

Type - 1

RRB RPF Constable -17/01/2019 (Shift-II)

Ans : (b) Let the population of the town is 100%.

Rest population after epidemic = 95%

The population who left the town with panic = 8%

$$\text{Rest people} = \frac{95 \times 92}{100} = 87.40\%$$

Given,

$$87.40\% = 88274$$

$$100\% = \frac{88274 \times 100}{87.40} = 1,01,000$$

Hence, the total population of the town is 1,01,000.

2. The population of a village increased from 18000 to 22500. What is the increase percentage?

RRB JE - 29/05/2019 (Shift-III)

Ans : (a) Required increase percentage

$$= \frac{(22500 - 18000) \times 100}{18000} = \frac{4500 \times 100}{18000} = 25\%$$

3. The population of a town increased by 10% and 20% in two successive years, but decreased by 25% in the third year. Find the ratio of the population in the third year and the population 3 years back.

RRB JE - 01/06/201

Ans : (b) Let the population

$$x \times \frac{(100+10)}{100} \times \frac{(100+20)}{100} \times \frac{(100-25)}{100}$$

$$x \times \frac{110}{100} \times \frac{120}{100} \times \frac{75}{100} = \frac{99x}{100}$$

$$\frac{\text{Population in third year}}{\text{Population before three years}} = \frac{99x}{100 - x}$$

$$= \frac{99x}{100} \times \frac{1}{x} = \frac{99}{100} = 99:100$$

RRB Group-D – 08/10/2018 (Shift-I)

Ans. (d) : Educated population of the town = 62%

$$\text{Uneducated population} = (100 - 62) = 38\%$$

If the total population of the town is x , then number of uneducated people

$$24567 = \frac{x \times 38}{100}$$

$$x = \frac{24567 \times 100}{38} = 64650$$

So, the total educated population of the town

$$= \frac{64650 \times 62}{100} = 40083$$

5. What will be the population of a town after two years, if the present population is 1,20,0000 and population growth rate is 4%?

RRB Group-D – 24/09/2018 (Shift-II)

Ans : (a)

The present population of the town = 1,20,0000

% growth rate = 4%

$$\text{Population after two years} = 1200000 \left(1 + \frac{4}{100}\right)^2$$

$$= 1200000 \times \frac{26}{25} \times \frac{26}{25}$$

$$= \frac{1200000 \times 676}{625} = 1297920$$

6. The population of a town is growing at a rate of 5% per year. If the present population of the town is 1,85,220, then what was the population of the town one year ago?

RRB Group-D – 16/10/2018 (Shift-D)

Ans. (c) : Let the population of the town before a year was $100x$.

And it is growing at a rate of 5%.

The present population = 1

According to the present position

105x=12

x=1764

The population before

RRB Group-D – 30/10/2018 (Shift-II)

Ans : (d) Let the number of men in the town is x .
So, the number of women = 8000.

According to the question

$$\begin{aligned}
 &= x \times \frac{108}{100} + (8000 - x) \times \frac{112}{100} = 8680 \\
 &= \frac{108x + 8000 \times 112 - 112x}{100} = 8680 \\
 &= 896000 - 4x = 868000 \\
 4x &= 896000 - 868000 \\
 4x &= 28000 \\
 x &= 7000
 \end{aligned}$$

So, the number of women = $8000 - 7000 = 1000$

Ans. (b) : Let the population of the colony was P , two years ago.

So, the population two years ago

$$P = \frac{21600000}{441} = 48980 \text{ (Approx)}$$

Ans. (c) Population of the town after n years

$$= \text{present population} \left(1 + \frac{r}{100}\right)^t$$

Where, $n = 3$ years, and $r = 3\%$

$$\begin{aligned}
 \text{So, the population after 3 years} &= 30,00,000 \left(1 + \frac{3}{100} \right)^3 \\
 &= 30,00,000 \times \frac{103 \times 103 \times 103}{100 \times 100 \times 100} \\
 &= 3 \times 103 \times 103 \times 103 = 3278181
 \end{aligned}$$

10. 111 out of 200 people in a village are literate. What is the percentage of uneducated people in the village?
- (a) 45% (b) 44.5%
 (c) 55.5% (d) 54%

RRB NTPC 18.01.2017 Shift : 3

Ans : (b)

The number of uneducated people = $200 - 111 = 89$

$$\text{So, the required \%} = \frac{89}{200} \times 100 = 44.5\%$$

Type - 2

11. The ratio of boys and girls in a school is 3:2. If 20% boys and 25% girls get the scholarship, then how many percentage of students do not get the scholarship?
- (a) 80% (b) 70%
 (c) 56% (d) 78%

RRB JE - 02/06/2019 (Shift-III)

Ans : (d) Let the number of students = $3x$

The number of girls in the school = $2x$

The number of total students = $5x$

The number of boys who do not get the scholarship

$$= 3x \times \frac{80}{100} = \frac{12x}{5}$$

The number of girls who do not get the scholarship

$$= 2x \times \frac{75}{100} = \frac{3x}{2}$$

The number of students who do not get the scholarship

$$= \frac{12x}{5} + \frac{3x}{2} = \frac{39x}{10}$$

$39x$

So, the required percentage = $\frac{10}{5x} \times 100$

$$= \frac{39x}{10} \times \frac{1}{5x} \times 100 = 78\%$$

12. If Anju scored 68 out of 80 in Hindi, 46 out of 60 in Mathematics, 74 out of 90 in Science, and 35 out of 45 in English, in which subject did Anju score the maximum percentage marks?

- (a) Mathematics (b) Hindi
 (c) English (d) Science

RRB RPF-SI -05/01/2019 (Shift-II)

Ans : (b) Hindi % = $\frac{68}{80} \times 100 = \frac{68}{4} \times 5 = 85\%$

Mathematics % = $\frac{46}{60} \times 100 = \frac{46}{3} \times 5 = \frac{230}{3} = 76.67\%$

Science % = $\frac{74}{90} \times 100 = \frac{740}{9} = 82.22\%$

English % = $\frac{35}{45} \times 100 = \frac{35}{9} \times 20 = \frac{700}{9} = 77.78\%$

So, Anju got maximum percentage in Hindi.

13. In an examination, 40 out of 85 students scored less than 50%. The ratio of the number of students, scoring less than 50% to the number of scoring 50% or more marks is:

RRB RPF Constable -18/01/2019 (Shift-I)

Ans : (c) The required ratio

$$= 45 : 40$$

$$= 9 : 8$$

Ans. (d) : Maximum marks = 450

The percentage of marks obtained to pass the exam = 42%

So, the marks obtained to pass the exam

$$= 450 \times \frac{42}{100} = 189$$

Ans. (c) : If the maximum marks were N

$$\text{Then, } 58.5 = \frac{N \times 78}{100}$$

$$N = \frac{5850}{78} = 75$$

16. 5% students are absent in a class, some day. If the number of present students is 38, then what is the total number of students in the class that day?

RRB Group-D – 20/09/2018 (Shift-III)

Ans : (a) Let the total students in the class = 100%
 % of students present in the class = $100 - 5 = 95\%$
 The students present in the class = 38

$$\text{So, the number of total students} = 38 \times \frac{100}{95} = 40$$

17. Ram obtained 40% marks in an exam and failed by 20 marks. Aditya obtained 45% marks and that is 30 marks more than the passing marks. What is the percentage of passing marks?

