PERCENTAGE PROBLEMS SOLUTIONS

Bankers Point Explore The Intelligence

BANK SSC

Percentage

Percentage

Word *Percent* is made by adding two words 'Per' and 'Cent'. Per means every and Cent means hundred. Percent means 'per every hundred'. 10% means '10 per 100'.

So we can say that $10\% = 10/100$

Conversion of Percentage into Fraction:

Step 1: The number is divided by 100.
Step 2: '%' sign is removed.
$Ex - 30\% = 30/100$

Conversion of Fraction Into Percentage:

Step 1: Multiply fraction by 100.
Step 2: Put a '%' sign.
$6/10 = 6/10 \times 100 = 60\%$

Conversion of Percentage into Decimal:

$40\% = 40/100 = 0.40$

Convert Decimal Into Percentage:

$0.25 = (0.25 \times 100)\% = 25\%$
$1.50 = (1.50 \times 100)\% = 150\%$

Example 1:

What will be the fraction of 20%

Solution:

$20 \times \dfrac{1}{100} = \dfrac{1}{5}$

Example 2:

The ratio 5 : 20 expressed as percent equals to

Solution:

Actually it means 5 is what percent of 20, which can be calculated as,
$\dfrac{5}{20} \times 100 = 5 \times 5 = 25$

Exercise

1) 3.5 can be expressed in terms of percentage as :
   a) 0.35%   b) 3.5%   c) 35%
   d) 350%   e) None of these

2) 63% of $3\frac{4}{7}$ is :
   a) 2.25   b) 2.40   c) 2.50
   d) 2.75   e) None of these

3) 45% of 750 - 25% of 480 = ?
   a) 216   b) 217.50   c) 236.50
   d) 245   e) None of these

4) 270 candidates appeared for an examination, of which 252 passed. The pass
   percentage is :
   a) 80%   b) $83\frac{1}{2}$%   c) $90\frac{1}{3}$%
   d) $93\frac{1}{3}$%   e) None of these

5) What percent of a day is 3 hours?
   a) $12\frac{1}{2}$%   b) $16\frac{2}{3}$%   c) $18\frac{2}{3}$%
   d) $22\frac{1}{2}$%   e) None of these

6) Which one of the following shows the best percentage?
   a) $\frac{384}{540}$ b) $\frac{425}{500}$ c) $\frac{570}{700}$
   d) $\frac{480}{660}$ d) None of these

7) 30% of 28% of 480 is the same as
   a) 15% of 56% of 240   b) 60% of 28% of 240   c) 60% of 56% of 240
   d) Data inadequate   e) None of these

8) An agent gets a commission of 2.5% on the sales of cloth. If on a certain day, he
   gets Rs.12.50 as commission, the cloth sold through him on that day is worth
   a) Rs.250   b) Rs.500   c) Rs.750
   d) Rs.1250   e) None of these

9) The number which exceeds 16% of it by 42 is
   a) 50   b) 52   c) 58
   d) 60   e) None of these

10) If 120 is 20% of a number, then 120% of that number will be :
    a) 20   b) 120   c) 360
    d) 720   e) None of these

11) When any number is divided by 12, then dividend becomes $\frac{1}{4}$th of the other number. By how much percent first number is greater than the second number?
   a) 150   b) 200   c) 300
   d) Data inadequate   e) None of these

12) A batsman scored 110 runs which included 3 boundaries and 8 sixes. What percent of his total score did he make by running between the wickets?
   a) 45%   b) $45\frac{5}{11}$%   c) $54\frac{6}{11}$%
   d) 55%   e) None of these

13) 8% of the people eligible to vote are between 18 and 21 years of age. In an election, 85% of those eligible to vote, who were between 18 and 21, actually voted. In that election, the number of persons between 18 and 21, who actually voted, was what percent of those eligible to vote?
   a) 4.2   b) 6.4   c) 6.8
   d) 8   e) None of these

