**Quantitative Aptitude Test (Set 1)**

**Company :- Capgemini No. of questions :-16**

**1: Direction:** Bar graph shows the percentage quantity of five different mixtures A, B, C, D and E of soda and water which has different concentration of soda. Total quantity of all the mixtures together is 500 litres. Study the following bar graph carefully and answer the questions.

If the mixtures A and C have the soda concentration 37.5% and 60% respectively and they are

mixed together then find the concentration of soda in the final mixture.

1. 55%
2. 52%
3. 48%
4. 50%

**Answer :** option d

**Solution :**

Quantity of mixture A = 500 × 0.2 = 100 L

Quantity of mixture C = 500 × 0.25 = 125 L

Mixtures A and C have the soda concentration 37.5% and 60% respectively;

∴ Quantity of Soda in mixture A = 100 × 0.375 = 37.5 L

Quantity of Soda in mixture C = 125 × 0.6 = 75 L

∴ Quantity of soda in the final mixture = 37.5 + 75 = 112.5 L

∴ Concentration of soda in the final mixture = 112.5/[100 + 125] = 50%

**2: Direction:** Bar graph shows the percentage quantity of five different mixtures A, B, C, D and E of soda and water which has different concentration of soda. Total quantity of all the mixtures together is 500 litres. Study the following bar graph carefully and answer the questions.

The soda concentration in mixture E is 20% then find the percentage profit gained by selling the mixture at the cost price of soda.

1. 200%
2. 400%
3. 500%
4. 40%

**Answer :** option b

**Solution :**

Since the soda concentration in mixture E is 20%;

∴ Quantity of Soda in the mixture E = 500 × 0.15 × 0.2 = 15 L

Suppose the cost price of Soda = Rs. x

∴ Profit percentage = [75x – 15x]/15x = 400%

**3:**

**Direction:** Bar graph shows the percentage quantity of five different mixtures A, B, C, D and E of soda and water which has different concentration of soda. Total quantity of all the mixtures together is 500 litres. Study the following bar graph carefully and answer the questions.

Mixtures B and D have the soda concentration 40% and 30% respectively. Find the amount of profit earned while selling the mixture B and D if it is sold at the price equivalent to 75% of the cost price of Soda. (Cost price of soda is Rs. 20 per litre)

1. Rs. 1000
2. Rs. 1200
3. Rs. 1500
4. Rs. 2000

**Answer :** option c

**Solution :**

Total quantity of mixture B = 500 × 0.3 = 150 L

Total quantity of mixture D = 500 × 0.1 = 50 L

Mixture B and D have the soda concentration 40% and 30% respectively;

∴ Quantity of Soda in the mixture B = 150 × 0.4 = 60 L

∴ Quantity of Soda in the mixture D = 50 × 0.3 = 15 L

∴ Total quantity of Soda = 60 + 15 = 75 L

Since Cost price of soda is Rs. 20 per litre;

∴ Total cost of mixture B and D = 20 × 75 = Rs. 1500

Price at which the mixture is sold = 20 × 0.75 = Rs. 15 per litre

∴ Total selling price of mixture B and D = (150 + 50) × 15 = Rs. 3000

∴ Amount of profit earned = 3000 – 1500 = Rs. 1500

**4: Direction:** Bar graph shows the percentage quantity of five different mixtures A, B, C, D and E of soda and water which has different concentration of soda. Total quantity of all the mixtures together is 500 litres. Study the following bar graph carefully and answer the questions.

The soda concentration in mixture A is 45%. At what price should mixture A be sold to get 50% profit (Cost price of 1 litres soda is Rs. 20)?

1. Rs. 15 per litre
2. Rs. 14.5 per litre
3. Rs. 12.5 per litre
4. Rs. 13.5 per litre

**Answer :** option d

**Solution :**

Total quantity of mixture A = 500 × 0.2 = 100 L

∴ Quantity of Soda in the mixture A = 100 × 0.45 = 45 L

∴ Cost of soda = 20 × 45 = Rs. 900

Since we want 50% profit:

∴ Amount that should be received = 900 × 1.5 = Rs. 1350

Since total quantity of mixture A is 100 L;

∴ Selling price at which mixture A must be sold = 1350/100 = Rs. 13.5

**5: Direction:** Bar graph shows the percentage quantity of five different mixtures A, B, C, D and E of soda and water which has different concentration of soda. Total quantity of all the mixtures together is 500 litres. Study the following bar graph carefully and answer the questions.

Mixtures A and F have the soda concentration 45% and 20% respectively. How many litres of mixture F must be mixed with entire quantity of mixture A such that the new mixture has 30% soda concentration?

