

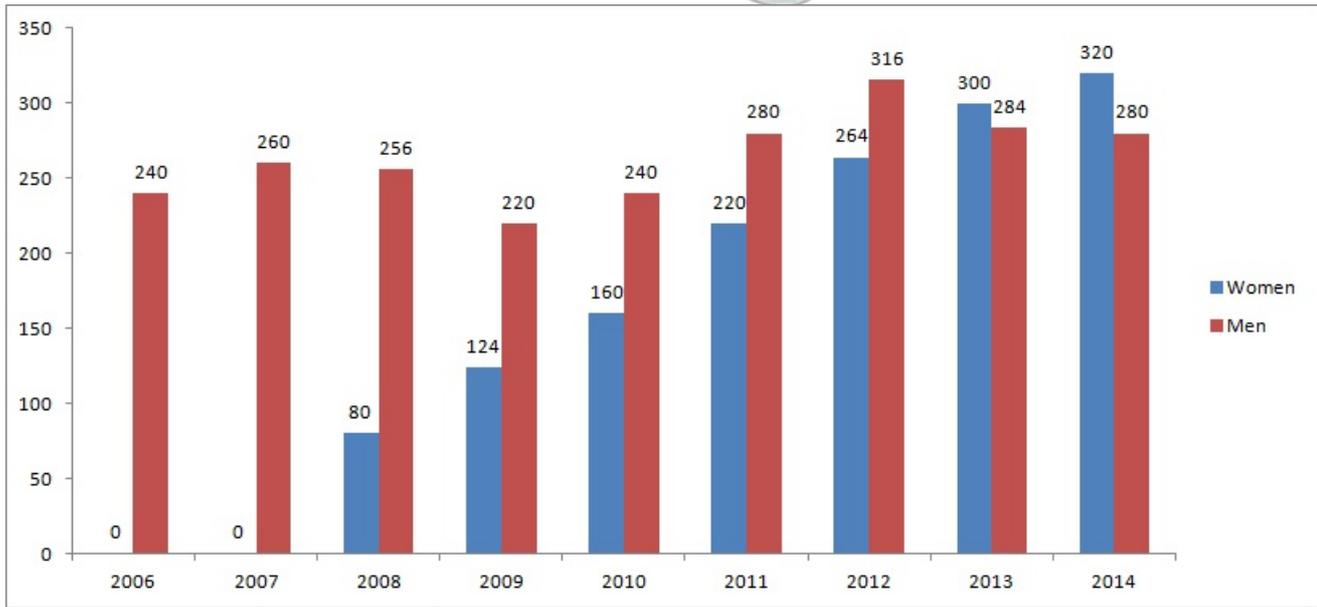


Pie Chart Questions for NMAT

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Instructions

Information: The graph below shows the number of subscribers of the Indian Ultimate Frisbee Association in each year since 2006. Membership was open to men from the year 2000 and to women also since the year 2008. Every year, 25% of the subscribers (i.e 25% of men and 25% of women) drop out and new members join in.



Question 1

How many new female subscribers joined the Association in 2012?