14) The students appeared at an examination. One of them secured 9 marks more than the other and his marks was 56% of the sum of their marks. The marks obtained by them are :
   a) 39, 30   b) 41, 32   c) 42, 33
   d) 43, 34   e) None of these

15) If 20% of a = b, then b% of 20 is the same as :
   a) 4% of a   b) 5% of a   c) 20% of a
   d) Data inadequate   e) None of these

16) The fruit seller had some apples. He sells 40% apples and still has 420 apples. Originally, he had :
   a) 588 apples   b) 600 apples   c) 672 apples
   d) 700 apples   e) None of these

17) If x% of a is the same as y% of b, then z% of b is :
   a) $\frac{xy}{z}$ % of a   b) $\frac{yz}{x}$ % of a   c) $\frac{xz}{y}$ % of a
   d) Data inadequate   e) None of these

18) What percentage of numbers from 1 to 70 have 1 or 9 in the unit's digit?
   a) 1   b) 14   c) 20
   d) 21   e) None of these

19) 65% of ? = 20% of 422.50
   a) 84.5   b) 130   c) 139.425
   d) 200   e) None of these

20) If A = x% of y and B = y% of x , then which of the following is true?

a) A is smaller than B.
b) A is greater than B.
c) Relationship between A and B cannot be determined.
d) If x is smaller than y, then A is greater than B.
e) None of these

21) Subtracting 40% of a number from the number, we get the result as 30. The number is :
a) 28   b) 50   c) 52
d) 70   e) None of these

22) The sum of two numbers is $\frac{28}{25}$ of the first number. The second number is what percent of the first?
a) 12%   b) 14%   c) 16%
d) 18%   e) None of these

23) In a certain school, 20% of students are below 8 years of age. The number of students above 8 years of age is $\frac{2}{3}$ of the number of students of 8 years of age which is 48. What is the total number of students in the school?
a) 72   b) 80   c) 120
d) 150   e) 100

24) When 15% is lost in grinding wheat, a country can export 30 lakh tons of wheat. On the other hand, if 10% is lost in grinding, it can export 40 lakh tons of wheat. The production of wheat in the country is :
a) 20 lakh tons   b) 80 lakh tons   c) 200 lakh tons
d) 800 lakh tons   e) None of these

25) Two numbers A and B are such that the sum of 5% of A and 4% of B is two-third of the sum of 6% of A and 8% of B. Find the ratio of A : B.
a) 2 : 3   b) 1 : 1   c) 3 : 4
d) 4 : 3   e) None of these

26) A student has to obtain 33% of the total marks to pass. He got 125 marks and failed by 40 marks. The maximum marks are:
a) 300   b) 500   c) 800
d) 1000   e) None of these

27) A student multiplied a number by $\frac{3}{5}$ instead of $\frac{5}{3}$ What is the percentage error in the calculation?
a) 34%   b) 44%   c) 54%
d) 64%   e) None of these

28) 1100 boys and 700 girls are examined in a test; 42% of the boys and 30% of the girls pass. The percentage of the total who failed is:

a) 58% b) $62\frac{2}{3}$% c) 64%

d) 78% e) None of these

29) In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was :
a) 2700 b) 2900 c) 3000
d) 3100 e) None of these

30) 5 out of 2250 parts of earth is sulphur. What is the percentage of sulphur in earth?
a) $\frac{11}{50}$ b) $\frac{2}{9}$ c) $\frac{1}{45}$
d) $\frac{2}{45}$ e) None of these

31) If 35% of a number is 12 less than 50% of that number, then the number is :
a) 40 b) 50 c) 60
d) 80 e) None of these

32) If 25% of a number is subtracted from a second number, the second number reduces to its five-sixth. What is the ratio of the first number to the second number?
a) 1 : 3 b) 2 : 3 c) 3 : 2
d) Data inadequate e) None of these

33) Three candidates contested an election and received 1136, 7636 and 11628 votes respectively. What percentage of the total votes did the winning candidate get?
a) 57% b) 60% c) 65%
d) 90% e) None of these

