PERCENTAGE and PROFIT & LOSS-3_EXPLANATION

Answer 1: (C)
Total marks = 400
Marks obtained in all four subjects = 80% ×400 = 320
Marks obtained in first subject = 80% ×100 = 80
Marks obtained in second subject = 75% ×100 = 75
Marks obtained in third subject = 90% ×100 = 90
Therefore, Marks obtained in fourth subject = 320 – (80 + 75 + 90) = 75
Required percentage = 75%

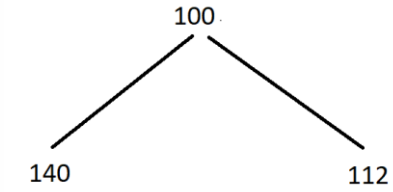
Answer 2: (B)
Boys = 40% and girls = 60%
According to question,

60% – 40%	≡	30
20%	≡	30
100%	≡	150

∴ Boys = 60 and girls = 90
Number of students who passed the exam = 68% × 150 = 102
Number of boys who passed the exam = 30
∴ Number of girls who passed the exam = 102 – 30 = 72
Now, number of girls who did not pass the exam = 90 – 72 = 18

Required percentage = $\frac{18}{90}\times 100 = 20\%$

Answer 3: (B)



Required quantity = $\frac{60}{140}\times 112 = 48$ kg

Answer 4: (D)
According to question,
D's marks = 80
C's marks = 80 – 10 = 70
B's marks = 70 + 50 = 120
A's marks = 120 – 30 = 90
E's marks = 90 + 35 = 125
Now, Full marks = 125 + 55 = 180

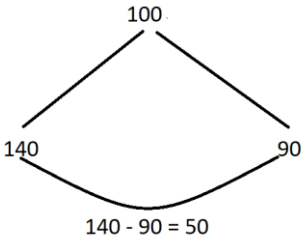
Required percentage = $\frac{125}{180}\times 100 = 69.44\% \approx 69\%$

Answer 5: (C)

	Male	Female
	60	40
Literate	45	32
Illiterate	60 – 45 = 15	40 – 32 = 8

According to question,
15 + 8 = 23 units = 46000
100 units = 200000

Answer 6: (C)



Required quantity = $\frac{20}{50}\times 90 = 36$ kg

Answer 7: (D)
Let maximum marks of each paper be 100, then total marks = 500
Marks obtained by student = 60% × 500 = 300
According to question,
8x + 9x + 10x + 12x + 11x = 300
⇒ 50x = 300
⇒ x = 6
Now, 8x = 48;
9x = 54;
10x = 60
12x = 72
11x = 66
Now, we can see that in 2 papers he scored more than 64 marks.

Answer 8: (B)

	Sonu	Monu
Original income	x	72500 – x
New income	1.25x	1.18(72500 – x)

According to question,
1.18(72500 – x) – 1.25x = 500
⇒ 85550 – 1.18x – 1.25x = 500
⇒ 2.43x = 85050
⇒ x = 35000
Hence, new income of Monu
= 1.18(72500 – x) = 1.18(72500 – 35000)
= ₹44250

Answer 9: (D)
Number of questions attempted correctly
= 90% of 30 + 70% of 30 + 60% of 45
= 27 + 21 + 27 = 75
Number of correct answers to pass = 105 × 80% = 84
Required Answer = 84 - 75 = 9

Answer 10: (A)

Total number of male = 600

Total number of female = 400

Number of educated male = 600 × 20% = 120

Number of educated population = 250

Number of educated female = 250 – 120 = 130

Required percentage = $\frac{130}{400}\times 100$ = 32.5%

Answer 11: (D)

According to question,

15% × A = 30% × B

⇒ A : B = 2 : 1

Also, 20% × B = 30% × C

⇒ B : C = 3 : 2

Now, A : B : C = 6 : 3 : 2

Total income of A, B and C

$= \frac{6+3+2}{3}\times 30000 = ₹110000$

Answer 12: (A)

