MBA PIONEER 2024

QUANTITATIVE APTITUDE

DPP: 2

Percentage 2

Q1 60% of P is 32 less than the 50% of Q and the sum of 50% of P and 75% of Q is equivalent to Q, then find the difference between P and Q.

Q2 The sum of 120% of 220 and 560% of 625% of 20 is equal to the sum of 80% of 180% of 250 and X. What is the value of 150% of X?

Q3 In a group of 600 people, the ratio of number of males to females is 5: 1. 72.5% of people are graduate. If 84% of males are graduate, then what percentage of females are graduate?

Q4 Obama bought some number of shirts. He gave 70% of the total shirts to Johnson and the rest of the shirts to Biden. Next day, he buys 25% more shirts than the previous day. If he gave 10% more shirts to Johnson than the previous day, then the number of shirts given to Biden is what percent more than the previous day?

Q5 There are four numbers such that A is 60% more than B and C is 30% less than the sum of B and A. If D is 10% more than C and the difference between D and B is 3006, then find the value of C.

Q6 The price of an iPhone increased by 20% and then decreased by 15%. The price of an android smartphone increased by 15% and then decreased by 20%. If the final prices of both the items are the same, find the ratio of the initial price of the iPhone to the initial price of an android smartphone.

(A) $\frac{187}{207}$
(B) $\frac{46}{51}$
(C) $\frac{23}{27}$
(D) $\frac{19}{21}$

Q7 In a tank full of plastic balls of 4 different colours, 18% of the total number of balls is Red, 4/9 of total number of balls is Blue, and 8% of the total number of balls is Green. If there are 133 yellow balls then find the difference between the number of Red balls and number of green balls in the tank?

(A) 45 (B) 90
(C) 30 (D) 60

Q8 At a marriage party, 45% of the guests are men and the remaining are women. 80% of the women guests are married and 40% of the men guests are unmarried. If 50% of the married men guests are present with their better halves, find the percentage of women in the marriage party who are married but not with their husbands.

(A) 30.5% (B) 32.5%
(C) 37.5% (D) 35.5%

Q9 In the Delhi election, out of the total number of voters in a constituency, 55% are male voters and the rest are female voters. If 70% of the males are employed and 60% of the females are unemployed, then the numbers of unemployed males are what percent more or less than the number of employed females.

(A) 8% (B) 8.3%

(C) 8.1% (D) 7%

Q10 In the year 2020, Vishal got 20% more incentive in 3rd month than what he got in 2nd month. His incentive in 4th month was $7\frac{61}{77}$ % more than what he got in the 3rd month. If he got Rs. 4500 as incentive in the first month and the difference in incentives received in 4th month and 2nd month is Rs. 1130, then the total incentive received by Vishal in the first four months is:

(A) Rs. 17950 (B) Rs. 16480

(C) Rs. 18560 (D) None of these

Q11 There are three items – A, B, and C. The price of A is 25% more than that of B, and price of item C is 10% more than that of A. The sum of the difference between the price of A and B, and the difference between the price of B and C is Rs.50. The difference between the price of A and B is how much more or less than the difference between the price of B and C?

(A) Rs. 10 more (B) Rs. 10 less

(C) Rs. 20 less (D) Rs. 20 more

Q12 Every morning at 6:00 am, Usain leaves his house to complete his daily running routine and returns at 9:00 am. One day, he decided to cover the distance in 2/3rd of the usual time. Find the percentage change in his speed.

(A) 50% (B) 75%

(C) 100% (D) 66.6%

Q13 The radius of a circle decreases by 17%. If the absolute value of percentage change in the area is written upto 2 decimal places as XY.ZW, type the value of [X+Y+Z+W] as the answer in the box.

(A) 6 (B) 8

(C) 4 (D) 7

Q14 Naruto always loves to have his favorite ramen before the tunin exams. The total price of ramen is the product of the rate (per gm) quantity (in grams) of Ramen consumed. Naruto generally orders 37.92 grams of Ramen at a fixed price of 948 Yen. On a particular day Naruto ate 10% less than the usual quantity, but later realized that the prize of Ramen was hiked by 20%. What is the extra/less amount that needs to be paid on this day?