34) In a competitive examination in State A, 6% candidates got selected from the total appeared candidates. State B had an equal number of candidates appeared and 7% candidates got selected with 80 more candidates got selected than A. What was the number of candidates appeared from each State?
a) 7600 b) 8000 c) 8400
d) Data inadequate e) None of these

35) Two tailors X and Y are paid a total of Rs.550 per week by their employer. If X is paid 120 percent of the sum paid to Y, how much is Y paid per week?
a) Rs.200 b) Rs.250 c) Rs.300
d) Data inadequate e) None of these

36) In an election a candidate who gets 84% off the votes is elected by a majority of 476 votes. What is the total number of votes polled?
a) 672 b) 700 c) 749
d) 848 e) None of these

37) Gauri went to the stationers and bought things worth Rs.25, out of which 30 paise went on sales tax on taxable purchases. If the tax rate was 6%, then what was the cost of the tax free items?
a) Rs.15 b) Rs.15.70 c) Rs.19.70
d) Rs.20 e) None of these

38) If x is 80% of y, then what percent of 2x is y?
a) 40% b) $62\dfrac{1}{2}$% c) $66\dfrac{2}{3}$%
d) 80% e) None of these

39) Rajeev buys good worth Rs.6650. He gets a rebate of 6% on it. After getting the rebate, he pays sales tax @ 10%. Find the amount he will have to pay for the goods.
a) Rs.6876.10 b) 6999.20 c) Rs.6654
d) Rs.7000 e) None of these

40) Aman gave 40% of the amount he had to Rohan. Rohan in turn gave one-fourth of what he received from Aman to Sahil. After paying Rs.200 to the taxi driver out of the amount he got from Rohan, Sahil now has Rs.600 left with him. How much amount did Aman have?
a) Rs.4000 b) Rs.8000 c) Rs.12,000
d) Data inadequate e) None of these

41) The population of a town increased from 1,75,000 to 2,62,500 in a decade. The average percent increase of population per year is :
a) 4.37% b) 5% c) 6%
d) 8.745% e) None of these

42) A scored 30% marks and failed by 15 marks. B scored 40% marks and obtained 35 marks more than those required to pass. The pass percentage is :
a) 33% b) 38% c) 43%
d) 46% e) None of these

43) A housewife saved Rs.2.50 in buying an item on sale. If she spent Rs.25 for the item, approximately how much percent she saved in the transaction?
a) 8% b) 9% c) 10%
d) 11% e) None of these

44) A debtor can pay 87 paise in the rupee, but if his creditors would take 20% of his debts, he could pay them and have Rs.42 left. His debts and assets respectively are :
a) Rs.400, Rs.520 b) Rs.500, Rs.521 c) Rs.600, Rs.522
d) Rs.1000, Rs.525 e) None of these

45) The price of a car is Rs.3,25,000. It was insured to 85% of its price. The car was damaged completely in an accident and the insurance company paid 90% of the insurance. What was the difference between the price of the car and the amount received?

a) Rs.32,500   b) Rs.48,750   c) Rs.76,375
d) Rs.81,250   e) None of these

46) The price of a T.V. set is decreased by 25% as a result of which the sale increased by 20%. What will be the effect on the total revenue of the shop?
a) No effect   b) 5% decrease   c) 5% increase
d) 10% increase   e) None of these

47) Two numbers are respectively $12\frac{1}{2}$% and 25% more than a third number. The first number as a percentage of the second number is :
a) 50   b) 60   c) 75
d) 90   e) None of these

48) In an examination, 5% of the applicants were found ineligible and 85% of the eligible candidates belonged to the general category. If 4275 eligible candidates belonged to other categories, then how many candidates applied for the examination?
a) 30,000   b) 35,000   c) 37,000
d) Data inadequate   e) None of these

49) Milk contains 5% water. What quantity of pure milk should be added to 10 litres of milk to reduce this to 2%?
a) 5 litres   b) 7 litres   c) 15 litres
d) Data inadequate   e) None of these