Required amount =

$$\left[(100\%-32.5\%)-100000\right]\times\frac{100-20}{100}-750000=250000$$

$$\Rightarrow\left[67.5\%-100000\right]\times\frac{4}{5}=1000000$$

$$\Rightarrow 67.5\%-100000=1250000$$

$$\Rightarrow 67.5\%=1350000$$

$$\Rightarrow 100\%=2000000$$

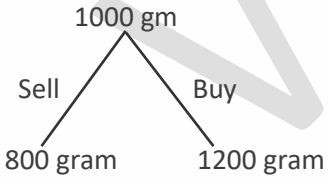
Answer 13: (C)

Case 1:

Net gain/loss %

$= 30 - 40 - \frac{30\times 40}{100} = -10 - 12 = -22\%$ (loss)

Case 2:



Profit % = $\frac{400}{800}\times 100\% = 50\%$

Net profit % = $50 - 22 - \frac{50\times 22}{100} = 28 - 11 = 17\%$

Alternative method:

Net profit % = $100\times\frac{130}{100}\times\frac{60}{100}\times\frac{1200}{1000}\times\frac{1000}{800}\% - 100\% = 117\% - 100\% = 17\%$

Answer 14: (C)

Selling price of the car = ₹2400000

Price after discount = $2400000\times\frac{75}{100}\times\frac{85}{100}$ = ₹1530000

Now, he spent 8% of cost price on maintenance and stereo system.

Total cost price = $1530000\times\frac{108}{100}$ = ₹1652400

∴ Loss percentage = $\frac{1652400-1600000}{1652400}\times 100 = \frac{52400}{1652400}\times 100 = 3.17\%$

Answer 15: (B)

Single equivalent discount for two successive discounts of 20% and 25% = $\left(x+y-\frac{xy}{100}\right)\%$

$= \left(20+25-\frac{20\times 25}{100}\right)\% = 40\%$

Single equivalent discount for two successive discounts of 20% and 30% = $\left(x+y-\frac{xy}{100}\right)\%$

$= \left(20+30-\frac{20\times 30}{100}\right)\% = 44\%$

According to the question,

(44 – 40)% of MP = 64

∴ Marked price of article = ₹1600

Answer 16: (C)

Revenue/Expenditure = ₹13269/₹8846 = 3/2

Let expenditure = 200

Therefore, revenue = 300

∴ Profit = 300 – 200 = 100

New Revenue = $\frac{300\times 125}{100}$ = 375

New Expenditure = $\frac{200\times 120}{100}$ = 240

Profit = 375 – 240 = 135

Percentage increase in profit = $\frac{135-100}{100}\times 125$

= 35%

Answer 17: (C)

Let manufacturing cost be 100 and manufacturer profit = x

∴ Marked price = 200% × 100 = 200

The retailer gives 20% discount on Marked price.

So, customer price is 80% of Marked price.

Buyer Price = 80% × 200 = 160

Manufacturer makes x rupees profit, and then retailer makes 25% profit.

According to question,

125% × (100 + x) = 160
⇒(100 + x) = 128
⇒x = 28
Hence, Manufacturer profit = 28%

Answer 18: (A)
According to the question,
$CP_1 : CP_2 = (100 + 19) : (100 - 15)$
$CP_1 : CP_2 = 119 : 85$
$CP_1 : CP_2 = 7 : 5$
$CP_1 = \frac{7}{12} \times 24000 = ₹14000$
$CP_2 = \frac{5}{12} \times 24000 = ₹10000$

Answer 19: (D)

	Apples	Price
CP_1	6 × 7 = 42	1 × 7 = 7
CP_2	7 × 6 = 42	1 × 6 = 6
$CP_1 + CP_2$	42 + 42 = 84	7 + 6 = 13

	Apples	Price
CP	84 × 13 = 1092	13 × 13 =169
SP	13 × 84 = 1092	2 × 84 = 168

∴ Loss = 169 – 168 = ₹1
Required number of apples = 1092 × 32 = 34944

Answer 20: (D)
Let cost price of 1 litre pure milk be ₹1
∴ CP of 10 litres pure milk = ₹10
Now, CP of 4 litres (water) = ₹0
Therefore, CP of 14 litres mixture = ₹10
Selling price of 14 litres mixture = 14 × 1.5 = ₹21
Profit = 21 – 10 = ₹11
Hence, Profit % = $\frac{11}{10} \times 100 = 110\%$

