PERCENTAGE _EXPLANATION

Answer 1: (A)

Given that: R = 15%, n = 2 year and P = 4000

According to the formula,

Population after n years = $P\left(1+\dfrac{R}{100}\right)^n$

$\therefore$ Population after 2 years = $4000\left(1+\dfrac{15}{100}\right)^2$

= $4000\times\dfrac{23}{20}\times\dfrac{23}{20}$ = 10 × 529 = 5290

Answer 2: (D)

Given that, P = ₹3200000, R = 20% and n = 3

According to the formula,

Price of car after n years = $P\left(1+\dfrac{R}{100}\right)^n$

$\therefore$ Price of car after 3 years = $3200000\left(1-\dfrac{20}{100}\right)^3$

= $3200000\times\dfrac{4}{5}\times\dfrac{4}{5}\times\dfrac{4}{5}$ = ₹1638400

Answer 3: (D)

Total marks obtained = 30 + 45 + 40 + 40

= 155

Answer 4: (B)

Increase in the population in 10 years

= 250000 - 100000 = 150000

Percent increase in the population in 10 years

= $\dfrac{150000}{100000}\times100$ = 150%

Average percent increase of population per year
= 150%/10 = 15%

Answer 5: (B)

According to question,

Required number of workers

= $8000\times\dfrac{105\times110\times120}{100\times100\times100}$ = 11088

Answer 6: (D)

Let the income be ₹ 100.
Expenditure = 72
Saving = 100 - 72 = 28
Income after increment = 120
Saving after increment = 28 × 1.25 = 35
New expenditure = 120 - 35 = 85
Percentage expenditure Increment

= $\dfrac{85-72}{72}\times100=\dfrac{13}{72}\times100$ = 18.05%

Answer 7: (A)

Net change = $\dfrac{-x^2}{100}=\dfrac{-50^2}{100}$ = -25%

Answer 8: (C)

Single equivalent percentage increase in price

= $\left[a+b+\dfrac{ab}{100}\right]\%$ = $\left[10+10+\dfrac{10\times10}{100}\right]\%$ = 21%

Answer 9: (D)

	Original	New
Income	100	120
Expenditure	60	$60\times\dfrac{120}{100}$ = 72
Savings	100 − 60 = 40	120 − 72 = 48

Change in savings = 48 − 40 = 8

Hence, required percentage = $\dfrac{8}{40}\times100\%$ = 20%

Answer 10: (B)

According to question,

Savings = $100\times\dfrac{80}{100}\times\dfrac{30}{100}$ = 24%

Hence, total income = $\dfrac{7200}{24}\times100$ = ₹30000

Answer 11: (D)

Alcohal = $\dfrac{20}{100}\times15=3\,L$

Water = 15 − 3 = 12 L
If 3 litres of water is mixed, new mixture contains alcohol = 3 litres, and water = 15 litres.
New mixture = 3 + 15 = 18L

$\therefore$ Required percentage = $\dfrac{3}{18}\times100=16\dfrac{2}{3}\%$

Answer 12: (A)
Number of votes got by A = 65%
Number of votes got by B = 35%
Difference = 65% - 35% = 30%
According to the question,

30% ≡ 2748

1% ≡ $\dfrac{2748}{30}$

100% ≡ $\dfrac{2748}{30} \times 100$ = 9160

Hence, total number of votes cast = 9160

Answer 13: (A)
According to the question,

$\dfrac{100}{65-35} \times 21000 = 70000$

Answer 14: (D)
25% = $\dfrac{1}{4}$
ATQ,
1 unit ≡ 2
4 units ≡ 8

Answer 15: (C)
Original price = $\dfrac{\text{Price} \times \% \text{ reduction}}{\text{Quantity} \times (100 - \% \text{ reduction})}$

= $\dfrac{200 \times 20}{5 \times 80}$ = Rs. 10/kg.

New (Reduced price) = $\left(\dfrac{\text{Price} \times \% \text{ Reduction}}{\text{Quantity} \times 100}\right)$

= $\dfrac{200 \times 20}{5 \times 100}$ = Rs. 8/kg

Answer 16: (B)
Reduced price = $\left(\dfrac{\text{Price} \times x}{\text{Quantity} \times 100}\right)$

Where x = percentage reduction in price.

Reduced price = $\dfrac{20 \times 100}{4 \times 100}$ = Rs. 5/kg

Answer 17: (D)
Required percentage

= $x + y + \dfrac{xy}{100} = 20\% + 30\% + \dfrac{20\% \times 30\%}{100}$

= 50% + 6% = 56%

Answer 18: (D)
The net change = $\left[a + b + \dfrac{ab}{100}\right]\%$

= $\left[-25 + 20 + \dfrac{-25 \times 20}{100}\right]\%$

= $[-25 + 20 - 5]\%$ = -10%

Negative sign shows decrease.

Answer 19: (B)
Required percentage increase

= $\left[50 + 50 + \dfrac{50 \times 50}{100}\right]\% = 125\%$

Answer 20: (A)

$83\dfrac{1}{3}\% = \dfrac{5}{6}$

Let Girls = 500, then boys = 100
Absent boys = 100 × 40% = 40
Absent girls = 500 × 20% = 100
Total absent students = 40 + 100 = 140

Required percentage = $\dfrac{140}{600} \times 100 = 23\dfrac{1}{3}\%$