75% above the cost price and sold it after offering a discount of 25%. If he had bought it for Rs. 800 less and sold it for Rs. 1400 more, then he would have made a 75% profit. Find the cost price of the laptop.

a. Rs. 6400

b. Rs. 7200

c. Rs. 3200

d. Rs. 3600

e. Rs. 8000

21. Questions

12 boys together can complete a project in 4 days, while 20 girls together can complete the same project in 8 days. At first 12 boys started working on the project but after 2 days, 6 boys left the project and 5 girls joined, thenfind the total time taken to complete the project.

a. 3 (1/3) days

b. 5 (1/5) days

c. 4 days

d. 7 days

e. 3 (1/5) days

22. Questions

The ratio of the number of postgraduate and undergraduate students in the college is 8:5 respectively. Out of total number of undergraduate students,20% are males. If the number of female undergraduate students is 600 and the total number of male studentsis 950, then find the total number of female students in the college.

a. 1480

b. 1360

c. 1200

d. 1000

e. 1560

23. Questions

The curved surface area of a right circular cone is 550 cm^2. If the radius of the base of the given cone is 7 cm, then find the volume of the cone?

a. 1546 cm^3

b. 1544 cm^3

c. 2704 cm^3

d. 1878 cm^3

e. 1232 cm^3

24. Questions

If a boat can travel 121 km in still water in 5.5 hours and the speed of the boat in downstream is 16 km/hr more than its upstream speed, then find the total time taken by the boat to travel 42 km in upstream as well as downstream.

a. 4 hours 24 minutes

b. 4 hours

c. 3 hours 36 minutes

d. 3 hours 30 minutes

e. 3 hours

25. Questions

A and B started a business by investing Rs. 4800 and Rs. 10800 respectively. 4 months later, C joined the business with an investment of Rs. (x+3000). After 8 more months, B withdrew his entire investment. At the end of 2 years, if the profit share of C is Rs. 1500 out of total profit Rs. 4050, then find the value of x?

a. Rs. 3450

b. Rs. 3280

c. Rs. 4200

d. Rs. 2800

e. Rs. 3600

26. Questions

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

269.89 * 9.14 ÷(? of 4.26) * 7.68 ÷ 15.34 = 8.97

a. 33

b. 42

c. 25

d. 36

e. 44

27. Questions

$[(8.8 – 4)^2$ * 7.7 of 4.2 + {63.8 ÷ (4 of 2^3) of 5.8}] = ? of 4

a. 203

b. 214

c. 208

d. 222

e. 212

28. Questions

(23.01 * 13.2 + (368.1 ÷ 4.2)) * (80.44 ÷ 46.04) = ?

a. 380

b. 440

c. 520

d. 600

e. 680

29. Questions

{(272.02 ÷ 16.88) + 27.88} * 84.66 ÷ 20.01 = ? + 3.03^3

a. 124

b. 140

c. 160

d. 154

e. 148

30. Questions

{(85.11/15.03) + (94.33/3.33)} * √16.04 = 220.03 - ?

a. 168

b. 72

c. 88

d. 60

e. 120

31. Questions

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

125, 25, 250, 50, 500, ?

a. 150

b. 100

c. 200

d. 225

e. 175

32. Questions

7, 14, 28, 56, ?, 140

a. 70

b. 112

c. 84

d. 63

e. 126

33. Questions

1070, 70, 582, 366, 430, ?

a. 415

b. 484

c. 472

d. 480

e. 422

34. Questions

20, 99, 493, 2461, ?, 61469

a. 12040

b. 11689

c. 14297

d. 12297

e. 13157

35. Questions

840, 752, ?, 600, 536, 480

a. 660

b. 632

c. 672

d. 700

e. 640

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). $x^2 + 6 = 5.6x - 2/5$

II). $12y^3 + 32 = 800$

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). $x^2 - 13x + 40 = 0$

II). $2y (y + 1) = y + 15$

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). $x^2 + 19x + 90 = 0$

II). $y^2 + 28y + 180 = 0$

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). $x^2 + 13x + 36 = 0$

II). $2y^2 - 29y - 15 = 0$

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). $x^2 + 12x - 28 = 0$

II). $y^2 + 11y + 28 = 0$

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

The number of Jio users who newly joined in 2019 = 240 * (90°/360°) = 60

The number of Jio users who newly joined in 2020 = 240 * (72°/360°)= 48

The number of Jio users who newly joined in 2021 = 240 * (108°/360°) = 72

The number of Jio users who newly joined in 2022 = 240 * (54°/360°) = 36

The number of Jio users who newly joined in 2023 = 240 * (36°/360°) = 24

In 2019,

The total number of Jio users in 2019 = 500 + 60 = 560

Let the number of female Jio users in 2019 be x

So, the number of male Jio users in 2019 = 30 + x

According to the data,

x + 30 + x = 560

2x = 530

x = 265

The number of female Jio users in 2019 = 265

The number of male Jio users in 2019 = 265 + 30 = 295

Similarly, we can calculate other values.