(A) 30.52 Yen less than usual

(B) 25.93 Yen more than usual

(C) 45.52 Yen more than usual

(D) 75.84 Yen more than usual

Q15 A landowner increased the length and the breadth of a rectangular plot by 30% and 25% respectively. Find the percentage change in the cost of the plot assuming land prices are uniform throughout his plot.

(A) 12.5%

(B) 13%

(C) 625%

(D) None of the above.

Q16 The rate (per month) of increase in income is 2 times that of the expenditure. If there is no saving in the first month and the total savings in two months is 1/5th of the initial income, then the rate at which the expenditure increased is:

(A) 5% (B) 10%

(C) 20% (D) 22%

Q17 The property rates per sq. feet are $16\frac{2}{3}\%$ less in locality B as compared to locality A, while that in locality C is less by 25% as compared to locality B. Property rates per sq. feet are 50% more in locality D as compared to locality E. Property rates in locality A is same as locality E. If Mohan purchases 100 sq. feet properties in

both C and D each, the average rate at which he pays is Rs. 255 per square feet. If he instead purchased 100 sq. feet properties in both A and E each, the amount he needs to pay in Rs. would be

(A) Rs. 51000 (B) Rs. 50000
(C) Rs. 49000 (D) Rs. 48000

Q18 At Physics Wallah, 60% of a class are boys and 25% of the boys are at least 5 feet tall. If 25% of the girls are less than 5 feet tall, what is the percentage difference of the students in the class who are less than 5 feet and at least 5 feet tall?

(A) 10% (B) 16.67%
(C) 33.33% (D) 35%

Q19 An organization gives its' sales staff incentives based on the value of their sales. In a particular year, despite a 5 percentage point increment on the commission from 20%, the total commission for a sales organization remained unaltered. Find the change in the volume of the sales.

(A) -5% (B) -15%
(C) -20% (D) $-33\frac{1}{3}\%$

Q20 The population of Uttarakhand is 19,57,263 in the year 2010. There is a steady growth rate of 20% population at the start of every year and a death rate of 8.33% at the end of every year. However, Uttarakhand witnessed atrocious floods in the end of 2013 due to which the effective death rate was r %. The population after the floods was still 21 % more than what it was in 2010. Find the value of r. (Assume that the growth rate in population for 2013 was the usual 20% and that floods accounted for all the deaths in that year).

(A) 20% (B) 83.33%
(C) 16.67% (D) 25%

Q21 Santa has 3 companies A, B and C and also a trust X which manages the charitable activities of Santa. Each company has to give 5% charity to the trust X excluding the loan which the company has taken from other companies of the group. Company A has given a loan to company B, which is 10% of the total fund of company B. After receiving the loan, company B has twice the fund of company C. If company C gives Rs. 20,000 as a donation to trust X, how much is the approx contribution of company B to trust X.

(A) Rs. 36000 (B) Rs. 36300
(C) Rs. 28500 (D) Rs. 35500

Q22 In a bag, there are 150 coins having denominations Rs. 1, Rs. 2 and Rs. 5 with at least one coin of each denomination being present in the bag. The total value of Re. 1 coins is at least 50% of the total value of the coin in the bag. If there are 23 Rs. 5 coins and the total value of Rs. 2 coins is at least 3% of the total value of the coins in the bag, find the total number of Rs. 2 coins in the bag.

(A) 1 (B) 2
(C) 3 (D) 4

Q23 An unscrupulous trader has rigged his electronic weighing scale such that it shows a reading of 1 kg when 925 gms of goods are kept on it. Find the percentage error in the measurement.

Q24 The height and base of a triangle are changed such that even though the base is decreased by 11.11%, the area of the triangle increases by 10%. Find the percentage change in the height of the triangle.

