



## Percentage Questions for CAT Set-3 PDF

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## Instructions

For the following questions answer them individually

### Question 1

If equal numbers of people are born on each day, find the approximate percentage of the people whose birthday will fall on 29th February. If we are to consider people born in 20th century (1901-2000) and assuming no deaths.

- A 0.374
- B 0.5732
- C 0.0664
- D None of these

**Answer:** D

### Explanation:

Assume one person is born every day. In 100 years, there will be 25 leap years. So  $25 \times 1$  additional people will be born on these days.

So, total people born will be =  $365 \times 100 \times 1 + 25 \times 1$

And people born on 29th february =  $25 \times 1$

Hence percentage will be =  $\frac{25 \times 1}{365 \times 100 \times 1 + 25 \times 1} \times 100 = 0.0684$

### Question 2

Tina, Mina, Gina, Lina and Bina are 5 sisters, aged in that order, with Tina being the eldest. Each of them had to carry a bucket of water from a well to their house. Their buckets' capacities were proportional to their ages. While returning, equal amount of water got splashed out of their buckets. Who lost maximum amount of water as a percentage of the bucket capacity?

- A Tina
- B Mina
- C Gina
- D Lina
- E Bina

**Answer:** E

### Explanation:

Let the capacities of bucket of water carried by Tina, Mina, Gina, Lina and Bina respectively be  $W_T, W_M, W_G, W_L, W_B$

It is given that :  $W_T > W_M > W_G > W_L > W_B$

Let they spill  $x$  litres of water from the bucket.

Thus, %age of water spilled by them respectively be

$$= \frac{x}{W_T} \times 100, \frac{x}{W_M} \times 100, \frac{x}{W_G} \times 100, \frac{x}{W_L} \times 100, \frac{x}{W_B} \times 100$$

$$\therefore W_T > W_M > W_G > W_L > W_B$$

$$\therefore \frac{x}{W_T} \times 100 < \frac{x}{W_M} \times 100 < \frac{x}{W_G} \times 100 < \frac{x}{W_L} \times 100 < \frac{x}{W_B} \times 100$$

Thus, Bina lost maximum amount of water as a percentage of the bucket capacity.

### Question 3

Ram prepares solutions of alcohol in water according to customers' needs. This morning Ram has prepared 27 litres of a 12% alcohol solution and kept it ready in a 27 litre delivery container to be shipped to the customer. Just before delivery, he finds out that the customer had asked for 27 litres of 21% alcohol solution. To prepare what the customer wants, Ram replaces a portion of 12% solution by 39% solution. How many litres of 12% solution are replaced?

- A 5
- B 9
- C 10
- D 12
- E 15

Answer: B

#### Explanation:

Let Ram replaces  $x$  litres of 12 % sol. with 39 % solution

Now, quality of 12 % solution in 27 litre =  $\frac{12}{100} \times 27$

=> After replacing we have volume of 12 % solution

$$\begin{aligned} &= \left(\frac{12}{100} \times 27\right) - \left(\frac{12x}{100}\right) + \left(\frac{39x}{100}\right) \\ &= \frac{324+27x}{100} \end{aligned}$$

This is equal to 27 litre of 21 % solution.

$$\Rightarrow \frac{324+27x}{100} = \frac{21}{100} \times 27$$

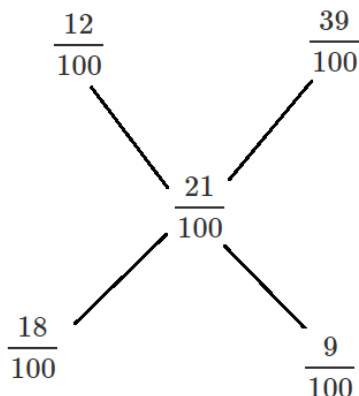
$$\Rightarrow 27x = 567 - 324 = 243$$

$$\Rightarrow x = \frac{243}{27} = 9$$

Alternate Solution:

The mixture of two solutions 12% alcohol and 39% alcohol should yield 21% alcohol solution.

Using allegation:



The ratio =  $18/9 = 2:1$

So the amount of 39% solution required =  $27 \times 1 / (2+1) = 9$

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#### Question 4

In 2006, Raveendra was allotted 650 shares of Sun Systems Ltd in the initial public offer, at the face value of Rs. 10 per share. In 2007, Sun Systems declared the bonus at the rate of 3 : 13. In 2008, the company again declared the bonus at the rate of 2 : 4. In 2009, the company declared a dividend of 12.5%. How much dividend does Raveendra get in 2009 as a percentage of his initial investment?

- A 24.5%
- B 23.9%
- C 24.1%
- D 23%

Answer: D

#### Explanation:

Bonus share received in 2007 =  $650 \times (3/13) = 150$

Bonus share received in 2008 =  $800 \times (1/2) = 400$

So, has has  $(150 + 400) = 550$  extra shares

Dividend of the share is always issued on face value irrespective of market value

Dividend = (Total value of shares) \* (Percentage of dividend)

$$1200 \times 10 \times \frac{12.5}{100} = 1200 \times 1 \times \frac{3}{8}$$

Dividend he will get =  $650 \times 10 \times \frac{12.5}{100} = 650 \times 8 = 13 = 23\%$

Hence, option D is the correct answer.