Years	The total number of Jio users	The number of male Jio users	The number of female Jio users
2019	560	295	265
2020	608	319	289
2021	680	355	325
2022	716	373	343
2023	740	385	355

Answer: B

The total number of Jio users in 2018 = 500

The number of female Jio users in 2018 be z

So, the number of male Jio users in 2018 = z + 30

z + z + 30 = 500

2z = 470

z = 235

The number of male and female Jio users in 2018 was 265 and 235 respectively.

The number of male Jio users who newly joined in 2019 = 295 – 265 = 30

The number of male Jio users who newly joined in 2020 = 319 – 295 = 24

The number of female Jio users who newly joined in 2021 = 325 – 289 = 36

Required ratio = (30 + 24): 36 = 54: 36 = 3:2

2. Questions

The number of Jio users who newly joined in 2019 = 240 * (90°/360°) = 60

The number of Jio users who newly joined in 2020 = 240 * (72°/360°)= 48

The number of Jio users who newly joined in 2021 = 240 * (108°/360°) = 72

The number of Jio users who newly joined in 2022 = 240 * (54°/360°) = 36

The number of Jio users who newly joined in 2023 = 240 * (36°/360°) = 24

In 2019,

The total number of Jio users in 2019 = 500 + 60 = 560

Let the number of female Jio users in 2019 be x

So, the number of male Jio users in 2019 = 30 + x

According to the data,

x + 30 + x = 560

2x = 530

x = 265

The number of female Jio users in 2019 = 265

The number of male Jio users in 2019 = 265 + 30 = 295

Similarly, we can calculate other values.

Years	The total number of Jio users	The number of male Jio users	The number of female Jio users
2019	560	295	265
2020	608	319	289
2021	680	355	325
2022	716	373	343
2023	740	385	355

Answer: D

The number of male Jio users who joined newly in 2023 = 385 – 373 = 12

The number of female Jio users who joined newly in 2023 = 355 – 343 = 12

Let the number of female Jio users who joined newly, are married in 2023 be x

So, the number of male Jio users who joined newly, are married in 2023

= x + 5

The number of female Jio users who joined newly, are unmarried in 2023

= x + 5 + 1 = x + 6

According to the data,

x + x + 6 = 12

2x = 6

x = 3

The number of male Jio users who joined newly, are unmarried in 2023 = 12 - (x + 5) = 12 – 8 = 4

3. Questions

The number of Jio users who newly joined in 2019 = 240 * (90°/360°) = 60

The number of Jio users who newly joined in 2020 = 240 * (72°/360°)= 48

The number of Jio users who newly joined in 2021 = 240 * (108°/360°) = 72

The number of Jio users who newly joined in 2022 = 240 * (54°/360°) = 36

The number of Jio users who newly joined in 2023 = 240 * (36°/360°) = 24

In 2019,

The total number of Jio users in 2019 = 500 + 60 = 560

Let the number of female Jio users in 2019 be x

So, the number of male Jio users in 2019 = 30 + x

According to the data,

x + 30 + x = 560

2x = 530

x = 265

The number of female Jio users in 2019 = 265

The number of male Jio users in 2019 = 265 + 30 = 295

Similarly, we can calculate other values.