Answer 21: (C)
He is selling 15 goods to a dozen, so his loss in this case = $\frac{15-12}{15} \times 100 = 20\%$
Cash discount = 25%
Profit = 20%
According to question,
SP = CP × 1.20 = MP × 0.75 × 0.80
$\Rightarrow \frac{MP}{CP} = \frac{1.20}{0.80 \times 0.75} = \frac{2}{1}$
Thus, marked price is twice the cost price.
Hence, required percentage = 100%

Answer 22: (B)
Case 1:
Marked up = 140% × 20000 = ₹28000
Case 2:
Marked up = 85% × 180% × 20000 = ₹30600
Hence, he is earning 30600 – 28000 = ₹2600 less money if he had not been greedy.

Answer 23: (A)
Total selling price = 22000 × 7.5 = ₹165000
Total articles = $\frac{22000}{88} \times 100 = 25000$
Total cost price = $\frac{165000}{120} \times 100 = ₹137500$
Hence, cost price of each article = $\frac{137500}{25000} = ₹5.5$

Answer 24: (D)
For Rohan:
SP = 12000
Profit = 20%
Cost price = $\frac{100}{120} \times 12000 = 10000$
Profit = 12000 – 10000 = 2000
For Mohan:
SP = 12000
Profit = $\frac{20}{100} \times 12000 = 2400$
Required difference = 2400 – 2000 = 400

Answer 25: (A)
Let the cost price and marked price be 400x and 500x.
According to question,
$\frac{500x}{500x - 100} = \frac{10}{9}$
⇒450x = 500x – 100
⇒x = 2
Therefore, cost price = 800 and
Selling price = 900
Marked price = 1000
After discount the percentage of profit on cost price (x) = $\frac{900-800}{800} \times 100 = \frac{100}{8}$
Without discount the percentage of profit on selling price (y) = $\frac{1000-800}{900} \times 100 = \frac{200}{9}$
Hence, x : y = $\frac{100}{8} : \frac{200}{9} = 9 : 16$

Answer 26: (C)
According to question,
x = y + 100 .....(1)
0.2x + 0.15y = 300 .....(2)
From (1) and (2),
0.2(y + 100) + 0.15y = 300

⇒20(y + 100) + 15y = 30000
⇒20y + 2000 + 15y = 30000
⇒35y = 28000
⇒y = ₹ 800

Answer 27: (C)

Discount percentage = $\frac{2534.4}{6000} \times 100 = 42.24\%$

Now, $x + x - \frac{x^2}{100} = 42.24$
⇒200x – x^2 = 4224
⇒x^2 - 200x + 4224 = 0
⇒x^2 - 24x – 176x + 4224 = 0
⇒x (x – 24) – 176(x – 24) = 0
⇒x = 24 or x = 176
Hence, x = 24
Selling price of the article, if a single discount of x% is given

= $6000 \times \frac{100-24}{100} = 6000 \times \frac{76}{100}$ = ₹4560

Answer 28: (A)

The shopkeeper gives only 800 gm instead of 1 kg means he earns 200 gm profit on selling 800 gm sugar.
So, profit percent on selling 800 gm instead of 1 kg = $\frac{200}{800} \times 100 = 25\%$

Overall profit percent = $25 + 20 + \frac{25 \times 20}{100}$ = 50%

But now shopkeeper sells the goods at Rs 16 per kg after giving 20% discount, then the actual cost price of 1 kg sugar = $\frac{16}{80} \times 100 = 20$

But earlier shopkeeper was gaining 50% profit on this product means the price of this quantity before raid would be 20 × 1.5 = ₹30

Answer 29: (D)

Cost price of rice = $\frac{350}{125} \times 100$ = ₹280
According to question,
Ganesh then gives ₹650 to Arun.
So, Ganesh is left with ₹350.
Now, total loss for Ganesh = (1000 - 350) + cost price of 5 kg rice = 650 + 280 = ₹930