#### Question 5

M/s. Devi Radiograms, a shop which sells electronic gadgets, marks its merchandise 35% above the purchase price. Until four months ago, purchase price of one Philips DVD player was Rs. 3,000. During the last four months M/s. Devi Radiograms has received four monthly consignments of Philips DVD player at the purchase price of Rs. 2,750, Rs. 2,500, Rs. 2,400, and Rs. 2250. The average rate of decrease in the purchase price of DVD player during these four months is:

- A 7.5%
- B 8.20%
- C 6.9%
- D 7%

Answer: C

#### Explanation:

decrease in purchase price for first month was  $\frac{3000-2750}{3000} = 0.083$

decrease in purchase price for second month was  $\frac{2750-2500}{2750} = 0.0909$

decrease in purchase price for the third month was  $\frac{2500-2400}{2500} = 0.04$

decrease in purchase price for the fourth month was  $\frac{2400-2250}{2400} = 0.0625$

Average decrease =  $\frac{0.083+0.0909+0.04+0.0625}{4} = 0.069$  i.e 6.9%

Therefore our answer is option 'C'

#### Question 6

The annual production in cement industry is subject to business cycles. The production increases for two consecutive years consistently by 18% and decreases by 12% in the third year. Again in the next two years, it increases by 18% each year and decreases by 12% in the third year. Talking 2008 as the base year, what will be the approximate effect on cement production in 2012?

- A 24% increase
- B 37% decrease
- C 45% increase
- D 60% decrease

**Answer: C**

**Explanation:**

Let 100 be the value in 2008.

In 2009 it will become  $100 \times 1.18$

In 2010 it will become  $100 \times 1.18 \times 1.18$

In 2011 it will become  $100 \times 1.18 \times 1.18 \times 0.88$

In 2012 it will become  $100 \times 1.18 \times 1.18 \times 0.88 \times 1.18 \approx 145$

thus, the effect = 45%

Hence, option C is the correct answer.

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**Question 7**

The pre-paid recharge of Airtel gives 21% less talktime than the same price pre-paid recharge of Vodafone. The post-paid talktime of Airtel is 12% more than its pre-paid recharge, having the same price. Further, the post-paid talktime of same price of Vodafone is 15% less than its pre-paid recharge. How much percent less / more talktime (approximately) can one get from the Airtel post-paid service compared to the post-paid service of Vodafone?

- A 4.09% more
- B 4.7% less
- C 4.7% more
- D 2.8% less

**Answer: A**

**Explanation:**

Let the value of pre-paid recharge of Vodafone be 100.

Then the value of pre-paid recharge of Airtel is 79.

Airtel gives 12% more to post-paid, so post-paid value is  $79 \times 1.12 = 88.48$

Vodafone gives 15% less to post-paid than its pre-paid so its value is 85.

Clearly Airtel gives more to its post-paid customers.

$$\text{Percentage} = \frac{3.48}{85} \times 100 = 4.09\%$$

Therefore, option A is the right answer.

**Question 8**

There are two alloys P and Q made up of silver, copper and aluminium. Alloy P contains 45% silver and rest aluminium. Alloy Q contains 30% silver, 35% copper and rest aluminium. Alloys P and Q are mixed in the ratio of 1 : 4 : 5. The approximate percentages of silver and copper in the newly formed alloy is:

- A 33% and 29%
- B 29% and 26%
- C 35% and 30%

D None of the above

**Answer: A**

**Explanation:**

Composition of alloy P

Silver:Copper:Aluminium = 45:0:55

Composition of alloy Q

Silver:Copper:Aluminium = 30:35:35

They are mixed in ratio of 1: 4.5

Let us consider alloy P is taken 200 grams and alloy Q is taken 900 grams.

Then for alloy P :-

Silver:Copper:Aluminium = 90:0:110

For alloy Q:

Silver:Copper:Aluminium = 270:315:315

Total weight of P and Q combined is 1100 grams.

When P and Q are mixed, the new combined ratio of

Silver:Copper:Aluminium = 360:315:425

Percentage of Silver in mixture =  $\frac{360}{1100} \times 100 \cong 33\%$

Percentage of Copper in mixture =  $\frac{315}{1100} \times 100 \cong 29\%$

**Question 9**

**The number of girls appearing for an admission test is twice the number of boys. If 30% of the girls and 45% of the boys get admission, the percentage of candidates who do not get admission is**

A 35

B 50

C 60

D 65

**Answer: D**

**Explanation:**

Let the number of girls be  $2x$  and number of boys be  $x$ .

Girls getting admission =  $0.6x$

Boys getting admission =  $0.45x$

Number of students not getting admission =  $3x - 0.6x - 0.45x = 1.95x$

Percentage =  $(1.95x/3x) * 100 = 65\%$

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**Question 10**

**Out of the shirts produced in a factory, 15% are defective, while 20% of the rest are sold in the domestic market. If the remaining 8840 shirts are left for export, then the number of shirts produced in the factory is**

A 13600

**B** 13000

**C** 13400

**D** 14000

**Answer:** B

**Explanation:**

Let the total number of shirts be  $x$ . Hence number of non defective shirts =  $x - 15\%$  of  $x = 0.85x$   
Number of shirts left for export = No of non defective shirts - number of shirts sold in domestic market  
= No of non defective shirts - 20% of No of non defective shirts  
= 80% of No of non defective shirts  
Hence  $8840 = 0.8 * (0.85x)$  . Solving for  $x$  we get,  $x = 13000$

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