Q25 In a college, the number of students decreased by 10% and the price of a rim of paper increased by 25% over the previous year. By how much percent should the usage of the rims of papers be cut short by each student, such that the total money spent on the rims of papers remains the same as the previous year?

Q26 In an examination of PW Mock CAT, Mohan scored 92% marks, Nishant scored 56% and Samarth scored 634 marks out of the total marks. Average marks scored by them was 643. What percentage of the total marks did Samarth get in the Mock CAT exam?

Q27 The amount of money that Dia gave to her friend is 69% of the amount remaining with her. Had Dia given 20% less money than she has given to her friend now, she would have Rs. 434 more than she had previously. What approximate percent is Rs. 3000 of the total amount of money she had?

(A) 85% (B) 122%
(C) 91% (D) 56%

Q28 The marketing unit of a company found that out of the base of its potential customers, 30% bought a product while the rest didn't. Out of those who bought the product, 40% saw its online advertisement while 60% didn't. Of those who didn't buy the product, 45% saw its online advertisement while 55% didn't. What is the ratio of those who bought the product and saw its online advertisement to those who watched the advertisement online but didn't buy it?

(A) 24:63 (B) 24:35
(C) 40: 63 (D) None of these

Q29 In an examination, 55% of the candidates passed in English and 75% of the candidates passed in history, but 20% failed in both of these subjects. If 3200 candidates passed in both the subjects, the number of candidates who appeared at the examination was?

(A) 4800 (B) 9600
(C) 6400 (D) 7200

Q30 Monthly income of A is 25% more than B and 20% less than C. Monthly expenditure of B is 20% more than C and 25% less than A. If A saves 60% of his monthly income, then the monthly savings of B is approximately what percent of monthly savings of C?

Answer Key

Q1	80
Q2	906
Q3	15
Q4	60
Q5	5460
Q6	(B)
Q7	(A)
Q8	(A)
Q9	(B)
Q10	(A)
Q11	(B)
Q12	(A)
Q13	(A)
Q14	(D)
Q15	(D)
Q16	(C)
Q17	(D)
Q18	(A)
Q19	(C)
Q20	(C)
Q21	(B)
Q22	(D)
Q23	8.1
Q24	23.75
Q25	12
Q26	72.45
Q27	(D)
Q28	(A)
Q29	(C)
Q30	50

Hints & Solutions

Q1 Text Solution:

50% of P + 75% of Q = Q

=> 0.5P+ 0.75Q = Q

=> 0.5P = 0.25Q

=> P: Q = 1:2

Let P = x and Q = 2x

60% of x = 50% of 2x – 32

=> 0.6x = x – 32

=> x = 80

Required difference = 2x - x = x = 80.

Q2 Text Solution:

120% of 220 + 560% of 625% of 20 = 80% of 180% of 250 + X

=> 264+ 700 = 360 + X

=> X = 604

So, value of 150% of X = $\frac{150}{100}$ × 604 = 906.

Q3 Text Solution:

Number of males = 600 × $\frac{5}{6}$ = 500

Number of females = 600–500 = 100

Number of graduate people = 600 × $\frac{72.5}{100}$ = 600 × $\frac{725}{1000}$

= 435

Number of graduate males = 500 × $\frac{84}{100}$ = 420

Number of graduate females = 435 – 420 = 15

Required percentage = 15× $\frac{100}{100}$ = 15%

Q4 Text Solution:

Let Obama bought 100 shirts on the first day.

Therefore, number of shirts Johnson got = 70

Number of shirts Biden got = 30

Number of shirts Obama bought on next day = 100 × $\frac{125}{100}$ = 125

Number of shirts Johnson got on next day = 70× $\frac{110}{100}$ = 77

Number of shirts Biden got on next day = 125 – 77 = 48

Required percentage = (48 – 30) × $\frac{100}{30}$ = 18 × $\frac{10}{3}$ = 60%.

