Batch : PIONEER (CAT)

Subject : Quantitative Aptitude

Topic : Percentage Basic + Multiplying Factor + Succ.%

DPP - 01

1. A number is increased by 30% and then decreased by 40%. Find the net increase/decrease %.
(a) 20 (b) 22
(c) 32 (d) No increase/decrease

2. Ashwini purchased a cup of coffee at Rs. 9 after availing two successive discounts of 70% on MRP. Find the MRP of a cup of coffee.
(a) Rs. 70 (b) Rs. 130
(c) Rs. 100 (d) None of these

3. City C population in the year 2017 was 1,20,000. In the year 2018, due the pandemic the population drops by 20% but it again increases by 20% in the upcoming year. Find the population of city C in 2019.
(a) 1,15,200 (b) 1,10,000
(c) 1,20,000 (d) 1,22,000

4. 32% of a number after adding 5 is equal to 16. Find the number.
(a) 42 (b) 50
(c) 44 (d) 45

5. Suman salary is 20% more than that of Amar but less by 40% than that of Heman. If the difference in salary of Heman and Aman is Rs. 30,000. Then Suman's salary =
(a) Rs. 36,000 (b) Rs. 40,000
(c) Rs. 32,000 (d) Rs. 33,000

6. Jeevan got 50% of total marks. If he obtained 40% in Hindi, 20% in EVS, 80% in Maths and 48 in Science then find the works marks obtained in Maths.
(Assume each subject maximum marks is same)
(a) 48 (b) 64
(c) 40 (d) 32

7. Shivam spent 35% of his amount in buying a milk packet, 30% of amount in buying biscuit and 15% on purchasing Dahi. He is left with Rs. 16 after all the transactions. Find the initial amount of Shivam.
(a) Rs. 90 (b) Rs. 80
(c) Rs. 100 (d) Rs. 110

8. A smartphone company offered 30% discount on newly launched flagship phone in the festive season. As a result, the sale of phone increased by 15%. Find the percentage increase/decrease in revenue.
(a) 20 (b) 18
(c) 17.5 (d) 19.5

9. In a race, Ramesh was 10% behind the final point when Vikky was 15% behind. If Ramesh was 20 m ahead of Vikky, then find the total distance of track.
(a) 400 m (b) 350 m
(c) 380 m (d) 420 m

10. In a pie chart, 30% represents Car 1, 25% represents Car 2 and 15% represents Car 3. The only Car remaining is Car 4 and is 60 in number. Find the number of Car 3.
(a) 30 (b) 45
(c) 40 (d) 50

11. Side of a square is increased by 30%, whereas length of rectangle is increased by 20% but breadth is decreased by 40%. If the breadth of rectangle is equal to side of square, then find the percentage change in area of square and rectangle respectively.
(a) 65, 30 (b) 60, 39
(c) 69, 28 (d) 62, 27

12. MCD election was contested among three major party A, B and C candidate. A candidate defeated B candidate by 10% of total vote. If A received 4500 votes out of total polled 10000 votes, then C got ... votes.
(a) 2000 (b) 3000
(c) 2500 (d) 1500

13. 75% acid concentration of 40 litres acid–base solution is totally mixed with 30% acid concentration of 30 litres acid–base solution. After the mix–up, 40% of solution is removed. Find the remaining litres of acid in the final mixture.

(a) 23 litres (b) 23.4 litres
(c) 22.2 litres (d) 23.2 litres

14. Quarter of a number is less than 20% of 70 by 9. Then the number is

(a) 32 (b) 16
(c) 5 (d) 20

15. Numerator of a fraction is increased by 50%, but simultaneously denominator is decreased by 50%. As a result we get $\frac{18}{7}$. The fraction is ____

(a) $\frac{6}{7}$ (b) $\frac{3}{2}$
(c) $\frac{2}{5}$ (d) $\frac{6}{5}$

16. A table and a chair are priced at Rs. 3000 and Rs. 1000 respectively. If the price of the table and that of the chair is increased by 20% and 25% respectively, then the price of 5 tables and 15 chairs is:

(a) Rs. 36000
(b) Rs. 28000
(c) Rs. 48500
(d) None of the above

17. Charlie Harper spends 20% of his income on food, 9.09% of the remaining on transport, 35% of the remaining on savings and $ 600 on charity. He is still left with $ 2000, find his income.