(a) 38% (b) 42%
 (c) 43% (d) 33%

RRB Paramedical Exam – 20/07/2018 (Shift-III)

Ans : (b) According to the question,
40% marks + 20 marks less = 45% marks - 30 marks
more

$$20 + 30 = 50\%$$

$$5\% = 50$$

$$1\% = 10$$

$$100\% = 1000$$

$$\text{So, the total marks to pass} = 1000 \times \frac{40}{100} + 20 \\ = 420$$

$$\text{So, the \% marks (\%)} = \frac{420}{1000} \times 100 = 42\%$$

18. Pranjoy obtained 272 marks in an exam, which was equal to get 64% marks. What was the exam score?

RRB Group-D – 26/09/2018 (Shift-I)

Ans : (a) According to the question,

$$64\% = 272$$

$$1\% = \frac{272}{64}$$

$$100\% = \frac{272}{64} \times 100 = 425 \text{ marks}$$

So, the maximum marks of the exam were 425.

19. A student needs 40% marks to pass. He obtained 40 marks in an exam and he failed by 40 marks. What are the maximum marks that can be obtained for the exam?

Ans. (d) : Let the total maximum marks be x .

Ans. (d) : Let us consider

$$x \times \frac{40}{100} = 40 + 40$$

$$\frac{40x}{100} = 80$$

$$x = 200$$

20. The following table shows the results of the students participated in the exam. What is the percentage of the passed students?

Result	Number of students
Pass	150
Fail	100

- (a) 40% (b) 60%
 (c) 50% (d) 30%

RRB Group-D – 04/10/2018 (Shift-II)

Ans : (b)

$$\begin{aligned}
 \text{Ans : (b)} \\
 \text{The \% of passed students} &= \frac{\text{Passed students}}{\text{Total students}} \times 100 \\
 &= \frac{150}{250} \times 100 \\
 &= 60\%
 \end{aligned}$$

RRB Group-D – 30/10/2018 (Shift-III)

Ans. (b) Let the maximum marks of the exam be x .

$$20\% x + 35 = 50\% x - 32$$

$$35 + 32 = 50\% \text{ vs } 30\% \text{ vs}$$

$$67 = 30\% \times$$

$$30\%x = 67$$

30

$$\frac{50}{100}x = 67$$

100

$$x = \frac{670}{3}$$

Durba got 70

22. Durba got 70% marks in an exam. He obtained 20 out of 25 marks in another exam. If his total score is 78% then what were the maximum marks of the first exam?

RRB Group 'D' 07/12/2018 (Shift-I)

Ans : (b) Let the maximum marks of the first exam be x .

And the passing marks =

first condition,
 $y = 70$ $7x$

$$x = \frac{1}{100}, \quad y = \frac{1}{10}$$

$$\frac{y+20}{2} = \frac{78}{2}$$

$$\frac{x+25}{7x+200} = \frac{100}{125}$$

$$x + 25 = 10$$

$$10x + 2$$

$$x = 6.25$$

Therefore, Maximum marks = 6.25

23. A student had got few marks from maximum marks probably. These marks were 75% as %. If one more question would be added of one mark in the exam then his obtained marks percentage would have 76%. What were the initial maximum marks of the exam?

RRB Group 'D' 07/12/2018 (Shift-I)

Ans : (a) Let the maximum marks =

and the student had got y marks.

ng to the

$$y = \frac{3x}{4} \quad \dots \dots \dots (1)$$

According to the second condition,

$$\frac{y+1}{x+1} = \frac{76}{100}$$

$$\frac{3x}{x+1} + 1 = \frac{76}{100} \quad \{ \text{from eqn. (I)} \}$$

$$\frac{3x+4}{x+1} = \frac{76}{25}$$

$$75x + 100 = 76x + 76$$

$$x = 24$$

RRB Group-D – 05/12/2018 (Shift-III)

Ans : (a) Minimum required marks to pass the exam

$$= 750 \times \frac{38}{100} = 285$$

25. A exam was organized for class 10th students, 96% students passed and 50 failed. How many students were present in the exam?

(b) 1400
(d) 1250

RRB Group-D – 15/10/2018 (Shift-III)

Ans. (d) Let the number of students = 100%

Ans. (d) Let the number of students be x .
Passed students = 96%

Failed students = 4%

$$\therefore 4\% = 50$$

So, the number of students present in the exam

$$= 100\% = \frac{50 \times 100}{4} = 1250$$

26. Diksha obtained 58% marks in an exam, maximum marks of which were 450. She got how many marks?

Maximum marks = 450

So, the marks obtained by

58

$$= \frac{58}{100} \times 450 \\ = \frac{58 \times 9}{2} \\ = 261$$

27. 60% are boys in a class of 60 students. If 25% girls go to school on bicycle, then find the number of girls who do not go to school on bicycle?

- (a) 24
(c) 18

- (b) 27
(d) 36

RRB NTPC 18.01.2017 Shift : 2

Ans : (c)

Number of boys in 60 students = $\frac{60 \times 60}{100} = 36$

Then, number of girls = $60 - 36 = 24$

The girls who ride on bicycle to go to school

$$= \frac{24 \times 25}{100} = 6$$

So, the required number of girls = $24 - 6 = 18$

28. A student scored 22 marks out of 25 in a class examination. The percentage marks of the student is:

- (a) 88
(c) 90

- (b) 80
(d) 75

RRB NTPC 17.01.2017 Shift-1

Ans : (a) Scored marks = 22

Maximum marks = 25

So, the percentage of gained marks = $\frac{22}{25} \times 100$
 $= 22 \times 4 = 88\%$

29. If the marks of a student increased by 25% then his test's score became 75. What is his real obtained mark?

- (a) 60
(c) 15

- (b) 50
(d) 25

RRB NTPC 17.01.2017 Shift-2

Ans : (a) Let the original marks = x.

Then, according to the question,

$$\Rightarrow x \times \frac{125}{100} = 75 \Rightarrow x = \frac{75 \times 100}{125} = 60$$

30. A student scored 9 marks out of 25 in an exam organized in a class. Express the marks obtained by the student in percentage.

- (a) 30
(c) 35

- (b) 36
(d) 25

RRB NTPC 17.01.2017 Shift-3

Ans : (b) Obtained marks = 9

Total marks = 25

So, % of obtained marks,

$$= \frac{9}{25} \times 100 = 36$$

31. A student scored 470 marks in 6 subjects. The maximum marks for each subject was 100. What was his score in percentage terms?

- (a) 67.33%
(c) 78.33%

- (b) 69.45%
(d) 78.67%

RRB NTPC 05.04.2016 Shift : 3

Ans : (c) Total marks = 600

Obtained marks = 470

So, the required % = $\frac{470 \times 100}{600}$
 $= 78.33\%$

RRB ALP & Tec. (30-08-18 Shift-I)

Ans : (a) Marks secured by Charan = 54 which is 72% of the total marks.