50) Raman's salary was decreased by 50% and subsequently increased by 50%. How much percent does he loss?
a) Rs.25   b) Rs.50   c) Rs.75
d) Rs.85   e) None of these

51) A reduction of 21% in the price of wheat enables a person to buy 10.5 kg more for Rs.100. What is the reduced price per kg?
a) Rs.2   b) Rs.2.25   c) Rs.2.30
d) Rs.2.50   e) None of these

52) How many litres of pure acid are there in 8 litres of a 20% solution?
a) 1.4   b) 1.5   c) 1.6
d) 2.4   e) None of these

53) Subtracting 6% of x from x is equivalent to multiplying x by how much?
a) 0.094   b) 0.94   c) 9.4
d) 94   e) None of these

54) Sameer spends 24% of his monthly income on food and 15% on the education of his children. Of the remaining salary, he spends 25% on entertainment and 20% on conveyance. He is now left with Rs.10,736. What is the monthly salary of Sameer?

a) Rs.27,600   b) Rs.28,000   c) Rs.31,200

d) Rs.32,000   e) None of these

55) The price of a table is Rs.400 more than that of a chair. If 6 tables and 6 chairs together cost Rs.4800, by what percent is the price of the chair less than that of the table?

a) $33\frac{1}{3}$%   b) 50%   c) $66\frac{2}{3}$%

d) Data inadequate   e) None of these

56) If the price of a book is first decreased by 25% and then increased by 20%, then the net change in the price will be :

a) No change   b) 5% increase   c) 5% decrease

d) 10% decrease   e) None of these

57) The price of tea being increased by 20%, a man reduces his consumption by 20%. By how much percent will his expenses for tea be decreased?

a) 2%   b) 4%   c) 6%

d) 8%   e) None of these

58) A's salary is 40% of B's salary which is 25% of C's salary. What percentage of C's salary is A's salary?

a) 5%   b) 10%   c) 15%

d) 20%   e) None of these

59) The quantity of water (in ml) needed to reduce 9 ml shaving lotion containing 50% alcohol to a lotion containing 30% alcohol, is :

a) 4   b) 5   c) 6

d) 7   e) None of these

60) Due to an increase of 30% in the price of eggs, 3 eggs less are available for Rs.7.80. The present rate of eggs per dozen is :

a) Rs.8.64   b) Rs.8.88   c) Rs.9.36

d) Rs.10.40   e) None of these

Solutions:

1.   Option D

$$3.5 = \frac{35}{10} = \left[\frac{35}{10} \times 100\right]\% = 350\%$$

2.   Option A

$$63\% \text{ of } 3\frac{4}{7} = \left[\frac{63}{100} \times \frac{25}{7}\right] = \frac{4}{9} = 2.25$$

3.   Option B

Given expression $= \left[\frac{45}{100} \times 750\right]$ - $\left[\frac{25}{100} \times 480\right]$ = (337.50 - 120) = 217.50

4.   Option D

Pass percentage = $\left[\frac{252}{270} \times 100\right]\% = \frac{280}{3}\% = 93\frac{1}{3}\%$

5.   Option A

Required percentage = $\left[\frac{3}{24} \times 100\right]\% = \frac{25}{2}\% = 12\frac{1}{2}\%$

6.   Option B

$\frac{384}{540} = \left[\frac{384}{540} \times 100\right]\% = 71\frac{1}{9}\%$; $\frac{425}{500} = \left[\frac{425}{500} \times 100\right]\% = 85\%$

$\frac{570}{700} = \left[\frac{570}{700} \times 100\right]\% = 81\frac{3}{7}\%$; $\frac{480}{660} = \left[\frac{480}{660} \times 100\right]\% = 72\frac{8}{11}\%$

So, $\frac{425}{500}$ shows the best percentage.