(a) $ 4000 (b) $ 4400
(c) $ 5000 (d) None of these

18. In a classroom, there are 20% less girls than boys. Out of the boys, 60% have applied for a scholarship, and out of the girls, 55% have applied for the scholarship. The percentage of the total number of students who have applied for the scholarship is closest to?

(a) 57 (b) 58
(c) 59 (d) 60

19. Suvarn and Suramya both appear for an entrance test. Suvarn scores 65% marks and passes the test by 50 marks. Suramya scores 50% marks and fails the test by 40 marks. By what percentage of the total score is the average score of these two people more than the passing marks in the test?

(a) 0.5% (b) 0.83%
(c) 1.10% (d) 1.2%

20. Bawarchi always purchases all food-grains online from Big Basket. His monthly expense is Rs. 4400. Big Basket however increased the rate of food-grains by 20% in a particular month. By how much percent should Bawarchi change his consumption so that. Total expenditure remains unchanged.

(a) 12.46% (b) –15.89%
(c) 16% (d) –16.67%

21. Chris Gardner saves 25% of his salary every month starting March 2021. After four months, he receives a raise of 20% and hence, decides to save 30% of his salary. His overall expenditure for the year is approximately what percent of his total salary for the financial year?

(a) 70.6% (b) 72.4%
(c) 71.5% (d) 73.6%

22. Exofbro, an MNC, promises its employees a 10% incentive of the total sales target achieved by them in a given financial year. However, after the end of the first quarter, they realize that every employee had already achieved 55% of the target. Forecasting that twice the target will be achieved by the end of the financial year by every employee, the company revised the percentage incentive for the next three quarters in such a way that the overall incentive received by any employee for the financial year will still remain the same. Find that new percentage incentive set for the remaining year.

(a) 2% approx (b) 4.2% approx
(c) 3.1% approx (d) 5.0% approx

23. Salary of Mahesh is hiked by 20% but his savings increased by only 10%. Find out the percentage change in his expenditure if his initial salary was Rs. 20000.

(a) 8% (b) Cannot be determined
(c) 16% (d) 10%

24. Mohan owned $66\frac{2}{3}\%$ of a property. If 30% of property that he owns is worth Rs. 125000, then 45% of the value (Rs.) of the property is:
(a) Rs. 2,62,500
(b) Rs. 2,70,000
(c) Rs, 2,25,000
(d) Rs. 2,81,250

25. KFC introduces special Spicy Zinger nuggets on New year's eve. The price per pack was increased in the months of February and March by 20% and 25%, respectively. However, in April, the price was reduced by 10% on account of a promotional offer to boost sales. If the Price per pack in April was Rs. 540, find the initial introductory price.
(a) 300 (b) 400
(c) 500 (d) 600

26. A salesman is working for a pharma company. He earns a fixed salary of ₹ 20,000 per month and a commission of 8% on total annual sales (done by him). What is the total annual sales (in ₹) done by him, if on average, he earns₹ 26,000 per month?
(a) Rs. 4,00,000 (b) Rs. 5,00,000
(c) Rs. 9,00,000 (d) None of the above

27. On a morning prayer all the students of a school stand in three rows, the first row has 20% more students than the second row and the third row contains 20% less students than the second row. If the total number of students in all the rows is 600, then find the number of students in the first row.
(a) 240 (b) 120
(c) 160 (d) 200