If the total marks of the exam is x, then

$$54 = \frac{x \times 72}{100}$$

$$x = \frac{100 \times 54}{72}$$

$$x = 75 \text{ marks}$$

Type - 3

33. Moris spent 25% of his income on food. He got an increment of ₹ 1000, but he did not expand his expense on food stuffs. Therefore, his expense of food decreased to 20%. What was his initial income?

RRB RPF SI -16/01/2019 (Shift-I)

Ans : (d) Let the initial income = ₹y

According to the question,

$$y \times \frac{25}{100} = (y + 1000) \frac{20}{100}$$

$$25y - 20y = 20000$$

$$5y = 20000$$

v = ₹4000

34. Arun's income is 150% of Bala's income. Chandu's income is 120% of Arun's income. If the total income of Arun, Bala and Chandu is ₹ 86000, then find Chandu's income.

RRB RPF Constable -19/01/2019 (Shift-III)

Ans : (a) Let Bala's income = ₹x

$$\text{So, Arun's income} = x \times \frac{150}{100} = \frac{3x}{2}$$

$$\text{And Chandu's income} = \frac{3x}{2} \times \frac{120}{100} = \frac{9x}{5}$$

According to the question,

$$x + \frac{3x}{2} + \frac{9x}{5} = 86000$$

$$\frac{10x + 15x + 18x}{10} = 86000$$

$$43x = 10 \times 86000$$

$$x = 20000$$

$$\text{So, Chandu's income} = \frac{9 \times 20000}{5} = ₹36000$$

(d) 24
RRB Group-D – 15/11/2018 (Shift-I)
3400000

Ans : (a) Somnath's annual income = 2400000

$$\text{Monthly income} = \frac{1}{12} \times 2400000 = 200000$$

Monthly payment of EMI = 40000

$$\text{So, the required \%} = \frac{40000}{200000} \times 100 = 20\%$$

36. Reenu uses averagely 15% on shopping, restaurant and going into malls of her monthly salary. Rest 40% is used in home expenditure, and 45% goes to her savings. If she spends ₹ 40,000 on home in a month, then what is her annual income?

(1) ₹1400000

annual income:

- (a) ₹1020000
- (b) ₹1400000
- (c) ₹1200000
- (d) ₹1000000

RRB Group-D – 16/10/2018 (Shift-I)

Ans. (c) : According to the question,

$$40\% = ₹40000$$

$$100\% = \frac{40000}{40} \times 100 = 100000$$

$$\text{So, annual income} = 12 \times 100000 = ₹1200000$$

37. Seema's annual income is ₹ 15,00,000. She pays an EMI of ₹ 30,000 per month. What percentage of her monthly income goes to EMI?

RRB Group-D – 28/09/2018 (Shift-III)

Ans : (a) Seema's annual income = ₹ 15,00,000

$$\text{So, the monthly income} = \frac{15,00,000}{12} \\ = ₹ 1,25,000$$

EMI payment of every month = ₹ 30,000

$$\begin{aligned} \text{So, the required \%} &= \frac{30,000}{125,000} \times 100 \\ &= \frac{3000}{125} \\ &= 24\% \end{aligned}$$

38. Sunaina works in a private company and her annual income is ₹ 3,00,000. She has a new and an old vehicle. 5% of her income is spent on keeping of new vehicle and 2% more than the new one is spent on old one. What is the total annual expenditure on both vehicles?

RRB Group-D – 28/09/2018 (Shift-III)

Ans : (b) Annual income of Sunaina = ₹ 3,00,000
 Expenditure on new vehicle = 5% of the income
 $= 300000 \times \frac{5}{100}$

$$= 300000 \times \frac{5}{100}$$

= ₹ 15000

$$\text{Expenditure on old vehicle} = 5 + 2 = 7\% \\ \frac{7}{100} \times 21000 = ₹ 15000$$

$$= 300000 \times \frac{7}{100} = ₹ 21000$$

So, the total expenditure on both vehicles
 $= 15000 + 21000 = ₹ 36000$

RRB Group-D - 17/09/2018 (Shift-II)

Ans : (c) Let her monthly income is = ₹ 100x
So, the rent expenditure = ₹ 30x

So, the rent expenditure = ₹ 30x

$$\therefore \text{Home expenditure} = \frac{70x \times 60}{100} = ₹ 42x$$

$$\text{Total expenditure} = 30x + 42x = 72x$$

∴ So, the savings = $100x - 72x = 28x$

$$\therefore \text{So, the monthly income of Kritika } (100x) = \frac{6300}{28} \times 100 \\ = ₹ 22500$$

40. Minakshi spends averagely 10% of her monthly salary on shopping, restaurant and going to malls. Rest 80% is spent on her home expenditure and 10% are saved. If the monthly home expenditure is ₹ 48,000, then what is the monthly income?

monthly income:

- (a) ₹ 60,000
- (b) ₹ 80,000
- (c) ₹ 1,20,000
- (d) ₹ 54,000

RRB Group-D – 25/09/2018 (Shift-III)

Ans. (a) : Let the monthly income = 100%

Home expenditure = 80%

Monthly home expenditure = ₹ 48,000

$$80\% \equiv 48000$$

$$100\% = \frac{48000}{80} \times 100 \\ \equiv 600 \times 100$$

So, the monthly income is = ₹60000

41. Pramod uses averagely 10% of his monthly income for filling the petrol in his car. Rest 80% is spent on home expenditure and he saves 10% of his salary. If he monthly spends ₹ 24,000 on home expenditure then what is his annual income?

RRB Group-D – 26/09/2018 (Shift-III)

Ans : (a) Let the monthly income is = ₹ x
 Monthly home expenditure = 80% = ₹24000
 80

$$x \times \frac{80}{100} = 24000 ,$$

$$x = 30000$$

So, the annual income = $30000 \times 12 = ₹360000$

42. Manoj spends 33% of his income on food. He got an increment of ₹ 1000, but he did not expand his expenditure on food. So, his expenditure on food reduced to 27%. What was his initial salary?

RRB Group-D – 04/10/2018 (Shift-II)

Ans : (a) Let Manoj's income = x ₹0

$$\text{Food expenditure} = x \times \frac{33}{100} = \frac{33x}{100}$$

$$\text{Manoi's new income} = x + 1000$$

$$\text{Deduction in expenditure} = (x + 1000) \times \frac{27}{100}$$

Previous expenditure = new expenditure

$$\frac{33x}{100} = \frac{27x + 27000}{100}$$

100 100
as 27 x + 27000

$$6 = 27000$$

$$6x = 270$$

$x = 4500$

43. Suman is a hostess of an agricultural land. She had let it on lease to a third party for five years. Instead of this income she also gets an annual salary of ₹ 6,00,000. In five years, total income of agricultural land is 50% of her annual income. How much money she earns each year?