Years	The total number of Jio users	The number of male Jio users	The number of female Jio users
2019	560	295	265
2020	608	319	289
2021	680	355	325
2022	716	373	343
2023	740	385	355

Answer: E

The sum of the number of Jio users who newly joined in 2022 and 2024 = 40 * 2 = 80

The number of Jio users who newly joined in 2022 = 36

The number of Jio users who newly joined in 2024 = 80 – 36 = 44

The total number of Jio users (new + old) in 2024 = 740 + 44 = 784

Let the number of female Jio users in 2024 be x

So, the number of male Jio users in 2024 = x + 30

According to the question,

x + x + 30 = 784

2x = 754

x = 377

The number of male Jio users in 2024 = 377 + 30 = 407

4. Questions

The number of Jio users who newly joined in 2019 = 240 * (90°/360°) = 60

The number of Jio users who newly joined in 2020 = 240 * (72°/360°)= 48

The number of Jio users who newly joined in 2021 = 240 * (108°/360°) = 72

The number of Jio users who newly joined in 2022 = 240 * (54°/360°) = 36

The number of Jio users who newly joined in 2023 = 240 * (36°/360°) = 24

In 2019,

The total number of Jio users in 2019 = 500 + 60 = 560

Let the number of female Jio users in 2019 be x

So, the number of male Jio users in 2019 = 30 + x

According to the data,

x + 30 + x = 560

2x = 530

x = 265

The number of female Jio users in 2019 = 265

The number of male Jio users in 2019 = 265 + 30 = 295

Similarly, we can calculate other values.

Years	The total number of Jio users	The number of male Jio users	The number of female Jio users
2019	560	295	265
2020	608	319	289
2021	680	355	325
2022	716	373	343
2023	740	385	355

Answer: A

The sum of the number of female Jio users in 2021 and 2022

= 325 + 343 = 668

Required difference = 668 – 608 = 60

5. Questions

The number of Jio users who newly joined in 2019 = 240 * (90°/360°) = 60

The number of Jio users who newly joined in 2020 = 240 * (72°/360°)= 48

The number of Jio users who newly joined in 2021 = 240 * (108°/360°) = 72

The number of Jio users who newly joined in 2022 = 240 * (54°/360°) = 36

The number of Jio users who newly joined in 2023 = 240 * (36°/360°) = 24

In 2019,

The total number of Jio users in 2019 = 500 + 60 = 560

Let the number of female Jio users in 2019 be x

So, the number of male Jio users in 2019 = 30 + x

According to the data,

x + 30 + x = 560

2x = 530

x = 265

The number of female Jio users in 2019 = 265

The number of male Jio users in 2019 = 265 + 30 = 295

Similarly, we can calculate other values.

Years	The total number of Jio users	The number of male Jio users	The number of female Jio users
2019	560	295	265
2020	608	319	289
2021	680	355	325
2022	716	373	343
2023	740	385	355

Answer: C

Required average = (560 + 680 + 740)/3

= 1980/3 = 660

6. Questions

In Peon,

The number of boys who appeared = 320

The total number of students who appeared = 320 *[100/ (100 – 60)]

= 320 * [100/40] = 800

The number of girls who appeared = 800 – 320 = 480

Similarly, we can calculate other values.

Exams	The number of boys who appeared	The number of girls who appeared	The total number of students who appeared
Peon	320	480	800
Clerk	450	300	750
PO	480	720	1200
SO	180	420	600
CBO	540	360	900

Answer: E

The number of students who passed in Peon = 800 – 80 = 720

The number of girls who passed in Peon = 720 * (3/5) = 432

The number of girls who passed in Peon = 480 – 432 = 48

Required % = (48/480) * 100 = 10%

7. Questions

In Peon,

The number of boys who appeared = 320

The total number of students who appeared = 320 *[100/ (100 – 60)]

= 320 * [100/40] = 800

The number of girls who appeared = 800 – 320 = 480

Similarly, we can calculate other values.

Exams	The number of boys who appeared	The number of girls who appeared	The total number of students who appeared
Peon	320	480	800
Clerk	450	300	750
PO	480	720	1200
SO	180	420	600
CBO	540	360	900

Answer: A

The number of students who applied in CBO exam = 900 * (100/75) = 1200

Let the number of boys who applied in CBO exam be 100x

So, the number of girls who applied in CBO exam = 100x * (60/100) = 60x

According to the data,

100x + 60x = 1200

160x = 1200

x = 7.5

The number of boys who applied for the CBO exam = 100 * 7.5 = 750

The number of girls who applied for the CBO exam = 60 * 7.5 = 450

The number of boys who did not appear in the CBO exam = 750 – 540 = 210

The number of girls who did not appear in the CBO exam = 450 – 360 = 90

Required difference = 210 – 90 = 120

8. Questions

In Peon,

The number of boys who appeared = 320

The total number of students who appeared = 320 *[100/ (100 – 60)]

= 320 * [100/40] = 800

The number of girls who appeared = 800 – 320 = 480

Similarly, we can calculate other values.