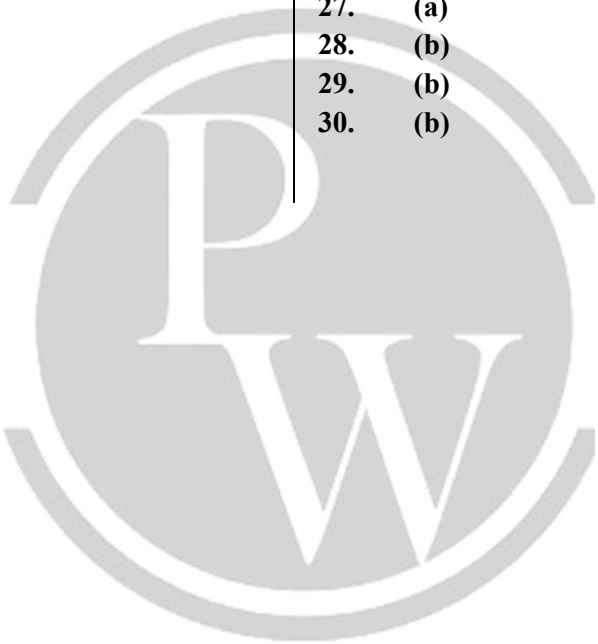
28. The population of a town is 6000. If the number of males increases by 10% and the number of females increases by 20%, then the population becomes 6800. Find the population of females in the town now.
(a) 4000 (b) 2400
(c) 2000 (d) None of the above

29. The average earning of each member of a family A is 20% less than the average earning of each member of another family B but the total earning of family A is 20% more than that of the latter. The number of members in family B is what percentage less than that of family A.
(a) 16.66% (b) 33.33%
(c) 66.67% (d) None of the above

30. The total number of students in a class remains same if the number of girls is increased by 50% and the number of boys is decreased by 25%. By what percentage does the number of students increase, if the number of boys and the number of girls increase by 20% and 60% respectively?
(a) 28.56% (b) 33.33%
(c) 14.28% (d) 16.67%

Answer Key

1.	(b)
2.	(c)
3.	(a)
4.	(d)
5.	(a)
6.	(b)
7.	(b)
8.	(d)
9.	(a)
10.	(a)
11.	(c)
12.	(a)
13.	(b)
14.	(d)
15.	(a)
16.	(d)
17.	(d)
18.	(b)
19.	(b)
20.	(d)
21.	(c)
22.	(c)
23.	(b)
24.	(d)
25.	(b)
26.	(c)
27.	(a)
28.	(b)
29.	(b)
30.	(b)



Hints & Solutions

1. **(b)**

Let the number be x

Increased by 30% $= x + \left(\frac{30}{100} \times x\right) = \frac{13x}{10}$

Now, it's decreased by 40%

So, number after decrement

$= \frac{13x}{10} - \left(\frac{40}{100} \times \frac{13x}{10}\right)$

$= \frac{13x}{10} - \frac{13x}{25}$

$= \frac{65x - 26x}{50}$

$= \frac{39}{50}x$

Because $x > \frac{39x}{50}$, so number finally decreased

$\text{Net decrease}\% = \frac{x - \frac{39x}{50}}{x} \times 100$

$= \frac{11x}{50} \times \frac{1}{x} \times 100$

= 22%

Ans. b

2. **(c)**

Let the MRP of 1 cup of coffee be Rs. x

CP after two successive discounts of 70%

$= x\left(\frac{100-70}{100}\right)\left(\frac{100-70}{100}\right)$

$= x \times \frac{30}{100} \times \frac{30}{100}$

$= \frac{9x}{100}$

Given, $\frac{9x}{100} = 9$

or x = 100

So, MRP = Rs. 100

Ans. c

3. **(a)**

Given, population of City C in the year

= 1,20,000

Population in the year 2018

$= 1,20,000\left(\frac{100-20}{100}\right)$

= 96,000

Again, population in the year 2019

$= 96,000\left(\frac{100+20}{100}\right)$

$= 96,000 \times \frac{6}{5}$

= 1,15,200

Ans. a

4. **(d)**

Let the number be x.