Q5 Text Solution:

A = 1.6B

And C = 0.7 × (A+B)

C = 0.7 (1.6B + B)

C = 0.7 × 2.6B

C = 1.82B

Given,

D = 1.10 × C

D= 1.10 × 1.82B

D = 2.002B

According to the question,

D – B = 3006

2.002B – B = 3006

1.002B = 3006

B = 3000

Therefore, C = 1.82 × 3000 = 5460.

Q6 Text Solution:

Let the price of iPhone be 100x

=> the final price is = [100x + (20 – 15 – $\frac{20 \times 15}{100}$)100x] = 102x.

Let the price of an android smartphone be 100y.

The final price is = [100y + (15-20- $\frac{20 \times 15}{100}$)100y] = 92y

By the given condition,

102x = 92y

=> $\frac{x}{y}$ = $\frac{92}{102}$ = $\frac{46}{51}$.

Q7 Text Solution:

Let total number of balls in tank = X

So, number of red balls = $\frac{18X}{100}$
Number of blue balls = $\frac{4X}{9}$
Number of green balls = $\frac{8X}{100}$
Number of Yellow balls = X – [$\frac{18X}{100}$ + $\frac{4X}{9}$ + $\frac{8X}{100}$] = $\frac{266X}{900}$
Given
$\frac{266X}{900}$ = 133
X = $\frac{900}{2}$ = 450
Required difference = $\frac{18X}{100}$ – $\frac{8X}{100}$ = $\frac{10X}{100}$ = $\frac{450}{10}$ = 45.

Q8 Text Solution:

Let's say the number of guests attending the marriage party is 100x.
So, the number of men = $\frac{45}{100}$ × 100x = 45x
Thus, the number of women = 100x – 45x = 55x
Number of married women = $\frac{80}{100}$ × 55x = 44x
Number of unmarried men = $\frac{40}{100}$ × 45x = 18x
Number of married men = 45x – 18x = 27x
Number of men who brought their wives = $\frac{50}{100}$ × 27x = $\frac{27x}{2}$
Therefore, the number of women who are also with their husbands = $\frac{27x}{2}$
So, the number of women who are married but not with their husbands = 44x – $\frac{27x}{2}$ = $\frac{61x}{2}$
Thus, the percentage of women who are married but not with their husbands
= $\frac{\frac{61x}{2}}{100x}$×100
= $\frac{61}{2}$ %
= 30.5%
The required percentage of women in the marriage party who are married but not with their husbands is 30.5%.
Hence, option 1 is correct.

Q9 Text Solution:

Let the total number of Voter in Delhi Election =1000
Number of male voters = 55% of 1000 = 550
Number of unemployed males
= (100–70)% of 550 = 30% of 550 = 165
Also, number of females = 45% of 1000 = 450
Number of employed females = 40% of 450 = 180
Required percentage = (180–165)× $\frac{100}{180}$ = 8.33%.

Q10 Text Solution:

Let the incentive received by Vishal in 2nd month = x
Then incentive received by Vishal in 3rd month = 1.2x
Now, $7\frac{61}{77}$% = $\frac{600}{7700}$ = $\frac{6}{77}$
Incentive received by Vishal in 4th month
= 1.2x × (1 + $\frac{6}{77}$)
= $\frac{99.6x}{77}$
As, per data,
$\frac{99.6x}{77}$ – x = 1130
Solving, we get x = Rs 3850
So, Vishal's incentive in 2nd month = Rs 3850
Incentive in 3rd month = 1.2x = Rs 4620
Incentive in 4th month = $\frac{99.6x}{77}$ = Rs 4980
Therefore,
Required sum = 4500 + 3850 + 4620 + 4980 = Rs 17950.