1. 150 L
2. 100 L
3. 120 L
4. 75 L

**Answer :** option a

**Solution :**

Total quantity of mixture A = 500 × 0.2 = 100 L

∴ Quantity of Soda in the mixture A = 100 × 0.45 = 45 L

Let x litres of mixture F is been taken;

∴ Quantity of Soda in x litres mixture F = 0.2x litres

Total quantity of Soda = (45 + 0.2x) litres

Total quantity of new mixture = (100 + x) litres

According to the question;

∴ (45 + 0.2x)/(100 + x) = 30/100

⇒ 450 + 2x = 300 + 3x

⇒ x = 150

∴ 150 L of mixture F must be mixed.

**6:** The average of the present ages of A and C is 3 less than the present age of B. If the present age of B is 60% more than that of A and the present age of C is 12 years more than that of A, then find the average of the present ages of A, B and C?

1. 20 years
2. 21 years
3. 22 years
4. 24 years

**Answer :** option c

**Solution :**

Given that,

(A + C)/2 = B – 3 ---- (1)

B = A × 160/100 = 8A/5 ---- (2)

And

C = A + 12 ---- (3)

From equations (1), (2) and (3):

(A + A + 12)/2 = (8A/5) – 3

A + 6 = (8A – 15)/5

5A + 30 = 8A – 15

A = 15 years

C = 12 + 15 = 27 years

And, B = 8 × 15/5 = 24 years

Required average = (15 + 24 + 27)/3 = 22 years

**7:** A shopkeeper sold 5 shirts and 8 jeans. The cost price of 1 jeans is 93.75% of that of 1 shirt. He marked up the price of each shirt and each jeans by 25% and 20% respectively. If he gives 10% discount on the total bill and receives Rs.2196, then find cost price of 1 shirt?

1. Rs.150
2. Rs.180
3. Rs.160
4. Rs.140

**Answer :** option c

**Solution :**

Let the cost price of 1 shirt = x

So, the cost price of 1 jeans = x × 93.75/100 = 15x/16

The marked price of 1 shirt = x × 125/100 = 5x/4

The marked price of 5 shirts = 25x/4

The marked price of 1 jeans = (15x/16) × (120/100) = 9x/8

The marked price of 8 jeans = 9x

According to the question:

[(25x/4) + 9x] × 90/100 = 2196

(25x + 36x) × 9/40 = 2196

61x = 9760

x = 160

So, the cost price of 1 shirt = Rs.160

**8:**

A certain sum amounts to Rs.26460 in 2 years and Rs.27783 in 3 years at x% rate of compound interest. What will be the difference between simple interest and compound interest on the same sum at the same rate of interest for 2 years?

1. Rs.80
2. Rs.50
3. Rs.60
4. Rs.70

**Answer :** option c

**Solution :**

The rate of compound interest = [(27783 – 26460)/26460] × 100 = 5%

Let the certain sum = x

So, x (1 + 5/100)2 = 26460

x (1 + 1/20)2 = 26460

x = 26460 × (20/21) × (20/21)

x = Rs.24000

Required difference = 24000(5/100)2 = Rs.60

**9:** The ratio between the curved surface area and the total surface area of a circular base cone is 5: 7. If the radius of the circular base of the cone is 14 cm, then find the height of the cone?

1. 32 cm
2. 26 cm
3. 34 cm
4. 24 cm

**Answer :** option a

**Solution :**

Given that,

The radius of the circular base of the cone = 14 cm

Now, the curved surface area of the cone = πrl

And the total surface area of the cone = πr (l + r)

According to the question:

πrl/πr (l + r) = 5/7

l/ (l + 14) = 5/7

7l = 5l + 70

l = 35

So, the height of the cone = √ (352 – 142) = 32 cm (approx.)

**10:** Rajdhani express starts from Delhi at 7:00 AM with speed 105 km and reaches Lucknow and stops there for 45 minutes. While returning from Lucknow it decreases its speed by 20% and reaches Delhi at 5:12 PM on the same day, then what is the distance between Delhi and Lucknow?

1. 484 km
2. 441 km
3. 400 km
4. 381 km

**Answer :** option b

**Solution :**

Let the distance between Delhi and Lucknow = D

Total time of the journey including stoppage time at Lucknow = 10 hours 12 minutes

Total time of the journey excluding stoppage time at Lucknow = 9 hours 27 minutes = 9.45 hours

Decreased speed = 80% of 105 = 84 km/h

According to the question:

(D/105) + (D/84) = 9.45

(4D + 5D)/420 = 9.45

9D = 9.45 × 420

D = 441 km

**11:** A man gives 25% of his monthly salary to his wife. He invests 45% of his remaining salary in a scheme and he saves 10/9 part of the remaining. If the average of the amounts, which he gives to his wife and which he saves, is Rs.7500, then find the amount which he saves?