Then, $\frac{32}{100}(x+5) = 16$

or 2x + 10 = 100

or x = 45

Ans. d

5. **(a)**

Let Aman salary be Rs. x

Then, Suman slary $= \text{Rs.}\left(x + \frac{x}{5}\right) = \text{Rs.}\frac{6x}{5}$

and Heman salary $= \left(\frac{100}{100-40} \times \frac{6x}{5}\right)$

$= \text{Rs.}\left(\frac{5}{3} \times \frac{6x}{5}\right)$

= Rs. 2x

Difference = 2x – x = x

or x = Rs. 30,000

Then Suman's salary $= \frac{6 \times 30,000}{5}$

= Rs. 36,000

Ans. a

6. **(b)**

Let the maximum marks in each subject by y

Then, total marks obtained = 50% of 4y = 2y

Also, $\frac{2y}{5} + \frac{y}{5} + \frac{4y}{5} + 48 = 2y$

$\Rightarrow \frac{7y}{5} + 48 = 2y$

$\Rightarrow 2y - \frac{7y}{5} = 48$

$\Rightarrow \frac{3y}{5} = 48$

$\Rightarrow y = 80$

So, marks obtained in maths $= \frac{80}{100} \times 80$

$= 64$

Ans. b

7. **(b)**

Let the initial amount of Shivam had be Rs. x.

Spending of Shivam = (35 + 30 + 15) % of x

$= \left(\frac{80}{100} \times x\right) = \frac{4x}{5}$

Remaining amount $= \left(x - \frac{4x}{5}\right) = \frac{x}{5}$

Also, $\frac{x}{5} = 16$

or x = 80

So, Shivam had Rs. 80 initially.

Ans. b

8. **(d)**

Let the price of phone be Rs. x

and the unit sold be y

Price after discount offered $= x\left(\frac{100-30}{100}\right)$

$= \frac{7x}{10}$

Increase in unit sold after 15% increment

$= y\left(\frac{100+15}{100}\right) = \frac{23y}{20}$

Revenue after increase in sell

$= \frac{23y}{20} \times \frac{7x}{10}$

$= \frac{161}{200}xy$

Because, $xy > \frac{161}{200}xy$

So, revenue decreased

Decreased Revenue $= xy - \frac{161}{200}xy$

$= \frac{39}{200}xy$

Therefore percentage decrease in revenue

$= \left(\frac{\frac{39}{200}xy}{xy} \times 100\right)$

= 19.5%

Ans. d

9. **(a)**

Let the total distance of track be x m.

Distance covered by Ramesh

$= x - \left(\frac{10}{100} \times x\right)$

$= x - \frac{x}{10}$

$= \frac{9x}{10}$

Distance covered by Vikky $= x - \left(\frac{15}{100} \times x\right)$

$= x - \frac{3x}{20}$

$= \frac{17x}{20}$

So, Ramesh was ahead of Vikky by $= \frac{9x}{10} - \frac{17x}{20}$

$= \frac{18x - 17x}{20}$

$= \frac{x}{20}$

Now, given $\frac{x}{20} = 20$

or x = 400

That means, track length is 400 m

Ans. a

10. **(a)**

Given, Car 4 = 60,

Car 1 = 30%,

Car 2 = 25% and

Car 3 = 15%

Car 4 % $= \left[100 - (15 + 25 + 30)\right]\%$

= (100 - 70)%

= 30%

And 30% of Total car = 60

$\Rightarrow$ Total Car $= \left[\frac{10 \times 60}{3}\right] = 200$

Therefore, number of Car 3 = 15% of 200

$= \left(\frac{3}{20} \times 200\right)$

= 30

Ans. a

11. **(c)**

Let the side of a square be x

then breadth of rectangle = x

Also length of a rectangle = y

Given, increased length of square $= x + \frac{3x}{10} = \frac{13x}{10}$

increased length of rectangle $= y + \frac{y}{5} = \frac{6y}{5}$

and decreased breadth of rectangle

= x – (40% of x)

$= x - \frac{2x}{5}$

$= \frac{3x}{5}$

Area of square $= \left(\frac{13x}{10}\right)^2 = \frac{169x^2}{100}$

and area of rectangle $= \frac{6y}{5} \times \frac{3x}{5} = \frac{18xy}{25}$

% increase in area of square = 69%

and % decrease in area of rectangle

$= \left(\frac{xy - \frac{18xy}{25}}{xy} \times 100\right)\%$

= 28%

Ans. c

12. **(a)**

Given, A candidate vote = 4500

Let B received x vote

Then, $4500 - x = \frac{10}{100} \times 10000$

$\Rightarrow$ 4500 – 1000 = x

$\Rightarrow$ x = 3500

That means, C received

= (10000 – 3500 – 4500)