Q11 Text Solution:

Let price of item B = Rs. X
Then, the price of item A = Rs. $\frac{125X}{100}$ = Rs. $\frac{5X}{4}$
Price of item C = Rs. $\frac{5X}{4}$ × $\frac{110}{100}$ = Rs. $\frac{11X}{8}$
According to the question,
($\frac{5X}{4}$ – X) + ($\frac{11X}{8}$ – X) = 50
=> $\frac{X}{4}$ + $\frac{3X}{8}$ = 50
=> $\frac{5X}{8}$ = 50
=> X = Rs. 80
Therefore,

Difference between the price of A and B = $\frac{X}{4}$ = Rs.20

Difference between the price of B and C = $\frac{3X}{8}$ = Rs. 30

Required answer = Rs. 30 – 20 = Rs. 10 less.

Q12 Text Solution:

Every morning Usain runs for 3 hours = 180 mins.

On this particular day, he wants to cover the distance in 2/3rd of the time = 120 mins.

Distance is the same as usual, so the ratio of speeds will be inverse of the ratio of time's

Initial: final = 180: 120 = 3: 2

So the ratio of speeds = 1/3 : 1/2 (multiplying by the LCM 6) =2:3

Thus, the increase in speed will be 1/2 × 100= 50%

Hence, option (A) is the correct answer.

Q13 Text Solution:

Using the formula for successive percentage change, if a value changes first by x%, then by y%, then the overall percentage change

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

Here, x = y = -17.

So Percentage change -17 -17 + $\frac{17 \times 17}{100}$ = -34 + 2.89 = -31.11%

Answer required = 3 + 1 + 1 + 1 = 6.

Hence, option A is the correct answer.

Q14 Text Solution:

Initial Quantity purchased = 37.92 grams.

Rate of 1 gm ramen = $\frac{948}{37.92}$ = 25 yen.

On that particular day, the quantity of the ramen purchased = 37.92 × .9 = 34.128 ramen.

New rate = 25 × 1.2 = 30 yen.

Final amount paid by him = 34.128 × 30 = 1023.84 yen.

Extra amount paid = 1023.84 – 948 = 75.84 yen.

Q15 Text Solution:

Let the initial price of the plot be 100 for 100 m^2 such that the length be 10 m and breadth be 10 m.

Now, the length is increased by 30%, therefore the change in length will be 130% × 10 = 13 m.

And, similarly the breadth is increased by 25%, hence, the new breadth will be 125% × 10 = 12.5 m.

New area = 13 × 12.5 = 162.5 m^2.

Change in area = 162.5 - 100 = 62.5 m^2.

Hence, change in the price of the plot = $\frac{62.5}{100}$ × 100 = 62.5%

Hence, option D is correct.

Q16 Text Solution:

We have, for the first month,

Income = Expenditure

Let the income in the first month be 2x, then the expenditure will be 2x in the first month.

And now, if there is an x% increment in the expenditure, the income will increase by 2x%.

And also, the saving is 1/5th of the initial income = 2x/5, which is in the second month.

Therefore for second month, we have,

$(2x + 2x\% \times 2x) - (2x + x\% \times 2x) = \frac{2x}{5}$

$\frac{4x^2+200x}{100} - \frac{2x^2+200x}{100} = \frac{2x}{5}$

$2x^2 = \frac{2x \times 100}{5}$

x = 20

Hence, option c is correct.

Q17 Text Solution:

As given in the question, we have,

D E A B C

9	6	6	5	(Rate ratio)
		4	3	

Multiply D, E, A, B by 4 and B , C by 5.

we get

D	E	A	B	C
36	**24**	**24**	**20**	**15**

Hence, for 100 sq. feet purchase each in locality C and locality D:

15x * 100 + 36x * 100 + = 255 x 200

or 5100x = 51000

or x = 10

Now, for purchase of 100 sq. feet each in locality A and locality E, we have,

24x * 100 + 24x * 100 = 4800x = 4800 x 10 = 48000

Hence, option D is correct.

Q18 Text Solution:

Let the total number of students in a class be 100, such that 60 and 40 be the numbers of boys and girls respectively.

Now, 25% of the total number of boys are 5 feet tall, or 25% x 60 = 15 boys are 5 feet tall and similarly 75% x 40 = 30 girls are at least 5 feet tall.