(b) ₹6,60,000

(a) ₹3,00,000 (b) ₹5,00,000
 (c) ₹6,00,000 (d) ₹6,30,000

Ans : (b) Ann
Income from
income $\times \frac{50}{100}$

So, income from agriculture in one year

$$= \frac{30,000}{5} = 60000$$

$$\text{So, total annual income} = 600,000 + 60000 = ₹660000$$

44. If Santi spends 50% of his monthly income on food, 20% on rent and saves Rs 1500 then, what is his monthly income?

RRB Group-D – 24/10/2018 (Shift-II)

RRB ALP & Tec. (21-08-18 Shift-I)

Ans : (d) Let the initial income = ₹x
According to the question,

$$x \times \frac{115}{100} = 14030, \quad x = ₹ 12,200$$

(d) $\sqrt{V_{avg} - \bar{x}_y}$
RRB ALP & Tec. (10-08-18 Shift-I)

Ans : (a) Let the monthly income of Veer = ₹x
According to the question,

$$x \text{ of } \frac{(100-15)}{100} \text{ of } \frac{(100-60)}{100} = 2210$$

$$x \times \frac{85}{100} \times \frac{40}{100} = 2210$$

$$x = \frac{2210 \times 100 \times 100}{85 \times 40} = ₹6500$$

Type - 4

51. If $20\% \text{ of } a = b$, then $b\% \text{ of } 20$ is equals to what of the following?
(A) $4\% \text{ of } a$

- (a) 20% of a (b) 4% of a
(c) 5% of a (d) 30% of a

RRB JE - 24/05/2019 (Shift-I)

Ans : (b) Let b% of 20, is equal to x% of a.

$$\therefore a \times 20\% = b$$

$$\Rightarrow a \times \frac{20}{100} = b$$

$$\Rightarrow \mathbf{a} = 5\mathbf{b}$$

$$\therefore 20 \times \frac{b}{100} = a \times \frac{x}{100}$$

$$\Rightarrow 20b = ax$$

$$\Rightarrow 20 \times \frac{a}{5} = ax$$

$$x = 4\%$$

52. 1 min 12 sec of 1 hour is how much?

RRB RPF SI -06/01/2019 (Shift-II)

Ans : (a) The required percentage,

$$= \frac{(60 \text{ sec.} + 12 \text{ sec.})}{60 \times 60} \times 100 = \frac{72}{60 \times 60} \times 100 = 2\%$$

53. If 40% of 70, is x % more than 30% of 80, then find the value of 'x'.

- (a) 40% (b) 16.67%
 (c) 14.28% (d) 33.33%

RRB RPF SI -13/01/2019 (Shift-III)

$$\text{Ans : (b) } 40\% \text{ of } 70 = 70 \times \frac{40}{100} = 28$$

$$30\% \text{ of } 80 = 80 \times \frac{30}{100} = 24$$

Difference = $28 - 24 = 4$
 According to the question,
 28 , is $x\%$ more than 24

$$\therefore x = \frac{4}{24} \times 100$$

$$x = 16.66 \approx 16.67\%$$

54. The 8th share of a number, is equal to what percentage of it? (b) 25%

- percentage of it:** (b) 25%
 (a) 12.5% (d) 1.25%
 (c) 2.5%

RRB JE - 26/05/2019 (Shift-II)

Ans : (a) Let the number be x and its 8^{th} share is equal to its $y\%$.

According to the question,

$$\frac{x}{8} = x \times \frac{y}{100}$$

$$y = \frac{100}{8}$$

$$y = 12.5\%$$

55. If $75\% \text{ of } 480 + x\% \text{ of } 540 = 603$, then find the value of 'x'. (b) 65

- value of 'X'.**

(a) 55	(b) 65
(c) 35	(d) 45

RRB JE - 27/05/2019 (Shift-III)

Ans : (d) Given,
 $75\% \text{ of } 480 + x \% \text{ of } 540 = 603$

$$480 \times \frac{75}{100} + 540 \times \frac{x}{100} = 603$$

$$540 \times \frac{x}{100} = 603 - 480 \times \frac{3}{4}$$

$$540 \times \frac{x}{100} = 603 - 360$$

$$540 \times \frac{x}{100} = 243$$

$$x = \frac{243 \times 100}{540}, \quad \boxed{x = 45}$$

56. A number, when 35 subtracted from it, reduces to its 80%. What is four-fifths of that number?

RRB JE - 30/05/2019 (Shift-II)

Ans : (c) Let the number be x .
According to the question,

$$x - 35 = x \times \frac{80}{100}$$

$$x - 35 = \frac{4x}{5}$$

$$5x - 175 = 4x$$

$$x = 175$$

$$\text{So, four-fifths of the number} = 175 \times \frac{4}{5} = 140$$

RRB Group-D – 31/10/2018 (Shift-I)

Ans : (c) One day = 24 hours

$$\therefore \frac{6}{24} \times 100 = 25\%$$

RRB Group-D – 05/11/2018 (Shift-I)

Ans. (c) Number of minutes in $1\frac{1}{2}$ days, $= \frac{3}{2} \times 24 \times 60$
 $= 36 \times 60$ min.

So, the required %,

$$= \frac{15}{36 \times 60} \times 100 = \frac{25}{36}\%$$

RRB Group-D – 05/11/2018 (Shift-III)

Ans. (d) The required percentage,

$$\frac{48 \times 100}{60} = 80\%$$

- 65.** What will be 46% of 250?

RRB Group-D – 23/10/2018 (Shift-I)

Ans. (b) The required percentage,

$$\frac{250 \times 46}{100} = \frac{25 \times 46}{10} = \frac{1150}{10} = 115$$

66. A number becomes 725 when increased by 45%. Find the number.

RRB Group-D – 09/10/2018 (Shift-II)

Ans. (a) Let the number be x .
According to the question,

$$x + \frac{45}{100}x = 725$$

$$\frac{100x + 45x}{100} = 725$$

$$145x = 725 \times 100$$

$x = 500$

- 67 What is 15% of 34?**

RRB NTPC 17.01.2017 Shift-1

Ans : (a) The required percentage,

$$= \frac{34 \times 15}{100} = \frac{510}{100} = 5.1$$

Ans : (b) Let the number be x , then

$$90 = \frac{x \times 72}{100}$$

$$10 = \frac{x \times 8}{100}$$

$$x = \frac{1000}{8}$$

$$\boxed{x = 125}$$

74. What is the 58% of 350 ?

- | | |
|---------|---------|
| (a) 217 | (b) 203 |
| (c) 210 | (d) 196 |

Ans : (b) 58% of 350

$$= 350 \times \frac{58}{100} = 7 \times \frac{58}{2} = 7 \times 29 = 203$$

75. 84% of a number is 105. The number is:

- | | |
|---------|---------|
| (a) 120 | (b) 112 |
| (c) 125 | (d) 115 |

RRB ALP & Tec. (21-08-18 Shift-II)

Ans : (c) Let the number be x .

According to the question,

$$x \times \frac{84}{100} = 105, \quad x = \frac{105 \times 100}{84}$$

$$x = 125$$

Type - 5

76. The price of a book was first increased by 25% and then reduced by 20%. What is the change in its original price?

- | | |
|------------------|------------------|
| (a) 5% decrease | (b) No change |
| (c) 10% increase | (d) 10% decrease |

RRB JE - 25/05/2019 (Shift-III)

Ans : (b) Percentage change = $x - y - \frac{xy}{100}$

$$= 25 - 20 - \frac{25 \times 20}{100} = 25 - 25 = 0\%$$

77. If the consumption of sugar increases from 12 kg to 15 kg, then find the percentage growth.

- | | |
|-----------|-----------|
| (a) 39.2% | (b) 20% |
| (c) 25% | (d) 33.3% |

RRB JE - 01/06/2019 (Shift-III)

Ans. (c) Initial consumption of sugar = 12 kg.