= 2000

Ans. a

13. **(b)**

Let Mixture 1 consists of 40 litres solution

Then, amount of acid $= \frac{75}{100} \times 40$

$= \left(\frac{3}{4} \times 40\right)$

= 30 litres

Let Mixture 2 consists of 30 litres solution

Then, amount of acid $= \left(\frac{30}{100} \times 30\right)$ litres

= 9 litres

Base content in the final mixture

= (40 + 30) – (9 + 30) = 31

Acid content after removing 40% solution

$= \left(\frac{100 - 40}{100}\right) \times 39$

= 23.4 litres

Ans. b

14. **(d)**

Let the number be x

Then, according to the question

$(20\% \text{ of } 70) - \frac{x}{4} = 9$

$\Rightarrow \left(\frac{1}{5} \times 70\right) - \frac{x}{4} = 9$

$\Rightarrow 14 - 9 = \frac{x}{4}$

$\Rightarrow$ x = 20

Ans. d

15. **(a)**

Looking at the option,

(a) $\frac{6 + \left(\frac{50}{100} \times 6\right)}{7 - \left(\frac{50}{100} \times 7\right)} = \frac{6+3}{7-3.5}$

$= \frac{9}{3.5} = \frac{90}{35} = \frac{18}{7}$ ..... Satisfy

(b) $\frac{3 + \left(\frac{50}{100} \times 3\right)}{2 - \left(\frac{50}{100} \times 2\right)} = \frac{4.5}{1} = \frac{45}{10} = \frac{9}{2}$

(c) $\frac{2 + \left(\frac{1}{2} \times 2\right)}{5 - \left(\frac{1}{2} \times 5\right)} = \frac{3}{5-2.5} = \frac{3}{2.5} = \frac{6}{5}$

(d) $\frac{6+\left(\frac{1}{2}\times 6\right)}{5-\left(\frac{1}{2}\times 5\right)}=\frac{9}{2.5}=\frac{18}{5}$

Ans. a

16. (d)

We have been given with the prices of table and chairs as Rs. 3000 and Rs. 1000.

Now, there is an increase of 20% in table, hence, the effective price will be 120% × 3000 = 3600.

And, increment on chairs is 25%, hence, the new price will be 125% × 1000 = 1250.

Now the total price of 5 tables and 15 chairs will be

= 5 × 3600 + 15 × 1250 = 36750

Hence, option d is correct.

17. (d)

Let us observe the multiplying factors for all the values given here.

$20\% = \frac{1}{5}$, $9.09\% = = \frac{1}{11}$, and $35\% = \frac{7}{20}$.

To make the calculations easier, let us start by assuming the total amount that Charlie has a total of 5 × 11 × 20 = 1100x

Now, the amount spent on food $\frac{1}{5}$th, so what remains $= \frac{4}{5}\times 1100x = 880x$.

Similarly, the amount spent on transport

$\frac{1}{11}$th, so what remains

$= \frac{10}{11}\times 880x = 800x.$

Similarly, the amount spent on savings

$= \frac{7}{20}$th, so what remains

$= \frac{13}{20}\times 800x = 520x.$

Now this is equal to the remaining amount at the end (2000) + amount given in charity (600)

So 520x = 2600

or $x = \frac{2600}{520} = 5$

Thus, initial amount

= 1100x = 1100 × 5 = 5500.

Hence, option d is the correct answer.

18. (b)

Suppose there are 100 boys, so girls are 20% or $\frac{1}{5}$th lesser, i.e. $\left(1-\frac{1}{5}\right)$ of 100 = 80.

Out of the boys, 60% or $\frac{3}{5}$ of 100 = 60 have opted.

Out of the girls, 55% or $\left(\frac{11}{20}\right)$ of 80 = 44 have opted.