Exams	The number of boys who appeared	The number of girls who appeared	The total number of students who appeared
Peon	320	480	800
Clerk	450	300	750
PO	480	720	1200
SO	180	420	600
CBO	540	360	900

Answer: C

The number of boys who failed in SO = 180 – 4x

The number of girls who failed in SO = 420 – 10x

According to the data,

2 * (180 – 4x) = 420 – 10x

360 – 8x = 420 – 10x

2x = 60

x = 30

The number of boys who failed in SO = 180 – 4 * 30 = 180 – 120 = 60

The number of girls who failed in SO = 420 – 10 * 30 = 420 – 300 = 120

Required value = y = [(120 + 60)/600] * 100

y = 180/6 = 30

9. Questions

In Peon,

The number of boys who appeared = 320

The total number of students who appeared = 320 *[100/ (100 – 60)]

= 320 * [100/40] = 800

The number of girls who appeared = 800 – 320 = 480

Similarly, we can calculate other values.

Exams	The number of boys who appeared	The number of girls who appeared	The total number of students who appeared
Peon	320	480	800
Clerk	450	300	750
PO	480	720	1200
SO	180	420	600
CBO	540	360	900

Answer: B

The difference of the number of boys who appeared in PO and clerk together = 480 – 450 = 30

The average number of girls who appeared in PO and clerk together = (700 + 320)/2 = 510

Required ratio = 30:510 = 1:17

10. Questions

In Peon,

The number of boys who appeared = 320

The total number of students who appeared = 320 *[100/ (100 – 60)]

= 320 * [100/40] = 800

The number of girls who appeared = 800 – 320 = 480

Similarly, we can calculate other values.

Exams	The number of boys who appeared	The number of girls who appeared	The total number of students who appeared
Peon	320	480	800
Clerk	450	300	750
PO	480	720	1200
SO	180	420	600
CBO	540	360	900

Answer: D

The number of students who applied in PO = 1200 * (100/96) = 1250

Required difference = 1250 – 450 = 800

11. Questions

Let the speed of boat A in still water and the speed of the stream in river be 16x km/hr and 9x km/hr respectively

According to the data,

(D + 80)/ (16x + 9x) = (D – 28)/ (16x – 9x)

7 * (D + 80) = 25 * (D – 28)

7D + 560 = 25D – 700

18D = 1260

D = 70

The speed of a boat B in still water = 180/3 = 60 km/hr

The speed of a boat A in still water = 60 * (8/5) = 96 km/hr

The speed of a stream = 96 * (9/16) = 54 km/hr

Answer: C

Required value,

When the speed of a stream

= 54 * [1 - (1/3)] = 54 * (2/3) = 36 km/hr

According to the data,

(m – 10)/ (60 + 36) = 5/2

(m – 10) = (5/2) * 96

(m – 10) = 240

m = 250

12. Questions

Let the speed of boat A in still water and the speed of the stream in river be 16x km/hr and 9x km/hr respectively

According to the data,

(D + 80)/ (16x + 9x) = (D – 28)/ (16x – 9x)

7 * (D + 80) = 25 * (D – 28)

7D + 560 = 25D – 700

18D = 1260

D = 70

The speed of a boat B in still water = 180/3 = 60 km/hr

The speed of a boat A in still water = 60 * (8/5) = 96 km/hr

The speed of a stream = 96 * (9/16) = 54 km/hr

Answer: B

According to the data,

Boat B can travel the distance = D + 20 = 70 + 20 = 90 km

Required time taken = 90/ (60 – 54) = 90/6 = 15 hours

13. Questions

Let the speed of boat A in still water and the speed of the stream in river be 16x km/hr and 9x km/hr respectively

According to the data,

(D + 80)/ (16x + 9x) = (D – 28)/ (16x – 9x)

7 * (D + 80) = 25 * (D – 28)

7D + 560 = 25D – 700

18D = 1260

D = 70

The speed of a boat B in still water = 180/3 = 60 km/hr

The speed of a boat A in still water = 60 * (8/5) = 96 km/hr

The speed of a stream = 96 * (9/16) = 54 km/hr

Answer: A

Required value = $(0.1D)^2$ - 50% of D – 2

= $(0.1 * 70)^2$ - 50% of 70 – 2

= 49 – 35 – 2

= 49 – 37 = 12

14. Questions

Let the speed of boat A in still water and the speed of the stream in river be 16x km/hr and 9x km/hr respectively