And now the consumption of sugar = 15 kg.

Growth = $15 - 12 = 3$ kg.

$$\text{So, \% growth} = \frac{3}{12} \times 100 = 25\%$$

78. The price of rice is increased from ₹ 25 per kg to ₹ 30 per kg. The consumption should be decreased to which percentage so that the expenditure remains the same?

- | | |
|-----------------------|----------------------|
| (a) $16\frac{2}{3}\%$ | (b) $8\frac{1}{3}\%$ |
| (c) 10% | (d) 16% |

RRB RPF Constable -22/01/2019 (Shift-II)

Ans : (a) Initial price of rice = ₹25 /kg.
Now the price of rice = ₹30/kg.
Increased price = $30 - 25 = ₹5/\text{kg}$.

$$\begin{aligned}\text{So, } \quad \% \text{ decrease} &= \frac{5}{30} \times 100 \\ &= \frac{50}{3} = 16\frac{2}{3}\%\end{aligned}$$

79. When the price of a cycle decreased by 20%, then the number of sold bicycles increased by 20%. What was the effect on sale of the shop?

- (a) 4% decrease (b) 4% increase
(c) 10% increase (d) 10% decrease

RRB JE - 27/06/2019 (Shift-III)

$$\begin{aligned}\text{Ans : (a) } \% \text{ change} &= x \pm y \pm \frac{xy}{100} \\ &= -20 + 20 - \frac{20 \times 20}{100} \\ &= -4\% \text{ (-ve sign denotes decrease)} \\ \text{So, the decrease of } 4\% &\text{ is the required change}\end{aligned}$$

80. How many % is the single discount equivalent to two consecutive discounts 12% and 5%?

- (a) 17% (b) 8.5%
(c) 16.4% (d) 15.2%

RRB RPF SI -11/01/2019 (Shift-II)

Ans : (c) If both consecutive discounts are a% and b%, then equivalent discount

$$= a + b - \frac{ab}{100}$$

So, equivalent discount to 12% and 5%

$$\begin{aligned}&= 12 + 5 - \frac{12 \times 5}{100} \\ &= 17 - 0.6 = 16.4\%\end{aligned}$$

Hence discount = 16.4%

81. Petrol's price has been increased by 10% in the new budget. The passenger of a motor vehicle can reduce the consumption to how many %, so that his total expenditure on petrol remains the same?

- (a) 10% (b) $9\frac{1}{11}\%$
(c) 11% (d) $11\frac{1}{9}\%$

RRB RPF SI -10/01/2019 (Shift-II)

Ans : (b) Formula- for such cases,

$$\text{Decrease \%} = \left(\frac{x}{100+x} \right) \times 100$$

Given- Growth = 10%

So, decrease in consumption,

$$\begin{aligned}&= \left(\frac{10}{100+10} \right) \times 100 \\ &= \frac{1}{11} \times 100 = 9\frac{1}{11}\%\end{aligned}$$

Ans : (c) From formula,

$$\text{Decrease \%} = \frac{x}{100+x} \times 100$$

$$\text{So, \% decrease in the salary} = \frac{25}{100+25} \times 100$$

$$= \frac{25}{125} \times 100 \\ = \frac{100}{5} = 20\%$$

83. A car was bought of ₹ 16,000. Its price decreases by 10% per year. What will be the price after two years?
 (a) ₹ 12,960 (b) ₹ 12,960

Ans : (b) Price after 2 years,

$$= 16000 \left(1 - \frac{10}{100}\right)^2$$

$$= 16000 \times \frac{81}{100} = ₹ 12960$$

84. The decision to provide electricity connection to all 1200 families who are living without electricity, has been taken. If the rate of electrification is 75% per year, then find the number of families living without electricity connection after two years.

- (a) 45 (b) 75
 (c) 55 (d) 65

Ans : (b) The number of families who got the connection in the first year

$$= 1200 \times \frac{75}{100} = 900$$

The number of families who are not benefitted = $1200 - 900 = 300$

$900 = 300$
The number of families who got the connection in the second year

$$= 300 \times \frac{75}{100} = 225$$

$$\text{The number of rest families} = 300 - 225 = 75$$

So, the required number of families is 75.

85. In a shopping mall the cost price of an article was increased by 10% and then it was reduced by 10%. What is the percentage increase or decrease?

- (a) 1.5% increase (b) 1% increase
 (c) 1% decrease (d) 1.5% decrease

RRB Group-D – 17/09/2018 (Shift-III)

Ans. (c) : In such cases there is always loss if same price is increased first and decreased later.

$$\begin{aligned}\text{Loss \%} &= \frac{x^2}{100}\% \\ &= \frac{10^2}{100} \\ &= \frac{100}{100}\% = 1\%\end{aligned}$$

86. If the cost of tomatoes increases by 25% per Kg and Sudha wants to spend only 15% more on the tomatoes. Calculate the percentage decrease in the quantity of tomatoes that Sudha gets.

RRB Group-D – 18/09/2018 (Shift-II)

Ans. (c) : Let the initial price of tomatoes = x ₹/ kg

$$\text{Price after 25\% increase} = x \times \frac{125}{100} = \frac{5x}{4} \text{ ₹/ kg}$$

$$\text{Expenditure on tomatoes by Sudha} = x \times \frac{115}{100} = \frac{23x}{20}$$

$$\text{So, the quantity of tomatoes} = \frac{20}{5x} = \frac{23x \times 4}{20 \times 5x} = \frac{23}{25} \text{ kg}$$

$$\text{So, the decrease in the tomatoes} = 1 - \frac{23}{25} = \frac{2}{25} \text{ kg}$$

$$\therefore \% \text{ decrease} = \frac{25}{1} \times 100 = 8\%$$

87. If a person's salary increases by 11% on first year and on second year decreased by 11%, then what is the % change in his salary of third year's beginning compared to initial salary?

RRB Group-D – 05/10/2018 (Shift-II)

Ans. (a) : % increase in the salary

$$\begin{aligned}
 &= \left(\frac{100+11}{100} \times \frac{100-11}{100} - 1 \right) \times 100 \\
 &= \left(\frac{89}{100} \times \frac{111}{100} - 1 \right) \times 100 \\
 &= \frac{-121}{10000} \times 100 = -1.21\%
 \end{aligned}$$

88. The price of an article is reduced by 25%. The new price will be increased to which level to maintain the initial price?

RRB Group-D – 31/10/2018 (Shift-I)

Ans : (d) Decrease/Increase % = $\frac{100x}{(100 \pm x)}$

$$\text{Increase \%} = \frac{100 \times 25}{100 - 25} = \frac{100 \times 25}{75} = \frac{100}{3}\%$$

89. An employee's salary was firstly increased by 10% and then reduced by 10%. What was the change in his salary?

- (a) 1% (b) 2.2%
(c) -1% (d) 2.4%

RRB Group-D – 15/11/2018 (Shift-II)

Ans : (c) Decrease/Increase % = $x + y + \frac{x \times y}{100}$

$$= 10 + (-10) + \frac{10 \times (-10)}{100}$$

$$= 10 - 10 - \frac{100}{100} = -1\%$$

90. If a fraction y/x becomes $6/7$ when its numerator is increased by 12% and denominator is decreased by 2%. Find the initial fraction.

