**Percentages**

Ans 1 : Option b

The total effect will be then successive percentage change of 20% and 5% which will be 26%.

Ans 2 : Option a

8.33% is the equivalent of 1/12 and so if B got 12 votes then A must have got 13 votes. Now we need to find by what % is 12 less than 13 which is equal to 7.71%.

Ans 3 : Option b

If the price increases by 20%, the consumption must decrease by 16.66% in order to maintain the expenditure. Therefore, 20 kgs must be 16.66% or 1/6th of the original and so the original value must be 120 kgs.

Ans 4 : Option c

If X=2Y and Y=3Z, then X=6Z

Required value is ((6Z-Z)/Z) \*100 = 83.33 %

Ans 5 : Option d

The formula for the total surface area of a cylinder is 2Πr^2 + 2Πrh. We cannot find the total % change if we do not know the relation between r and h.

Ans 6 : Option b

Required value is (22-18/18) \* 100 = 200/9 = 22.22%

Ans 7 : Option c

Passing marks is 40% of 60 ie 24. The student has 18 marks more than the passing marks ie 24+18 = 42 marks.

% marks obtained by the student = (42/60) \* 100 = 70%

Ans 8 : Option a

A=0.75 B and C=1.2D . Also D=0.75A and so C=1.2 \* 0.75A = 0.9A

Therefore, C= 0.9 \* 0.75B = 0.675B

C/B = 675/1000 = 27/40

or, 27B=40C

Ans 9 : Option c

Let number of girls be x and so the number of boys will be 1.2x

According to the problem, 2.2x=66 or, x=30 and number of boys is 36.

15 girls qualified the test and therefore the remaining 15 girls did not qualify the test.

Total of 33 students did not qualify the test and therefore 18 boys must not have qualified the test.

So, 50% of the boys did not qualify the test.

Hint : If 50% of the class did not qualify and 50% girls did not qualify, the % of boys who did not qualify must also be 50%.

Ans 10 : Option c

If the diameter increases by x%, the radius will also increase by x% while the area will have 2 successive effects of x%.

The resulting increase in area = ((168.54-150)/150)\*100 = 12.36%

which would be the result of the successive increase of 6%.

Ans 11 : Option a

Let the number of people be 7x and contribution of each person is Rs.240 each.

If the number of people decreases by 1/7th of the initial value, it will be 6x.

Let the new contribution per person be y.

Therefore, 6x \* y = 7x \* 240

Y=280 Rs.

Percentage increase per person = ((280-240)/240)\*100

= 100/6 =16.66%

Ans 12 : Option d

Let brass be 2x and bronze be 3x.

Total copper = 30% of 2x and 40% of 3x

= 0.6x + 1.2x = 1.8x

Percentage of copper = (1.8/5)\*100 = 36%

Ans 13 : Option a

In the first case, the difference between 55% and 45% of the votes is 80.

This would mean 10% of the votes is 80 and so the total votes initially is 800.

55% of 800 is 440 votes. This value increased by 20% in the next election. Now 20% of 440 is 88 votes and so the votes received by the candidate in the next election will be = 440+88 = 528 votes.

The number of votes received by the other candidate = 528+40 =568 votes.

Total votes = 528 + 568 = 1096 votes.

Ans 14 : Option b

Number of matches to be won = 60% of 40 = 24

At the halfway stage the club had won 40% of it’s 20 matches ie 8 matches. Therefore, in the remaining 20 matches it has to win at least 16 matches and therefore it can afford to lose a maximum of 4 matches.

Ans 15 : Option d

Formula for the surface area of a cube is 6a^2 where a is the side of the cube. If the side increases by 15%, the area would increase by

15+15+(225/100) = 32.25%

Ans 16 : Option c

As per the data given 0.2\*0.5A = 2(0.5\*0.25B)

0.1A = 0.25B

A=2.5B

((2.5B-B)/B)\*100 = 150% more.

Ans 17 : Option b

The successive effect of price and consumption will give the overall effect in expenditure.

20+x+20x/100 = -10

120x/100 = -30

X=-25% ie 25% decrease.

Ans 18 : Option b

45% households get paper E while 75% get paper F and therefore there must be 20% households which get both the papers.

From the data above, it is clear that 25% households must be getting only E while 55% households must be getting only F. ie there are 80% households that get only one paper.

Now 80% of the total = 240

This would mean that the total households must be 300.

Ans 19 : Option a

Ans 20 : Option b

((75-50)/50)\*100 = 50%

Ans 21 : Option c

The price decreases by 20% ie becomes 4/5 of the initial price and so the quantity will become 5/4 of the initial quantity.

The initial quantity is 120 Kgs and so the new quantity will be (5/4)\*120 Kgs = 150 Kgs.

Ans 22 : Option a

The population has increased by 10% in every year and therefore in 2 years it would have increased by 21%.

Let the population 2 years ago be P.

Therefore, P x (121/100) = 423500

or P = 350000

Children will form 5% of the population and so children will be 5% of 350000

= 17500

Ans 23 : Option d

20% of the total market is equal to 25000

Therefore, 45% of the total market will be equal to = (25000 x 45)/20

= 56250

Ans 24 : Option b

Let the initial market be M. After increasing by 15%, it becomes equal to 4,60,000

Therefore, M x (115/100) = Rs.460000

or, M=Rs.400000.

Required difference = Rs. 60,000

Ans 25 : Option a

The new interest rate will be 12.25% since it has increased by 0.25 percentage points and not 0.25 percentage.

Interest to be paid on a Principal of 5000 for 6 months.

I = (5000 x 12.25 x 1)/(200)

I = 25 x 12.25 = Rs.306.25

Ans 26 : Option b

Expected difference = 12% of Rs.18 lacs = Rs.2.16 lacs

Ans 27 : Option c

The total production in the first and second lot together is 10,50,000 and it is in the ratio 3:4.

Production in the first lot = (3/7) \* 1050000 = 4.5 lacs

Therefore Production in the second lot = 6.0 lacs

Total acceptable reject = 7% of 6 lacs = 42000

Reject in the first lot = 5% of 4.5 lacs = 22500.

Maximum reject acceptable in the second lot = 42000-22500 = 19500.

Percentage reject in the second lot = (19500/600000) \* 100

= 32.5%

Ans 28 : Option b

A better way to do this problem is to remember that 4.75% is the equivalent of 100/19.

Let the original length be 19 cm. The new length will be an increase of 1 cm from the original length.

The new length will be 20 cm.

If the length increases from 19 to 20, the breadth must decrease from 20 to 19 in order to maintain the same area.

Percentage decrease in breadth = 5%.

Ans 29 : Option a

Overall price change = 20-15-300/100 = 5-3 = 2% increase.

Let the original price before the 2 changes be P.

Therefore, P \* 102/100 = 8160

or, P=8000

Price after the increase of 20% = 8000 + 1600 = Rs.9600

Ans 30 : Option b

65 X = 50 Y

13 X = 10 Y

X = 0.77 Y