7.   Option E

Clearly, 60% of 28% of 240 $= \left[\frac{60}{100} \times \frac{28}{100} \times 240\right] = \left[\frac{30}{100} \times \frac{28}{100} \times 2 \times 240\right]$

$= \left[\frac{30}{100} \times \frac{28}{100} \times 480\right]$ = 30% of 28% of 480

8.   Option B

Let the total sale be Rs. x
Then, 2.5% of x = 12.50

$\left[\frac{25}{100} \times \frac{1}{100} \times x\right] = \frac{125}{10}$

$x = \left[\frac{125}{10} \times \frac{100 \times 10}{25}\right] = 500$

9.   Option A

Let the number be x. Then, x - 16% of x = 42

$x - \frac{16}{100} x = 42$

$x - \frac{4}{25} x = 42$

$\frac{21}{25} x = 42$

$x = \left[\frac{42 \times 25}{21}\right] = 50$

10.   Option D

Let the number be x.

Then, 20% of x = 120

$$\left[\frac{20}{100} \times x\right] = 120$$

$$x = \left[\frac{120 \times 100}{20}\right] = 600$$

So, 120% of x = $\left[\frac{120}{100} \times 600\right]$ = 720

11. Option B

Let the number be x and y. Then, $\frac{x}{12} = \frac{y}{4}$

x = 3y

So, required percentage = $\left[\frac{x - y}{y} \times 100\right]$ % = $\left[\frac{2y}{y} \times 100\right]$ % = 200%

12. Option B

Number of runs made by running $= 110 - (3 \times 4 + 8 \times 6)$
$= 110 - (60)$
$= 50$

So, required percentage = $\left[\frac{50}{110} \times 100\right]$% = $45\frac{5}{11}$%

13. Option C

Let the number of persons eligible to vote be x. Then,]
Number of eligible persons between 18 and 21 = 8% of x
Number of persons between 18 and 21, who voted $= 85\%$ of (8% of x)

$= \left[\frac{85}{100} \times \frac{8}{100} \times x\right] = \frac{68}{1000}x$

So, required percentage = $\left[\frac{68x}{1000} \times \frac{1}{x} \times 100\right]$% = 6.8%

14. Option C

Let their marks be (x + 9) and x.
Then, $x + 9 = \frac{56}{100}(x + 9 + x)$
$25(x + 9) = 14(2x + 9)$
$3x = 99$
$x = 33$
So, their marks are 42 and 33.

15. Option A

20% of a = b
$\frac{20}{100}a = b$

So, b% of 20 = $\left[\frac{b}{100} \times 20\right] = \left[\frac{20}{100} a \times \frac{1}{100} \times 20\right] = \frac{4}{100} a$ = 4% of a

16. Option D

Suppose originally he had x apples.
Then, (100 - 40)% of x = 420

$\frac{60}{100} \times x = 420$

$x = \left[\frac{420 \times 100}{60}\right] = 700$

17. Option C

x% of a = y% of b

$\frac{x}{100} a = \frac{y}{100} b$

$b = \left[\frac{x}{y}\right] a$

So, z% of b = $\left[z\% \text{ of } \frac{x}{y}\right] a = \left[\frac{xz}{y} \times 100\right] a = \left[\frac{xz}{y}\right]\%$ of a.

18. Option C

Clearly, the numbers which have 1 or 9 in the unit's digit, have squares that end in the digit 1. Such numbers from 1 to 70 are 1, 9, 11, 19, 21, 29, 31, 39, 41, 49, 51, 59, 61, 69
Number of such number = 14

So, required percentage = $\left[\frac{14}{70} \times 100\right]\% = 20\%$

19. Option B

Let 65% of x = 20% of 422.50

Then, $\frac{65}{100} \times x = \left[\frac{20}{100} \times \frac{4225}{10}\right]$

$x = \left[\frac{845}{10} \times \frac{100}{65}\right] = 130$

20. Option E

x% of y = $\left[\frac{x}{100} \times y\right] = \left[\frac{y}{100} \times x\right]$ = y% of x
So, A = B