- (a) $\frac{3}{4}$ (b) $\frac{4}{3}$
(c) $\frac{1}{2}$ (d) $\frac{1}{5}$

RRB Group-D – 01/11/2018 (Shift-II)

Ans : (a) Fraction = y/x

According to the question,

$$\Rightarrow \frac{y \times 112}{x \times 98} = \frac{6}{7}$$

$$\Rightarrow \frac{y}{x} = \frac{6 \times 98}{7 \times 112} = \frac{6 \times 14}{112}$$

$$\Rightarrow \frac{y}{x} = \frac{3}{4}$$

91. 20% selling of any article, increases when its cost is reduced by 20%, what is the effect on earned revenue?

- (a) 4% increases (b) 5% increases
(c) 4% decreases (d) 5% decreases

RRB Group-D – 23/10/2018 (Shift-I)

Ans. (c) : Formula-

$$\text{Change in percentage} = \pm x \pm y \pm \frac{xy}{100}$$

$$= -20 + 20 - \frac{20 \times 20}{100} = -4\%$$

So, it decreases to 4%

92. The price of a residential flat increases by 15% per year. If the present price is ₹ 60,00,000, then what will be the cost after two years?

- (a) ₹78,00,000 (b) ₹83,45,000
(c) ₹85,39,500 (d) ₹79,35,000

RRB NTPC 28.03.2016 Shift : 3

Ans : (d) the cost of the flat after two years,

$$= 6000000 \left(1 + \frac{15}{100}\right)^2$$

$$= 6000000 \times \frac{23}{20} \times \frac{23}{20} = 15000 \times 529 = ₹ 79,35,000$$

93. Mukesh gets discounts of 30%, 25% and 15% respectively on his shirt. Find the single equivalent discount.

- (a) 52.34% (b) 38.35%
 (c) 55.38% (d) 57.38%

RRB NTPC 19.04.2016 Shift : 2

Ans : (c) ∵ The discounts on shirt are 30%, 25% and 15% respectively,

∴ single equivalent discount

$$= 100 - 100 \times \frac{70}{100} \times \frac{75}{100} \times \frac{85}{100}$$

$$= 100 - 70 \times \frac{3}{4} \times \frac{17}{20} = 100 - 44.62 = 55.38\%$$

94. Sumit's salary was decreased by 40% and then increased by 40%. Find the final decrease % in his salary.

- (a) 16% (b) 45%
 (c) 44% (d) 66%

RRB NTPC 19.04.2016 Shift : 3

Ans : (a) In such cases there is always loss.

$$\text{Required \% loss} = \left(\frac{x}{10}\right)^2 = \left(\frac{40}{10}\right)^2 = 16\% = \left(\frac{40}{10}\right)^2 = 16\%$$

95. Onion's price is increased by 35% in the new government policy. A person should reduce his consumption by which percentage so that his expenditure remains the same?

- (a) 25% (b) 29%
 (c) 26% (d) 33%

RRB NTPC 16.04.2016 Shift : 3

$$\text{Ans : (c)} \% \text{ reduction in consumption} = \frac{R}{100+R} \times 100$$

$$= \frac{35}{100+35} \times 100 = \frac{35}{135} \times 100$$

$$= \frac{7}{27} \times 100 = 25.92 \approx 26\%$$

96. The price of the sugar goes up by 30%. By what percent should Sita reduce her consumption so that the expenditure does not increase?

- (a) $23\frac{1}{13}\%$ (b) $22\frac{1}{13}\%$
 (c) 23% (d) 22%

RRB ALP & Tec. (29-08-18 Shift-I)

$$\text{Ans : (a)} \% \text{ reduction in consumption} = \frac{x}{100+x} \times 100$$

$$= \frac{30 \times 100}{100+30} = \frac{3000}{130} = 23\frac{1}{13}\%$$

Type - 6

RRB RPF Constable -24/01/2019 (Shift-I)

Ans. (c) : Total expenditure in % = Purchase + tailor + rent and electricity

$$30\% + 40\% + 30\% = 100\%$$

% expenditure = expenditure in ₹

$$100\% = 50000$$

$$1\% = 500$$

⇒ So, tailor's payment in %

$$= 40\% = 40 \times 500 = ₹20000$$

98. On a short scale occupation following expenditures occurs: 25% on purchase, 25% on employees' salary and 50% on maintenance. If the occupation pays ₹ 2,00,000, then what is its expenditure on maintenance?

(a) ₹ 3,00,000 (b) ₹ 4,00,000
(c) ₹ 2,00,000 (d) ₹ 2,50,000

RRB RPF SI -12/01/2019 (Shift-III)

Ans : (b) Expenditure on salary = 25% = ₹2,00,000

Ans : (b) Expenditure on salary = 25%,
So, the amount spent on maintenance = 50%

$$\Rightarrow 50\% = \frac{2,00,000 \times 50}{25} = ₹400000$$

RRB Group-D – 17/09/2018 (Shift-I)

Ans : (a) Total amount that Achyutya have = 25, 000

$$\text{Total expenditure} = 30\% + 20\% = 50\%$$

$$\text{So, the rest amount} = 25000 \times \frac{50}{100} = ₹12,500$$

100. Mridula operates a small shop of pets. Her expenditure details are as follows: 90% on procurement and 10% on rent and electricity. If she monthly spends ₹ 15,000 on rent and electricity, then how much she spends monthly on procurement?

RRB Group-D – 20/09/2018 (Shift-II)

Ans : (a)

Expenditure on rent and electricity = 15000 = 10%

Then, 90% (expenditure on procurement)

$$= \frac{15000 \times 90}{10} = 135000 = 1.35 \text{ लाख रु०}$$

- 101.** A grocery store purchases 600 bottles of juice packed by two different sellers. 20% goods is taken by first seller, and 80% by the second. The selling price of one bottle is ₹ 25. After observing the second seller's goods, the shopkeeper comes to know that 25% goods can be used till one day only. He decides to return the goods. How much money will he get from second seller?

- (a) ₹ 4,000 (b) ₹ 3,750
 (c) ₹ 3,000 (d) ₹ 3,500

RRB Group-D – 26/09/2018 (Shift-I)

Ans : (c) Total bottles = 600

First seller-

$$\Rightarrow 600 \times \frac{20}{100} = 120 \text{ bottles.}$$

Second seller-

$$600 \times \frac{80}{100} = 480 \text{ bottles.}$$

25% (spoiled) = 120 bottles

75% (accurate) = 360 bottles

So, the money received for spoiled bottles by second seller = $120 \times 25 = ₹ 3000$

- 102.** 30% of an edible retail chain's selling, is dairy product and rest are fresh products. If the monthly sales of the chain is ₹ 50,000 then what is the selling amount of dairy products?