Total people who have opted = 60 + 44 = 104.

So 104 out of the total 180

Required Percentage $= \frac{104}{180}\times 100 = 57.77\%$

Approximately 58%.

Hence, option b is the correct answer.

19. (b)

Suppose the total marks are 100x.

Suvarn scores $65\% = \frac{13}{20}\times 100x = 65x$ and he passes by 50 marks. Thus, passing marks are 65x – 50.

Similarly, Suramya scores

$50\% = \frac{1}{2}\times 100x = 50x$ and he fails by 40 marks.

Thus, passing marks are 50x + 40.

Equating the passing marks,

65x – 50 = 50x + 40

or 15x = 90

or x = 6

Total marks = 100x = 100 × 6 = 600.

Thus, marks of Suvarn = 65 × 6 = 390

Suramya = 300.

Average marks of the two $= \frac{390+300}{2} = 345$

Pass marks = 50x + 40 = 50 × 6 + 40 = 340.

Difference to total marks = 5 out of 600.

$\Rightarrow \frac{5}{600} \times 100 = 0.83\%.$

Hence, option b is the correct answer.

20. (d)

Using the formula for successive percentage change, if the consumption value changes by x% and the rate changes by y%, then the overall percentage change in expenditure will be

$= x + y + \frac{xy}{100}$

But in this question the total expenditure remains unchanged, thus, $x + y + \frac{xy}{100} = 0$

Here, x needs to be found, given y = 20

Putting the values in the expression below:

$x + 20 + \frac{x \times 20}{100} = 0$

or $\frac{6x}{5} = -20$

or x = –16.67%.

Thus, the value decreases by 16.67%

Hence, option d is the correct answer.

21. (c)

Time (n)	Salary	Saving	Expense (E)	Total expense (E × n)
First 4 months	100	25	75	300
Next 8 months	120	36	84	672

Assume the initial total salary per month is 100 units.

So total salary for 1st four months = 100 × 4 = 400.

Chris saves 25% $= \frac{1}{4}$th of the salary per month,

Thus, his expense per month $\frac{3}{4}$th of 100 = 75 per month for the first four months.

So total expense for the first four months = 75 × 4 = 300 units.

We can make similar calculations for the next 8 months of the year.

New salary = 20% or $\frac{1}{5}$ more = 100 + 20 = 120 units.

So total salary for the next 8 months

= 120 × 8 = 960 units.

Chris saves 30% or $\frac{3}{10}$th of the salary.

Thus, expense per month = 70% of 120 = 84 units.

Total expense = 84 × 8 = 672.

Total expense = 300 + 672 = 972.

Total income 400 + 960 = 1360.

Required percentage

$= \frac{972}{1360} \times 100 = 71.5\%$ (approx) (c)

Hence, option c is the correct answer.

22. (c)

Let the target sales per individual be 100 units. The overall incentive promised = $\frac{1}{10} \times 100 = 10$ units.

In the first quarter, the employees had already achieved 55% of the target, 55 units on which the incentive was paid @ 10% i.e. $\frac{1}{10}$th = 5.5

Remaining incentive = 10 – 5.5 = 4.5 units.

The forecast said twice the target will be achieved, so revised target = 200 out of which 55 is achieved, so for the remaining three quarters, target

= 200 – 55 = 145.

We now need to find what is the remaining incentive (4.5) out of the remaining target (145).

Thus, $\frac{4.5}{145} \times 100 = 3.1\%$ approx.

Hence, option c is the correct answer.

23. (b)

Let us assume, the initial savings of Mahesh = 100x

His expenditure = Rs. (20000 – 100x)

His new salary = 20000 × 1.2 = Rs. 24000

His new savings = 100x × 1.1 = Rs. 110x

His new expenditure = Rs. (24000 – 110x)

Percentage change in expenditure

$$=\frac{(24000-110x)-(20000-100x)}{20000-100x}\times 100$$

We can't proceed further as we cannot remove the variable 'x' from the equation.

Hence, option b is the correct answer.

24. (d)

Here, we need to understand the multiplication factors corresponding to the percentage equivalents.