- A 44
- B 55
- C 66
- D 99

Answer: D

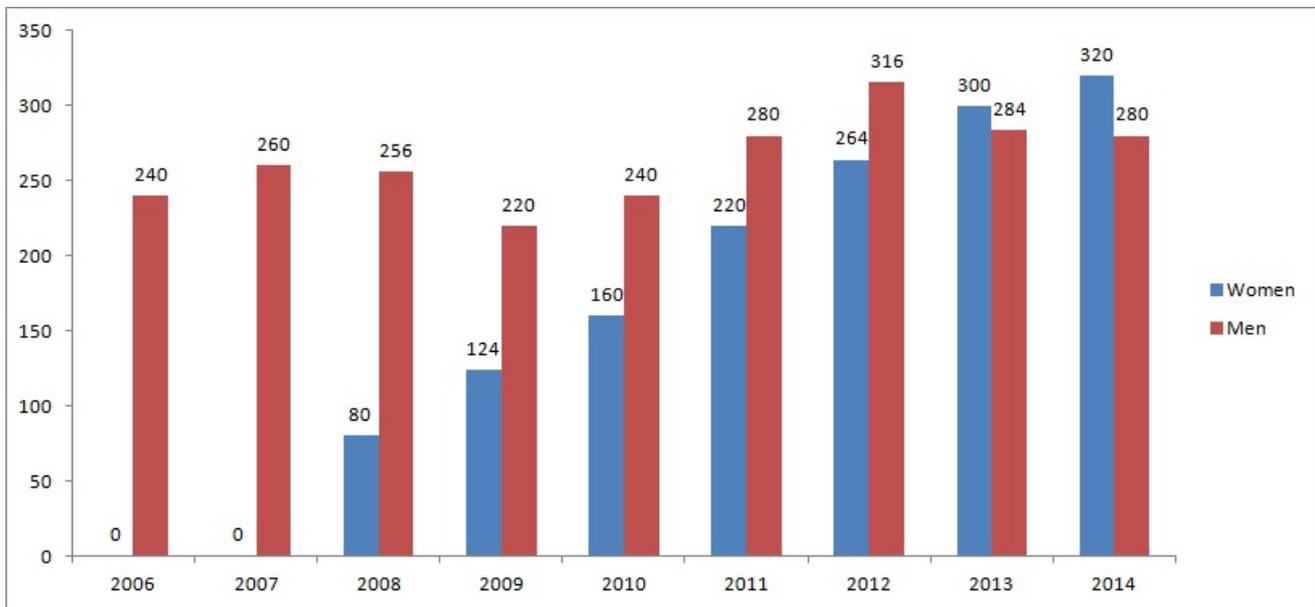
Explanation:

Year	Women	Men	DROP (F)	New (F)	DROP (M)	NEW (M)	DROP (T)	NEW (T)
2006	0	240			60	NA	60	NA
2007	0	260			65	80	65	80
2008	80	256	20	80	64	61	84	141
2009	124	220	31	64	55	28	86	92
2010	160	240	40	67	60	75	100	142
2011	220	280	55	100	70	100	125	200
2012	264	316	66	99	79	106	145	205
2013	300	284	75	102	71	47	146	149
2014	320	280	80	95	70	67	150	162

The number of female subscribers in 2011 is 220.
 So, number of female subscribers who quit is $220/4 = 55$.
 Hence, the new female subscribers in the year 2012 is $264 - 220 + 55 = 99$

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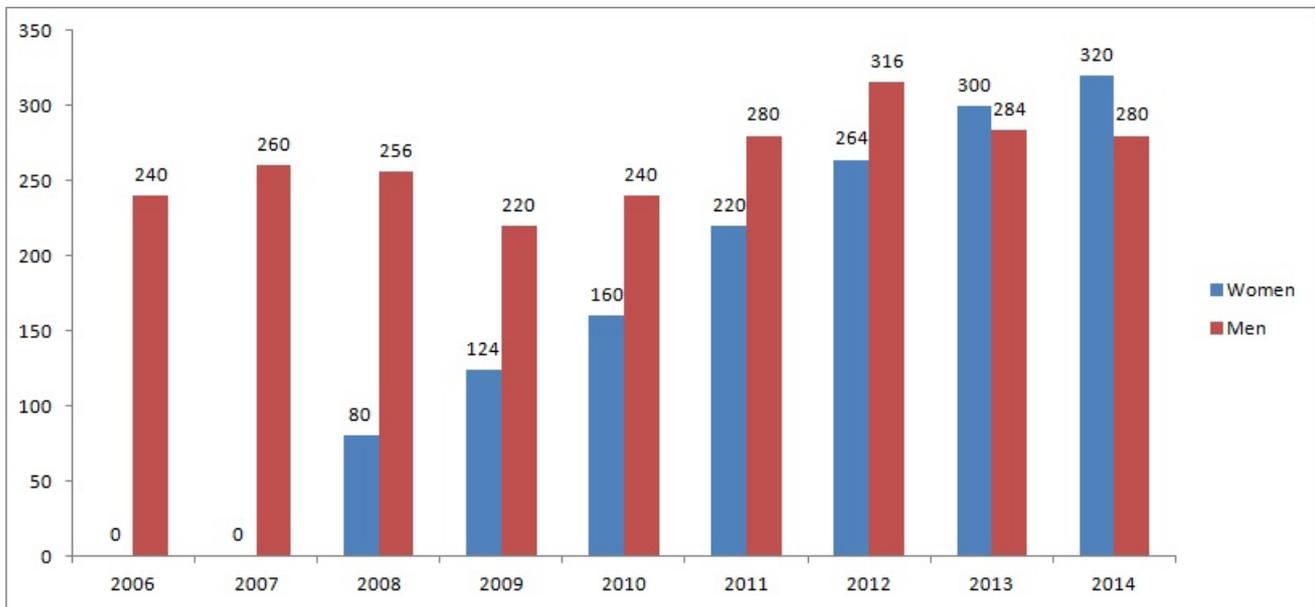
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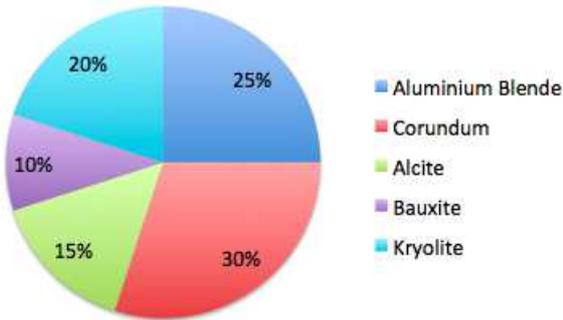
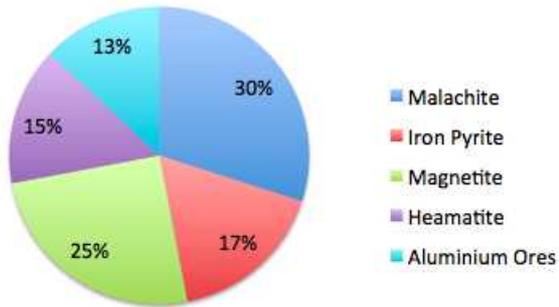
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Instructions