According to the data,

(D + 80)/ (16x + 9x) = (D – 28)/ (16x – 9x)

7 * (D + 80) = 25 * (D – 28)

7D + 560 = 25D – 700

18D = 1260

D = 70

The speed of a boat B in still water = 180/3 = 60 km/hr

The speed of a boat A in still water = 60 * (8/5) = 96 km/hr

The speed of a stream = 96 * (9/16) = 54 km/hr

Answer: D

The distance covered by boat C in downstream = 3 * 70 = 210 km

Let the speed of a boat in still water be z km/hr

210/ (z + 12) = 6

35 = z + 12

z = 23

The speed of a boat in still water = 23 km/hr

The distance covered by boat C in upstream = 12 * (23 – 12)

= 12 * 11 = 132 km

15. Questions

Let the speed of boat A in still water and the speed of the stream in river be 16x km/hr and 9x km/hr respectively

According to the data,

(D + 80)/ (16x + 9x) = (D – 28)/ (16x – 9x)

7 * (D + 80) = 25 * (D – 28)

7D + 560 = 25D – 700

18D = 1260

D = 70

The speed of a boat B in still water = 180/3 = 60 km/hr

The speed of a boat A in still water = 60 * (8/5) = 96 km/hr

The speed of a stream = 96 * (9/16) = 54 km/hr

Answer: E

Time taken by boat B in upstream = 70 * (2/5) = 28 hours

The speed of stream is, now = 54 – 6 = 48 km/hr

Distance covered by boat B in upstream = 28 * (60 – 48) = 336 km

Required distance = (5D – 14) = (5 * 70) – 14 = 336 km

16. Questions

Answer: B

Let the cost price of sand be Rs. y per kg

So, the cost price of cement = Rs. 5y per kg

According to the question,

(50 – x) * 5y + (5x + 20) * y = 4050

250y – 5xy + 5xy + 20y = 4050

270y = 4050

y = 15

Required difference = 5y – y = 4y = 4 * 15 = Rs. 60

17. Questions

Answer: D

Let the present age of Ram and Tom be 5x years and 6x years respectively.

So, the present age of Sam = (6x – 7) years

The sum of the present age of given three persons = 43 * 3 = 129 years

According to the question,

5x + (6x – 7) + 6x = 129

17x = 136

x = 8

The present age of Sam = (6 * 8) – 7 = 41 years

The age of Sam hence 3 years = 41 + 3 = 44 years

18. Questions

Answer: C

According to the question,

Average speed = 2xy/ (x + y)

{2 * 5x * (5x – 12)}/ {5x + 5x – 12} = 160/3

x (5x – 12)/ (10x – 12) = 16/3

$15x^2$ - 36x = 160x – 192

$15x^2$ - 196x + 192 = 0

$15x^2$ - 180x – 16x + 192 = 0

15x (x – 12) – 16 (x – 12) = 0

(x – 12) (15x – 16) = 0

x = 12, x = 16/15

x is an integer so,

x = 12

19. Questions

Answer: E

The probability of picking an apple or strawberry = 1 – 1/2 = 1/2

Let the total number of apples and strawberries and the total number of fruits be x and 2x respectively.

According to the question,

2x – x = 60

x = 60

The total number of fruits = 2 * 60 = 120

The number of guava and pineapple = 120 – 60 = 60

Let the number of guava and pineapple be 5y and 7y respectively.

5y + 7y = 60

y = 60/12 = 5

The number of guava = 5 * 5 = 25

Required probability = $25c_1/120c_1$

25/120 = 5/24

20. Questions

Answer: A

Let the cost price of the speaker be Rs. 100x

The marked price of the article = 100x * (175/100) = Rs. 175x

The selling price of the article = 175x * [1 - (25/100)]

= 175x * (75/100) = Rs. 131.25x

According to the question,

(131.25x + 1400) = (175/100) * (100x – 800)

175x – 131.25x = 1400 + 1400

43.75x = 2800

x = 64

The cost price of the laptop = 64 * 100 = Rs. 6400

21. Questions

Answer: B

Let the efficiency of each boy and girl be 'b' units/day and 'g' units/day respectively.