21. Option B

Let the number be x. Then, x - 40% of x = 30

$x - \frac{40}{100} x = 30$

$x - \frac{2}{5} x = 30$

$\frac{3x}{5} = 30$

$x = \left[\frac{30 \times 5}{3} \right] = 50$

22.   Option A

Let the numbers be x and y. Then,

$x + y = \frac{28}{25} x$

$y = \frac{28}{25} x - x$

$y = \frac{3}{25} x$

$\frac{y}{x} = \left[\frac{3}{25} \times 100 \right] \% = 12\%$

23.   Option E

Let the number of students be x. Then,
Number of students above 8 years of age = (100 - 20)% of x = 80% of x

So, 80% of x = $48 + \frac{2}{3}$ of 48

$\frac{80}{100} x = 80$

$x = 100$

24.   Option C

Let the total production be x lakh tons. Then, 15% of x - 10% of x = (40 - 30) lakh tons

5% of x = 10 lakh tons

$x = \left[\frac{10 \times 100}{5} \right] = 200$ lakh tons

25.   Option D

5% of A + 4% of B $= \frac{2}{3}$ (6% of A + 8% of B)

$\frac{5}{100} A + \frac{4}{100} B = \frac{2}{3} (\frac{6}{100} A + \frac{8}{100} B)$

$\frac{1}{20} A + \frac{1}{25} B = \frac{1}{25} A + \frac{4}{75} B$

$\left[\frac{1}{20} - \frac{1}{25} \right] A = \left[\frac{4}{75} - \frac{1}{25} \right] B$

$\frac{1}{100} A = \frac{1}{75} B$

$\frac{A}{B} = \frac{100}{75} = \frac{4}{3}$

So, required ratio = 4 : 3

26. Option B

Let the maximum marks be x.
Then, 33% of x = 125 + 40
$\frac{33}{100}$ x = 165

x = $\left[\frac{165 \times 100}{33}\right]$ = 500

27. Option D

Let the number be x.
Then, error = $\frac{5}{3}$ x - $\frac{3}{5}$ x = $\frac{16}{15}$ x

Error% = $\left[\frac{16x}{15} \times \frac{3}{5x} \times 100\right]$% = 64%

28. Option B

Total number of students   = 1100 + 700 = 1800
Number of students passed   = (42% of 1100 + 30% of 700) = (462 + 210)= 672
Number of failures   = 1800 - 672 = 1128
So, percentage failure   = $\left[\frac{1128}{1800} \times 100\right]$% = 62 $\frac{2}{3}$%

29. Option A

Number of valid votes = 80% of 7500 = 6000
So, valid votes polled by other candidate = 45% of 6000

= $\left[\frac{45}{100} \times 6000\right]$ = 2700

30. Option B

Required percentage = $\left[\frac{5}{2250} \times 100\right]$% = $\frac{2}{9}$%

31. Option D

Let the number be x. Then, 50% of x - 35% of x = 12
$\frac{50}{100}$ x - $\frac{35}{100}$ x = 12
$\frac{15}{100}$ x = 12

x = $\left[\frac{12 \times 100}{15}\right]$ = 80

32. Option B

Let the numbers be x and y.

Then, y - 25% of x = $\frac{5}{6}$ y

y - $\frac{5}{6}$ y = $\frac{25}{100}$ x

$\frac{y}{6} = \frac{x}{4}$

$\frac{x}{y} = \frac{4}{6} = \frac{2}{3}$

33.   Option A

Total number of votes polled = (1136 + 7636 + 11628) = 20400

So, required percentage = $\left[\frac{11628}{20400} \times 100\right]\% = 57\%$

34.   Option B

Let the number of candidates appeared from each state be x.
Then, 7% of x - 6% of x = 80
1% of x = 80
x = 80 × 100 = 8000

35.   Option B

Let the sum paid to Y per week be Rs. z.
Then, z + 120% of z = 550

z + $\frac{120}{100}$ z = 550

$\frac{11}{5}$ z = 550

z = $\left[\frac{550 \times 5}{11}\right] = 250$

36.   Option B

Let the total number of votes polled be x.
Then, votes polled by other candidate = (100 - 84)% of x = 16% of x
So, 84% of x - 16% of x = 476

$\frac{68}{100}$ x = 476

x = $\left[\frac{476 \times 100}{68}\right] = 700$

37.   Option C

Let the amount taxable purchases be Rs. x.