- (a) ₹15,000 (b) ₹25,000
 (c) ₹22,000 (d) ₹30,000

RRB Group-D – 28/09/2018 (Shift-III)

Ans : (a) Selling of dairy products = 30%

So, the selling of fresh products = 70%

Monthly selling amount = ₹ 50,000

So, the selling amount of dairy products

$$= 50,000 \times \frac{30}{100} = ₹ 15,000$$

- 103.** Last year, Manish Korner had invested 1 lacs on shop-1 and 1.5 lacs on shop-2 for changing the furniture. He collected the expenditure in next three quarters: 20% in quarter-1, 55% in quarter-2. What was the amount in ₹ In quarter-3?

- (a) ₹60,500 (b) ₹62,500
 (c) ₹62,600 (d) ₹70,000

RRB Group-D – 31/10/2018 (Shift-II)

Ans : (b)

Total invested money = 100000 + 150000 = ₹ 250000

Quarter -1 ----- 20%

Quarter -2 ----- 55%

So, quarter - 3 { 100 - (20 + 55) } = 25%

So, he will collect 25% expenditure in quarter - 3.

$$\text{Then, } 250000 \times \frac{25}{100} = ₹ 62500$$

RRB Paramedical Exam – 21/07/2018 (Shift-III)

Ans : (b) Let the number of male workers in the firm is x .
And female workers = y

And female workers - y
 Total salary of male workers = ₹5200 x
 Total salary of female workers = ₹4200 y
 Total salary of all workers = ₹5000 (x+y)
 $5200x + 4200y = 5000x + 5000y$

$$200x = 800y$$

$$x : y = 4 : 1$$

$$x\% = \frac{4}{5} \times 100 = 80\%$$

So, the required % is 80%.

105. Last year in a small industrial enterprise, Mayank's investment was ₹ 20,000. This year he is making a plan to increase his investment by 30% in compare to previous year's investment, for providing services to new customers. This year he is making plan to invest how much.

RRB Group-D – 26/09/2018 (Shift-II)

Ans (c) Last year investment = ₹20000

Plan to increase = 30%

$$\text{Increased money} = 20000 \times \frac{30}{100} = ₹6000$$

$$\text{So, the required money} = 20000 + 6000 = \text{₹}26000$$

106. In a sport showroom there are different game accessories. There is 50% selling of swimming accessories, 40% of outdoor game accessories and 10% of indoor game accessories. If in a particular month store sells swimming costumes of worth ₹ 10,000, then what is the estimated figure of the selling of outdoor game accessories?

RRB Group-D – 26/09/2018 (Shift-III)

Ans : (a) Selling of swimming costumes in particular month = ₹10000

... 50% selling belongs to swimming accessories.

According to the question,

$50\% \equiv 10000$

∴ So, the total selling of game accessories = ₹20000

So, the selling price of outdoor game accessories

$$= 20000 \times \frac{40}{100} = ₹8000$$

107. Suresh purchases two books of ₹ 1,200, he sells one on 20% profit and second on 16% loss. If the selling price is same then, find the estimated cost price of books.

- (a) ₹ 550 and ₹ 650 (b) ₹ 600 and ₹ 600
 (c) ₹ 500 and ₹ 700 (d) ₹ 400 and ₹ 800

RRB Group-D – 22/10/2018 (Shift-II)

Ans : (c) Let the cost price of one book be ₹ x

So, the cost price of other book = ₹ (1200 - x)

According to the question,

$$\begin{aligned} \frac{x \times 120}{100} &= (1200 - x) \times \frac{84}{100} \\ \Rightarrow 120x + 84x &= 1200 \times 84 \\ \Rightarrow 204x &= 1200 \times 84 \\ \Rightarrow x &= \frac{1200 \times 84}{204} \\ \Rightarrow x &= ₹ 494.11 \approx ₹ 500 \end{aligned}$$

So, the cost price of other book = 1200 - 500 = ₹ 700

108. A resort offers special discount on weekend.
 They create a log of weekend customers. They see a growth of 15% in their customers, this year. Last year they had 1500 customers. How many customers do they have this year?

- (a) 1,825 (b) 1,700
 (c) 1,650 (d) 1,725

RRB Group-D – 03/12/2018 (Shift-III)

Ans. (d) : Growth = 15%

Last year customers = 1500

$$\begin{aligned} \text{Present customers} &= 1500 \times \frac{115}{100} \\ &= 15 \times 115 \\ &= 1725 \end{aligned}$$

109. A bank agrees to lend a loan to Arvind of ₹2,38,75,697 which falls short by 17% for starting his business. How much more loan would he need?

- (a) ₹28765900 (b) ₹4375303
 (c) ₹5700108 (d) ₹5125533

RRB NTPC 03.04.2016 Shift : 2

Ans : (a) The amount what Arvind needs

$$\begin{aligned} &= 2,38,75,697 \times \frac{100}{100 - 17} \\ &= 287659 \times 100 = ₹ 28765900 \end{aligned}$$

110. The profit of a company increased by 10% from April to May, then it decreased by 20% from May to June and again increased by 50% from June to July. What was the % growth in profit from April to July?

- (a) 15% (b) 45%
 (c) 32% (d) 13%

RRB NTPC 18.01.2017 Shift : 3

Ans : (c) From April to June

$$= 10 - 20 + \frac{10 \times (-20)}{100} = -10 - 2 = -12\%$$

$$\text{From April to July} = -12 + 50 + \frac{(-12) \times 50}{100} = [32\%]$$

111. An investor invests $\frac{1}{2}$ shares on 5%, $\frac{1}{4}$ shares on 10% and the rest on 8%, after 2 years his income is ₹ 2800 then find the stock.
- (a) ₹10000 (b) ₹15000
 (c) ₹20000 (d) ₹12000

RRB NTPC 19.04.2016 Shift : 1

Ans : (c) Let the stock of the investor is ₹ X,

$$\text{Rest shares} = x - \left(\frac{x}{2} + \frac{x}{4} \right) = \frac{x}{4}$$

$$\therefore \frac{\frac{x}{2} \times 5 \times 2}{100} + \frac{\frac{x}{4} \times 10 \times 2}{100} + \frac{\frac{x}{4} \times 8 \times 2}{100} = 2800$$

$$\frac{x}{20} + \frac{x}{20} + \frac{x}{25} = 2800$$

$$\frac{5x + 5x + 4x}{100} = 2800$$

$$14x = 280000 \Rightarrow x = ₹20000$$

112. Production of sugar was 1584 million kg. in 2001 which was 20% more than 1991. Find the production of sugar in 1991 (in million kg.).

- (a) 1980 (b) 1280
 (c) 1900 (d) 1320

RRB NTPC 12.04.2016 Shift : 1

Ans : (d)

$$\begin{aligned} \text{Production of sugar in 1991} &= \frac{1584}{100+20} \times 100 \\ &= \frac{1584}{120} \times 100 = 1320 \text{ million kg.} \end{aligned}$$

113. A drug supervisor rejects 0.05% medicines as defective medicines. How many medicines will he examine to reject 4 medicines?

- (a) 5000 (b) 8000
 (c) 6000 (d) 8500

RRB NTPC 22.04.2016 Shift : 1

Ans : (b) ∵ He examines 100 medicines to reject 0.05% medicines.

$$\therefore \text{So, to reject 1 medicine} = \frac{100}{0.05}$$

$$\text{Then, to reject 4 medicines} = \frac{100}{0.05} \times 4$$

$$= \frac{100 \times 400}{5} = 20 \times 400 = 8000$$

114. 15% of an alloy was silver. If in a quantity of alloy there was 51 g of silver, what was the quantity of the other elements in the alloy ?