Hence, total number of students who are at least 5 feet tall are 15 + 30 = 45.

Therefore, fraction of students who are at least 5 feet tall = 45/100 = 9/20

Now, fraction of students who are less than 5 feet = 1 - 9/20 = 11/20

% difference = $\frac{\frac{11}{20}-\frac{9}{20}}{1} x\ 100 = 2\ x\ 5 = 10\%$

Hence, option a is correct.

Q19 Text Solution:

This question is based on a product constancy situation.

A 25% increment in the commission

When the commission goes up by 5 percentage points from 20 to 25, there is a 25% increment in the commission that would get offset by a 20% drop in the volume of the transaction.

It can be understood by the following change:

Let there be a sale of 100000.

required commission = 20% of 100000 = 20000.

Now we don't know about the total sale so,

25% of x = 20000.

x = 80000.

% decrease = $\frac{20000}{100000}$ ×100 = 20%

Hence, option C is correct.

Q20 Text Solution:

Let us suppose the population initially was a.

The increase in population was 20% = $\frac{1}{5}$th and the decrease in population 8.33% = $\frac{1}{12}$.

Final population after one year = a × $\frac{6}{5}$ × $\frac{11}{12}$ = $\frac{11}{10}$a.

Similarly, the population at the end of second year

$\frac{11}{10} \times \frac{11a}{10} = \frac{121a}{100}$.

Now, in the next year, the population increases again by 65, and let us suppose the multiplying factor for the decrease be Y.

so final population would become = 6/5 × Y × $\frac{121a}{100}$

But this population is 21% more than what it was initially.

So, $\frac{6}{5} \times Y \times \frac{121a}{100} = \frac{121a}{100}$

or, Y = $\frac{5}{6}$ i.e. the decrease in population is $\frac{1}{6}$ or 16.67%.

Hence, option C is the correct answer.

Q21 Text Solution:

Let us start with company C, which gave Rs. 20,000 donation.

or 5% of C's fund = 20,000

or C's fund = $\frac{20000}{5}$ × 100=4,00,000

Now, B's fund = 2 × C's fund

= 2 × 400000 = Rs. 8,00,000

Also, company B has got a fund from company A which is 10% of its total fund.

or 110% of B's fund = 800000

or B's fund = $\frac{800000}{110}$ × 100

Hence, Donation by company B

= $\frac{800000}{110}$× 100 × $\frac{5}{100}$ = Rs. 36363.63 (approx.)

Hence, **option B** is correct.

Q22 Text Solution:

We have, total number of coins 150 , which means a + b + c = 150 , where a, b and c are the number of coins of Re. 1, Rs. 2 and Rs.5 respectively.

Now, it has been given that, $a \geq \frac{1}{2}(a + 2b + 5c)$

or $50 \geq b + 2c$

Also, c = 23 , therefore, $50 \geq b + 2(23)$ **or** $b \leq 4$ **or or we can say that, b can have values 1, 2, 3 and 4.**

If b = 4 , then a = 123 , and the value of Rs. 2 coins will be .

= $\frac{8}{123+8+115} > 3\%$

But for b = 1, 2 or 3 the percentage will be < 3%.

Hence, only one value i.e. b = 4 satisfies the question.

Hence, option D is correct.

Q23 Text Solution:

Here, we just have to calculate the amount of percentage error in the measurement, which is $\frac{1000-925}{925} \times 100$ = 8.10%.

Hence, here the answer will be 8.10%.

Q24 Text Solution:

We know that the area of a triangle is = $\frac{1}{2}$ base × height.

Let the initial base be 9 units and height be 10 units. Therefore the initial area will be = $\frac{1}{2} \times 9 \times 10 = 45$ sq. units.

Now, the base is decreased by 11.11% or $\frac{1}{9}$, hence the new base will be 8 units; but the area is still increased by 10% or $\frac{1}{10}$ units.