1. Rs.8100
2. Rs.7200
3. Rs.9500
4. Rs.9000

**Answer :** option d

**Solution :**

Let the monthly salary of the man = x

So, the amount, which he gives to his wife = x × 25/100 = x/4

The amount, which he invests in the scheme = (x – x/4) × 45/100 = 27x/80

And the amount, which he saves = (27x/80) × 10/9 = 3x/8

According to the question:

[(x/4) + (3x/8)]/2 = 7500

(2x + 3x)/8 = 15000

x = 24000

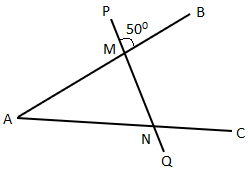
So, the amount which he saves = 24000 × 3/8 = Rs.9000

**12:** AB and AC are two line and a line PQ cut AB and AC at points M and N respectively. If ∠PMB = 50° and ∠MAN < ∠ANM, then what can be the measure of ∠MAN?

1. 68°
2. 62°
3. 70°
4. 72°

**Answer :** option b

**Solution :**



∠AMN = ∠PMB = 50° (Opposite angles)

Let ∠MAN = ∠ANM = x°

In ΔAMN,

∠MAN + ∠ANM + ∠MAN = 180°

x° + 50° + x° = 180°

x = 65°

Hence,

∠MAN should be less than 65°.

**13:** If person B is 1.5 times more efficient that person A who can finish the work alone is 10.5 days, then in how many days three persons A, B and C can finish the work if C alone can finish that work in 7 days?

1. 2.5 days
2. 3.5 days
3. 2.8 days
4. 2.1 days

**Answer :** option d

**Solution :**

Ratio of efficiency of A to B = 1: (1 + 1.5) = 2: 5

Ratio of time taken by A to B = 5: 2

Time taken by B alone to finish the work = 10.5 × (2/5) = 4.2 days

Time taken by A, B and C together to finish the work = 1/ [(1/10.5) + (1/4.2) + (1/7)] = 1/ [(2 + 5 + 3)/21] = (21/10) = 2.1 days

**14:** The downstream speed of boat B is 70% of that of boat A and the upstream speed of boat A is 120% of that of boat B. If the speeds of streams, in which boat A and boat B are travelling, are 4 km/h and 2 km/h respectively, then find the ratio between the downstream speed of boat A and the upstream speed of boat B?

1. 3: 2
2. 3: 1
3. 2: 1
4. 4: 3

**Answer :** option c

**Solution :**

Let the downstream speed of boat A = x

So, the downstream speed of boat B = x × 70/100 = 7x/10

Let the upstream speed of boat B = y

So, the upstream speed of boat A = y × (120/100) = 6y/5

According to the question:

[x – (6y/5)]/2 = 4

5x – 6y = 40 ---- (1)

And,

[(7x/10) – y]/2 = 2

7x – 10y = 40 ---- (2)

From equations (1) and (2):

5x – 6y = 7x – 10y

4y = 2x

y/x = 1/2

Required ratio = x: y = 2: 1

**15:** A shopkeeper sold two articles ‘X’ and ‘Y’ to person A for a total of Rs.2000. Person A sold article ‘X’ at 10% loss and article ‘Y’ at 40% profit to person B. If person B purchased both the articles for a total of Rs.2400, then what will be the cost price of both the articles for person A?

1. Rs.500, Rs.1500
2. Rs.600, Rs.1400
3. Rs.700, Rs.1300
4. Rs.800, Rs.1200

**Answer :** option d

**Solution :**

Let the cost price of article ‘X’ for person A = x

And the cost price of article ‘Y’ for person A = y

From the question:

x + y = 2000 ----(1)

When person A sold both the article to person B-

The cost price of article ‘X’ for person B = x × (90/100) = 9x/10

The cost price of article ‘Y’ for person B = y × (140/100) = 7y/5

Again from the question:

(9x/10) + (7y/5) = 2400

9x + 14y = 24000 ----(2)

By equation (2) – equation (1) × 9

9x + 14y – 9x – 9y = 24000 – 18000

5y = 6000

y = 1200

The cost price of article ‘X’ for person A = 2000 – 1200 = Rs.800

The cost price of article ‘Y’ for person A = Rs.1200

**16:** There are four numbers a, b, c, and d. The average of ‘c’ and ‘d’ is 6 more than that of ‘a’ and ‘b’. If ‘d’ is 150% of ‘a’ and ‘b’ is 3 more than ‘c’, then find the average of ‘a’ and ‘d’?

1. 36.5
2. 35.5
3. 32.5
4. 37.5

**Answer :** option d

**Solution :**

Given that,

d = a × 150/100

d = 1.5a ----(1)

And,

b = c + 3 ----(2)

According to the question:

[(c + d)/2] – [(a + b)/2] = 6

(c + d) – (a + b) = 12

From equations (1) and (2):

(c + 1.5a) – (a + c + 3) = 12

c + 1.5a – a – c – 3 = 12

0.5a = 12 + 3 = 15

a = 30, d = 1.5 × 30 = 45

Required average = (30 + 45)/2 = 37.5