Then, 6% of x = $\frac{30}{100}$

$$x = \left[\frac{30}{100} \times \frac{100}{6}\right] = 5$$

So, cost of tax free items = Rs. $\left[25 - (5 + 0.30)\right]$ = Rs.19.70

38. Option B

x = 80% of y

$x = \frac{80}{100}$ y

$\frac{y}{x} = \frac{5}{4}$

$\frac{y}{2x} = \frac{5}{8}$

So, required percentage = $\left[\frac{y}{2x} \times 100\right]\%$ = $\left[\frac{5}{8} \times 100\right]\%$ = $62\frac{1}{2}\%$

39. Option A

Rebate = 6% of Rs.6650 = Rs. $\left[\frac{6}{100} \times 6650\right]$ = Rs.399

Sales tax = 10% of Rs. (6650 - 399) = Rs. $\left[\frac{10}{100} \times 6251\right]$ = Rs.625.10

So, final amount = Rs. (6251 + 625.10) = Rs.6876.10

40. Option B

Let the amount with Aman be Rs.x

Then, amount received by Sahil = $\frac{1}{4}$ of 40% of Rs. x = 10% of Rs. x

So, 10% of x = 600 + 220

$\frac{10}{100}$ x = 800

x = 800 × 10 = 8000

41. Option B

Increase in 10 years = (262500 - 175000) = 87500

Increase % = $\left[\frac{87500}{175000} \times 100\right]\%$ = 50%

So, required average = $\left[\frac{50}{10}\right]\%$ = 5%

42. Option A

Let total marks = x. Then, (30% of x) + 15 = (40% of x) - 35

$\frac{30}{100}$ x + 15 = $\frac{40}{100}$ x - 35

$\frac{1}{10}$ x = 50

x = 500

So, passing marks = (30% of 500) + 15 = $\left[\frac{30}{100} \times 500 + 15\right]$ = 165

So, pass percentage = $\left[\frac{165}{500} \times 100\right]\%$ = 33%

43. Option B

Actual price	= Rs. (25 + 2.50)
	= Rs.27.50
Therefore, saving	= $(\frac{2.50}{27.50} \times 100]\%$
	= $\frac{100}{11}\%$
	= $9 \times \frac{1}{11}\%$
	= 9%

39. Option C

Let total debt = x. Asset = $\frac{87}{100}$ x

After paying 20% of the debt, he is left with 80% of the debt plus Rs.42.

So, 80% of x + 42 = $\frac{87}{100}$ x

$\frac{87}{100}$ x - $\frac{80}{100}$ x = 42

x = 600

So, debt = Rs.600 and assets = Rs. $\left[\frac{87}{100} \times 600\right]$ = Rs.522

45. Option C

Amount paid to car owner	= 90% of 85% of Rs.3,25,000
	= Rs. $(\frac{90}{100} \times \frac{85}{100} \times 325000)$
	= Rs.2,48,625
Required difference	= Rs. (325000 - 248625)
	= Rs.76,375

46. Option E

Let original price per T.V.	= Rs.100 and original sale = 100 T.Vs
Then, total revenue	= Rs. (100 × 100) = Rs.10,000
New revenue	= Rs. (75 × 120) = Rs.9000
So, decrease in revenue	= $\left[\frac{1000}{10000} \times 100\right]\%$ = 10%

47. Option D

Let third number be x.

Then, first number = $112\frac{1}{2}$% of x = $\frac{9x}{8}$

Second number = 125% of x = $\frac{5}{4}$x

So, required percentage = $\left[\frac{9x}{8} \times \frac{4}{5x} \times 100\right]$% = 90%

48.   Option A

Let the number of applicants be x.