- (a) 204 g (b) 340 g
 (c) 300 g (d) 289 g

RRB ALP & Tec. (17-08-18 Shift-II)

Ans : (d) Share % of other metal in the alloy
 $= 100 - 15 = 85\%$

$$\text{So, the quantity of other metal} = \frac{51 \times 85}{15}$$

$$= \frac{17 \times 85}{5} = 17 \times 17 = 289 \text{ gm.}$$

Type - 7

RRB Group-D - 03/10/2018 (Shift-I)

Ans : (b) Concentration % of the solution

$$b) \text{ Concentration} = \frac{33}{320+33} \times 100 = \frac{3300}{353} = 9.348 \approx 9.35\%$$

RRB Group-D – 03/10/2018 (Shift-II)

Ans : (c)

$$\text{Concentration \% of the solution} = \frac{31}{320+31} \times 100 \\ = \frac{31}{351} \times 100 = 8.83\%$$

RRB Group-D – 30/10/2018 (Shift-I)

Ans : (a) Concentration % of the solution

$$= \frac{45}{320+45} \times 100 = \frac{4500}{365} \equiv 12.33\%$$

118. A solution is prepared by mixing 45 gm salt in 520 gm water. Calculate the concentration of the solution in context of mass by mass percentage.

(a) 7.96% (b) 8.86%

(c) 8.1% (d) 6.96%

(c) 8.1%

RRB Group-D – 20/09/2018 (Shift-I)

Ans. (a) : The required solution percentage

$$= \frac{45}{565} \times 100 = \frac{4500}{565} = 7.96\%$$

119. A solution has 8% salt. If the volume of the solution is 550 ml, then what is the quantity of salt in it?

(a) 42.5 ml (b) 48 ml

(c) 38.5 ml

RRB Group-D – 01/12/20

$$\text{So, quantity of the salt} = 550 \times \frac{8}{100} = 44 \text{ ml}$$

RRB ALP & Tec. (29-08-18 Shift-I)

Ans : (b) Mass of the solution = 250 gm

Total quantity of glucose in the solution = 5%

So, the quantity of glucose in the solution in gram

$$= 250 \times \frac{5}{100} = 12.5 \text{ gm}$$

Type - 8

121. If 90% of y is x, then what percentage of x will be y?

RRB RPF Constable -25/01/2019 (Shift-II)

Ans. (b) According to the question,

$$y \times 90\% = x$$

$$\frac{x}{y} = \frac{90}{100}$$

$$x : y = 9:10$$

Let k% of x is y.

$$x \times \frac{k}{100} = y, \quad 9 \times \frac{k}{100} = 10$$

$$\therefore k = \frac{10}{9} \times 100 = 111.1$$

122. Shyam's marks are 25% more than Divya's marks. How many % of Divya's marks are less than Shyam's marks?

RRB Group-D – 03/10/2018 (Shift-II)

Ans : (a) Let Divya's marks = 100

$$\text{Then Shyam's marks} = 100 \times \frac{125}{100} = 125$$

Shyam's marks - Divya's marks = 125 - 100 = 25
 So, Divya's marks are 25 less than Shyam's marks

$$0.1 \cdot \frac{25}{100}$$

$$\begin{aligned}\% \text{ lack} &= \frac{125}{125} \times 100 \\ &= \frac{100}{5} \\ &= 20\%\end{aligned}$$

Type - 9

123. If the length and breadth of a rectangle is increased by 8% and 12% respectively, then what will be the % increase in the area of the rectangle?

RRB RPF Constable -18/01/2019 (Shift-II)

Ans. (a) Percentage growth = $x + y + \frac{xy}{100}$

$$\begin{aligned}\% \text{ growth in the area of the rectangle} &= 8 + 12 + \frac{8 \times 12}{100} \\ &= 20 + \frac{24}{25} = 20 + 0.96 = 20.96\%\end{aligned}$$

124. If the side of a square is increased by 10%, then the area of the square increased by.....

- | | |
|---------|---------|
| (a) 40% | (b) 10% |
| (c) 20% | (d) 21% |

RRB Group-D – 10/10/2018 (Shift-II)

Ans : (d) % change = $x + y + \frac{xy}{100}$

Change in the area of the square on increasing its side by 10%

$$= 10 + 10 + \frac{10 \times 10}{100} = 21\%$$

125. If the side of a square is increased by 30%, then find the % in the increase of its square.

- | | |
|---------|----------|
| (a) 84% | (b) 112% |
| (c) 69% | (d) 72% |

RRB Group-D – 30/10/2018 (Shift-II)

Ans : (c) Area of the square = (side)²

Formula- % growth = $x + y + \frac{xy}{100}$

$$\% \text{ growth} = 30 + 30 + \left(\frac{30 \times 30}{100} \right)$$

$$\% \text{ growth} = 69\%$$

126. If the length of a rectangle increased by 15% and the breadth decreased by 20%, then find the % change in area of the rectangle.

- | | |
|-------------------|-------------------|
| (a) 0.8% decrease | (b) 0.8% increase |
| (c) 8% decrease | (d) 8% increase |

RRB Group-D – 05/12/2018 (Shift-II)

Ans. (c) Increase in length = 15% = x

and decrease in breadth = 20% = y

$$\text{Change in area} = x - y - \frac{x \times y}{100}$$

$$\begin{aligned}&= 15 - 20 - \frac{15 \times 20}{100} = -5 - \frac{300}{100} \\ &= -5 - 3 \\ &= -8\%\end{aligned}$$

Hence, 8% decrease

127. If the length and the breadth of a rectangle is changed by +15 % and -10 % respectively, what will be % change in the area of the rectangle?

RRB NTPC 09.04.2016 Shift : 3

Ans : (8) Let the length = 100

And breadth = 100

$$\text{So, area} = 100 \times 100 = 10000$$

Length after change = 115, and breadth = 90

$$\text{So, area} = 115 \times 90 = 10350$$

$$\text{Growth} = 10350 - 10000 = 350$$

$$\% \text{ growth} = \frac{350}{10000} \times 100 = 3.5\%$$

Type - 10

128. A candidate won with 75% valid votes, in an election. 15% votes were invalid out of 560000 votes. What is the number of valid votes which the candidate got?

RRB RPF SI -12/01/2019 (Shift-III)

Ans : (d) Let the number of valid votes which the candidate got = x

Total votes = 560000

According to the question,

$$x = 560000 \times \frac{75}{100} \times \frac{85}{100}$$

$$x = 560000 \times \frac{3}{4} \times \frac{17}{20}$$

$$x = 7000 \times 51$$

$$x = 357000$$

129. In an election, a candidate got 62% of the total votes polled and won the election by 35640 votes. The total number of votes cast, if no vote is declared invalid, is?

RRB Group-D – 05/11/2018 (Shift-III)

Ans. (d) : Total votes = 100%

Best votes = 100% - 62% = 38%

% difference = $62\% - 38\% = 24\%$

$$24\% = 35640$$

$$100\% = \frac{35640 \times 100}{24} = 5940 \times 25 = 148500$$