According to the question,

(12 * b * 4) = (20 * g * 8)

3b = 10g

b/ g = 10/ 3

Let the value of b and g be 10x and 3x respectively.

Let 'd' be the number of days to complete the project.

(12 * b * 4) = (12 * b * 2) + [{(12 – 6) * b + (5 * g)} * d]

(12 * 10x * 4) = (12 * 10x * 2) + [{(6 * 10x) + (5 * 3x)} * d]

480x – 240x = [(60x + 15x) * d]

240x = 75x * d

80/25 = d

d = 16/5 = 3 (1/5)

Required time taken = 2 + 3 (1/5) = 5 (1/5) days

22. Questions

Answer: D

Let the number of postgraduate and undergraduate students in the college be 8x and 5x respectively.

According to the question,

5x * [1 - (20/100)] = 600

x * (80/100) = 120

x = 150

The number of male undergraduate students = 5 * 150 * (20/100) = 150

The number of male postgraduatestudents = 950 – 150 = 800

The number of female postgraduate students= 8 * 150 – 800 = 1200 – 800 = 400

The total number of female students in college = 400 + 600 = 1000

23. Questions

Answer: E

According to the question,

The curved surface area of the cone = πrl

(22/7) * 7 * l = 550

l = 25

Slant height = l = 25 cm

w.k.t, $l^2 = r^2 + h^2$

$h = \sqrt{(25^2 - 7^2)}$

$h = \sqrt{(625 - 49)}$

$h = \sqrt{576} = 24$ cm

The volume of cone = $(1/3)\pi r^2 h$

(1/3) * (22/7) * 7* 7 * 24

= 8 * 154= 1232 cm^3

24. Questions

Answer: A

According to the question,

The speed of a boat in downstream = 16 + the speed of boat in upstream

Bs + Ws = 16 + Bs – Ws

2Ws = 16

The speed of a stream = 8 km/hr

The speed of a boat in still water = 121/5.5 = 22 km/hr

Required time taken = 42/ (22 + 8) + 42/ (22 – 8)

= 42/30 + 42/14

= 1.4 + 3 = 4.4 hours

= 4 hours 24 minutes

25. Questions

Answer: C

The profit ratio of A, B and C

= (4800 * 24): (10800 * 12): (x+3000) * 20

= (4800 * 6): (10800*3): (20x+60000)

The total profit share of A and B = 4050 – 1500 = 2550

(20x+60000)/[(4800*6)+(10800*3) = 1500/2550

(20x+60000)*2550 = (28800+32400)*1500

x = 4200

Required value = 4200.

26. Questions

Answer: D

269.89 * 9.14 ÷ (? of 4.26) * 7.68 ÷ 15.34 = 8.97

270 * 9 ÷ (? * 4) * 8 ÷ 15 = 9

{18/ (? * 4)} * 8 = 1

? = 36

Hence, option D

27. Questions

Answer: A

$[(8.8 – 4)^2$ * 7.7 of 4.2 + {63.8 ÷ (4 of 2^3) of 5.8}] = ? of 4

$[(9 – 4)^2$ *(8 * 4)+ {64/ (4 * 2^3) * 6}] = ? of 4

[25 * 32 + 12] = ? * 4

812/4 = ?

? = 203

Hence, option A

28. Questions

Answer: E

(23.01 * 13.2 + (368.1 ÷ 4.2)) * (80.44 ÷ 46.04) = ?

(23 * 13 + (368 ÷ 4)) * (80 ÷ 46) = ?

? = (299 + 92) * (40/23)

? = 17 * 40

? = 680

Hence, option E

29. Questions

Answer: C

{(272.02 ÷ 16.88) + 27.88} * 84.66 ÷ 20.01 = ? + 3.03^3

{(272 ÷ 17) + 28} * 85 ÷ 20 = ? + 3^3

(16 + 28) * (17/4) = ? + 27

11 * 17 – 27 = ?

? = 187 – 27

? = 160

Hence, option C

30. Questions

Answer: B

{(85.11/15.03) + (94.33/3.33)} * √16.04 = 220.03 - ?

{(85/15) + (94/3)} * √16 = 220 - ?

{(17 + 94)/3} * 4 = 220 - ?