Number of eligible candidates	= 95% of x
Eligible candidates of each other categories	= 15% of (95% of x)

$= \left[\frac{15}{100} \times \frac{95}{100} \times x\right]$

$= \frac{57}{400} \times x$

Therefore, $\frac{57}{400} \times$ x   = 4275

$x = (4275 \times \frac{400}{57})$

30000

49.   Option C

Quantity of water in 10 litres = 5% of 10 litres = 0.5 litres

Let x litres of pure milk be added. Then, $\frac{0.5}{10 + x} = \frac{2}{100}$

2x = 30

x = 15

50.   Option C

Let the original salary	= Rs.100
New final salary	= 150% of (50% of Rs.100)

Rs. $\left[\frac{150}{100} \times \frac{50}{100} \times 100\right]$

Rs.75

Decrease = 25%

51.   Option A

Let original price   = Rs. x per kg.

Reduced price   = Rs. $\left[\frac{79x}{100}\right]$ per kg

So, $\frac{100}{\frac{79x}{100}}$ - $\frac{100}{x}$ = 10.5

$\frac{10000}{79x}$ - $\frac{100}{x}$ = 10.5

10000 - 7900 = 10.5 × 79x

$x = \frac{2100}{10.5 \times 79}$

So, reduced price $= Rs. \left[\frac{79}{100} \times \frac{2100}{10.5 \times 79} \right]$ per kg = Rs.2 per kg

52.   Option C

Quantity of pure acid $\quad$ = 20% of 8 litres

$= \left[\frac{20}{100} \times 8 \right]$ litres
= 1.6 litres

53.   Option B

Let x - 6% of x = xz
Then, 94% of x = xz
$\frac{94}{100}$ x $\times \frac{1}{x}$ =z
z = 0.94

54.   Option D

Let the monthly salary of Sameer be Rs. x.

Then, $\left[100 - (25 + 20) \right]$% of $\left[100 - (24 + 15) \right]$% of x = 10736
55% of 61% of x = 10736
$\frac{55}{100} \times \frac{61}{100}$ × x = 10736
x = $\left[\frac{10736 \times 100 \times 100}{55 \times 61} \right]$ = 32000

55.   Option C

Let the price of a chair be Rs. x. Then, price of a table = Rs. (x + 400)
So, 6 (x + 400) + 6x = 4800
12x = 2400
x = 200
So, price of a table = Rs.600; Price of a chair = Rs.200
Required percentage = $\left[\frac{400}{600} \times 100 \right]$% = 66 $\frac{2}{3}$%

56.   Option D

Let the original price be Rs. 100
New final price = 120% of (75% of Rs.100) = Rs. $\left[\frac{120}{100} \times \frac{75}{100} \times 100 \right]$ = Rs.90
So, decrease = 10%

57.   Option B

Let original consumption = 100 units and original price = Rs. 100 per unit
Original expenditure = Rs. (100×100) = Rs.10000
New expenditure = Rs. (120×80) = Rs.9600

So, decrease in expenditure = $\left[\frac{400}{10000} \times 100\right]\%$ = 4%

58. Option B

A = 40% of B = 40% of (25% of C) = $\left[\frac{40}{100} \times \frac{25}{100} \times 100\right]\%$ of C = 10% of C

59. Option C

Quantity of alcohol in 9 ml lotion = $\left[\frac{50}{100} \times 9\right]$ ml = 4.5 ml

Let the water to be added be x ml.
Then, $\frac{4.5}{9 + x} = \frac{30}{100}$
270 + 30x = 450
x = 6 ml

60. Option C

Let the original price per egg be Rs. x. Then, increased price = Rs. $\left[\frac{130}{100} x\right]$

So, $\frac{7.80}{x} - \frac{7.80}{\frac{130}{100} x} = 3$

$\frac{7.80}{x} - \frac{780}{130 x} = 3$

1014 - 780 = 3 × 130x

390x = 234

x = 0.6

So, present price per dozen $= Rs. \left[12 \times \dfrac{130}{100} \times 0.6 \right]$ = Rs.9.36