New area will be 110% × 45 = 49.5 sq. units

Therefore the new height will be $\frac{49.52}{8}$ = 12.375 units.

Percentage increase will be = $\frac{12.375-10}{10}$ × 100 = 23.75%.

Q25 Text Solution:

We have, the students decreased by 10% or 1/10 times and the price increased by 25% or 1/4 times.

Now, let the number of students initially be s ; number of rims per students be r and the price of rim be p.

New number of students be 0.9s ; new number of rims per students

be x ; and the new price of rim be 1.25p.

Initial total expenditure be = s * r * p

New total expenditure be = 0.9s * x * 1.25p

Since, the total expenditure remain the same in both the cases, therefore,

s * r * p = 0.9s * x * 1.25p

or x = $\frac{r}{0.9 * 1.25} = 0.88r$

Therefore, percentage change will be

$\frac{r-0.88r}{r} x\ 100 = 12\%$

Q26 Text Solution:

Let the maximum marks be x; then marks scored by Mohan be 0.92x, by Nishant 0.56x

and by Samarth be 634.

Hence, total will be

0.92x + 0.56x + 634 = 1.48x + 634

Also, $\frac{1.48x + 634}{3} = 643$

or 1.48x + 634 = 643 x 3

or 1.48x = 1295

or x = 875.

Hence, the percentage of Samarth will be

= $\frac{634}{875} x\ 100 = 72.45\%$

Q27 Text Solution:

Let the amount remaining with Dia be Rs. A.

So, amount given to friend = 69% of A= 0.69A

Total amount she had = A + 0.69A = 1.69A

For the second case:

Amount given to friend = 0.8 × 0.69A

Amount left with Dia = A + 434

So, A+ 0.69A = 0.8 × 0.69A + A+ 434

0.2 × 0.69A = 434

A = 3144.9 ≈ 3145

Total Amount she had = 1.69 × 3145 = 5315.05.

Required percentage = $\frac{3000}{5315.05}$ × 100 = 56.44 ≈ 56%.

Q28 Text Solution:

Let the total number of potential customers = 100

30% bought the product, 30 customers bought the product while 70 didn't buy it.

Out of 30 customers, 40% saw the advertisement, so 12 customers who bought the product saw the advertisement while 18 customers who bought the product didn't see the advertisement.

Out of 70 customers who didn't buy the product, 45% saw the advertisement, so $70 \times 45\% = \frac{63}{2}$ customers saw the advertisement and didn't buy it while $70 - \frac{63}{2} = \frac{77}{2}$ customers didn't buy the product nor saw the advertisement.

So, the required ratio

= 12: $\frac{63}{2}$

= 24 : 63

Option (1) is correct.

Q29 Text Solution:

Candidates failed in English = (100 - 55)%= 45%

Candidates failed in History = (100 - 75)%= 25%

Candidates failed in both the classes = 20%

Candidates failed in English only = 45 - 20 = 25%.

Candidates failed in History only = 25 - 20 = 5%.

Total passed candidates = (100 - 25 - 5 - 20)% = 50%

50% = 3200

Total number of candidates = 6400

Hence, the correct answer is option (3).

Q30 Text Solution:

Let monthly income of A= Rs. a

Then, monthly income of B = a × $\frac{100}{125} = \frac{4a}{5}$.

Monthly income of C = a × $\frac{100}{80} = \frac{5a}{4}$.

Monthly expenditure of A = (100 - 60)% of a = $\frac{2a}{5}$.

Monthly expenditure of B = 75% of $\frac{2a}{5} = \frac{3a}{10}$.

Monthly savings of B = $\frac{4a}{5} - \frac{3a}{10} = \frac{a}{2}$.

And, monthly expenditure of C = $(\frac{3a}{10}) \times \frac{100}{120} = \frac{a}{4}$

Monthly savings of C = $\frac{5a}{4} - \frac{a}{4}$ = a

Therefore, percentage = $\frac{\frac{a}{2}}{a} \times 100 = 50\%$.