? = 220 - (444/3)

? = (660 – 444)/3

? = 216/3 = 72

Hence, option B

31. Questions

Answer: B

The given series follows the following pattern:

125 ÷ 5 = 25

25 * 10 = 250

250 ÷ 5 = 50

50 * 10 = 500

500 ÷ 5 = 100

Hence, option B

32. Questions

Answer: A

The given series follows the following pattern:

7 * 2 = 14

14 + 14 = 28

28 * 2 = 56

56 + 14 = 70

70 * 2 = 140

Hence, option A

33. Questions

Answer: E

The given series follows the following pattern:

$1070 - 10^3 = 70$

$70 + 8^3 = 582$

$582 - 6^3 = 366$

$366 + 4^3 = 430$

$430 - 2^3 = 422$

Hence, option E

34. Questions

Answer: D

The given series follows the following pattern:

(20 * 5) – 1 = 99

(99 * 5) – 2 = 493

(493 * 5) – 4 = 2461

(2461 * 5) – 8 = 12297

(12297 * 5) – 16 = 61469

Hence, option D

35. Questions

Answer: C

The given series follows the following pattern:

840 752 **672** 600 536 480

-88 -80 -72 -64 -56

+8 +8 +8 +8

Hence, option C

36. Questions

Answer: B

From I,

$x^2 + 6 = 5.6x - 2/5$

$5x^2 + 30 = 28x - 2$

$5x^2 - 28x + 32 = 0$

$5x^2 - 20x - 8x + 32 = 0$

$5x (x - 4) - 8 (x - 4) = 0$

$(x - 4) (5x - 8) = 0$

$x = +4, +8/5$

From II,

$12y^3 = 800 - 32$

$12y^3 = 768$

$y^3 = 64$

$y = 4$

X	relation	y
+4	=	+4
+8/5	<	+4

So, $x \leq y$

Hence, option B

37. Questions

Answer: A

From I,

$x^2 - 13x + 40 = 0$

$x^2 - 8x - 5x + 40 = 0$

$x (x - 8) - 5 (x - 8) = 0$

$(x - 8) (x - 5) = 0$

$x = +8, +5$

From II,

$2y (y + 1) = y + 15$

$2y^2 + 2y - y - 15 = 0$

$2y^2 + y - 15 = 0$

$2y^2 + 6y - 5y - 15 = 0$

$2y (y + 3) - 5 (y + 3) = 0$

$(y + 3) (2y - 5) = 0$

$y = -3, +5/2$

X	relation	y
+8	>	-3
+8	>	+5/2
+5	>	-3
+5	>	+5/2

So, $x > y$

Hence, option A

38. Questions

Answer: B

From I,

$x^2 + 19x + 90 = 0$

$x^2 + 10x + 9x + 90 = 0$

$x (x + 10) + 9 (x + 10) = 0$

$(x + 10) (x + 9) = 0$

$x = -10, -9$

From II,

$y^2 + 28y + 180 = 0$

$y^2 + 18y + 10y + 180 = 0$

$y (y + 18) + 10 (y + 18) = 0$

$(y + 18) (y + 10) = 0$

$y = -18, -10$

x	relation	y
-10	>	-18
-10	=	-10
-9	>	-18
-9	>	-10

So, $x \geq y$

Hence, option B

39. Questions

Answer: C

From I,

$x^2 + 13x + 36 = 0$

$x^2 + 4x + 9x + 36 = 0$

$x (x + 4) + 9 (x + 4) = 0$

$(x + 4) (x + 9) = 0$

$x = -4, -9$

From II,

$2y^2 - 29y - 15 = 0$

$2y^2 - 30y + y - 15 = 0$

$2y (y – 15) – 1 (y – 15) = 0$

$(2y + 1) (y – 15) = 0$

$y = +15, -0.5$

x	Relation	y
-4	<	+15
-4	<	+0.5
-9	<	+15
-9	<	+0.5

So, x < y

Hence, option C

40. Questions

Answer: E

From I,

$x^2 + 12x - 28 = 0$

$x^2 + 14x - 2x - 28 = 0$

$x (x + 14) - 2 (x + 14) = 0$

$(x + 14) (x - 2) = 0$

$x = -14, +2$

From II,

$y^2 + 11y + 28 = 0$

$y^2 + 7y + 4y + 28 = 0$

$y (y + 7) + 4 (y + 7) = 0$

$(y + 7) (y + 4) = 0$

$y = -7, -4$

X	relation	y
-14	<	-7
-14	<	-4
+2	>	-7
+2	>	-4

The relation between x and y cannot be established.

So, x = y

Hence, option E