Let the amount of property owned by Mohan be X.

We know that, $33\frac{1}{3}\% = \frac{1}{3}$

$66\frac{2}{3}\% \Rightarrow 2\times 33\frac{1}{3} \Rightarrow 2\times\frac{1}{3} \Rightarrow \frac{2}{3}$

(multiplying factor for $66\frac{2}{3}\%$).

Similarly, for $30\% = \frac{3}{10}$ and $45\% = \frac{9}{20}$.

Now, according to the question, we have,

$\frac{3}{10}\times\frac{2}{3}\times X = 125000$

or X = 625000

Now, 45% of $625000 = \frac{9}{20}\times 625000$

= Rs. 2,81,250.

Hence, option d is correct.

25. (b)

Let the initial price be Rs. 100.

In February, the price will be 20% or $\frac{1}{5}$ more

$\frac{6}{5}$ times the original $= \frac{6}{5}\times 100 = 120.$

In March, the price will further grow by 25% or $\frac{1}{4}$ more $\Rightarrow \frac{5}{4}$ times that in February $= \frac{5}{4}\times 120 = 150$

This price is further reduced by 10% or $\frac{1}{10}$ less $\Rightarrow$

$\frac{9}{10}$ times that in March

In April it will be $\frac{9}{10}\times 150 = 135$

$135 \leftrightarrow 540$ (4 times)

So the original price will be the assumed price 100 × 4 times = 400.

Hence, option b is the correct answer.

26. (c)

Actual salary = ₹20000

Average salary = ₹26000

Average commission earned by him

= 26000 – 20000

= 6000.

Total commission earned by him

= 12 × 6000 = 72000.

Let the total annual sale = X.

According to the question,

8% of X = 72000.

$x = \frac{72000}{8}\times 100 = 900000.$

Hence option (c) is the correct choice.

27. (a)

Let, the second row contain 100x students, then the first row will have 120x students (20% more students) and the third row will have 80x students (20% less students).

Hence, 120x + 100x + 80x = 300x (which is given as 600 in the question)

Therefore, 300x ⇒ 600 or x = 2

Hence, total number of students in first row will be 120x = 120 × 2 = 240 students.

Hence, option a is correct.

28. (b)

Let the numbers of male in the population of 6000 be m, then the numbers of female will be 6000 – m.
Now, male increase by 10%, hence new male population =1.1(m) and
female increase by 20%,
new female population = 1.2 (6000 – m).
The increased population = 6800
So, according to the question:
$1.1m + 6000 \times 1.2 - 1.2m = 6800$
or $-0.1m = 6800 - 7200$
or $m = \frac{400}{0.1} = 4000.$
Hence, the female population will be
$= 6000 - 4000 = 2000$
New female population = $120\% \times 2000 = 2400$.
Hence, option b is correct.

29. (b)

Total Earning = average earning × number of family members.
Ratio of average earning of each member of family A and family B = 4 : 5 or 4p and 5p respectively.
We have the total earnings of the families. Hence,

A		B	or	A	B
120	:	100		6x	5x

Now, let number of members in family A be n and that in family B be m.

Therefore $n = \frac{6x}{4p}$ and $m = \frac{5x}{5p}$

Now, according to the question we have,

$$= \frac{\frac{6x}{4p} - \frac{5x}{5p}}{\frac{6x}{4p}} \times 100 = \frac{1}{3} \times 100 = 33.33\%$$

Hence, option b is correct.

30. (b)

According to the question, we have,
150% G = 75% B

$$\frac{G}{B} = \frac{1}{2}$$

Now, let the total number of students be 300, hence, number of boys will be 200 and girls will be 100.
Now, there is certain increase in the numbers of boys and girls which are 20% and 60% respectively.
Therefore, new boys strength = $120\% \times 200 = 240$.
and new girls strength = $160\% \times 100 = 160$.
Hence, new number of students = 240 + 160 = 400.
Therefore, % increase $= \frac{400 - 300}{300} \times 100 = 33\frac{1}{3}\%$
Hence, option b is correct.