The distribution of the availability of various mineral ores is as shown in the pie-chart. The distribution of Aluminium ores is further divided as shown in the second pie-chart.



Question 4

The pie-chart 2 showing the distribution of various aluminium ores were found to be erroneous. If the percentage of Aluminium Blende is 28% and all the other ores decrease proportionately, what is the angle of the ore Conundrum in pie-chart 2 (rounded up to the nearest integer)?

- A 104 degrees
- B 99 degrees
- C 101 degrees
- D 105 degrees
- E 108 degrees

Answer: A

Explanation:

Percentage of Conundrum = 30%.

It has to share the loss of 3% proportionately with the others, which form a total of 75%.

Therefore, loss in percentage of Conundrum = $(\frac{30}{75}) \times 3\% = 1.2\%$.

Therefore, new percentage of conundrum = 28.8%.

The angle = $(\frac{28.8}{100}) \times 360 = 103.68$ degrees.

Therefore, answer is 104 degrees (rounded-up).

Question 5

The production cost of mining the various ores is as follows:

All Aluminium Ores: 20 crores per hectare

Iron pyrite: 15 crores per hectare

Magnetite: 10 crores per hectare

Malachite: 8 crores per hectare

Heamatite: 17 crores per hectare

For a company which is looking to spend the least amount of money, which of the following ores is the best to bid for (The company which wins the bid for an ore has to mine it fully)?

- A Iron pyrite
- B Heamatite
- C Malachite
- D Either a) or b)
- E Either b) or c)

Answer: C

Explanation:

The total cost of mining the ores is as follows:

Aluminium Ores: $20 \times 13k = 260k$ Iron pyrite : $17 \times 15k = 255k$ Magnetite: $10 \times 25k = 250k$ Malachite: $8 \times 30k = 240k$ Heamatite: $15 \times 17k = 255k$

Therefore, the least production cost is for Malachite.

Question 6

The growth of some of the minerals in the following year is as follows:

Corundum : 600% (due to the discovery of a new mine of Aluminium) Kryolite: 900% Malachite: -12% Heamatite: 3% Magnatite : 5%

Then which of the following ores has the highest absolute value in terms of availability next year?

- A Magnetite
- B Malachite
- C Corundum
- D Kryolite
- E Data Insufficient

Answer: C

Explanation:

Let the total availability of all ores be 100 units.

Hence, initially the values for each of the ores is

Corundum: 30% of 13% of 100 = 3.9

Malachite: 30% of 100 = 30

Magnatite: 25% of 100 = 25

Kryolite: 20% of 13% of 100 = 2.6

According to the given information, the values of the ores after the growth would be as follows:

Corundum: $3.9 \times (1+600\%) = 27.3$

Malachite: $30 \times (1-12\%) = 26.4$

Magnatite: $25 \times (1+5\%) = 26.25$

Kryolite: $2.6 \times (1+900\%) = 26$

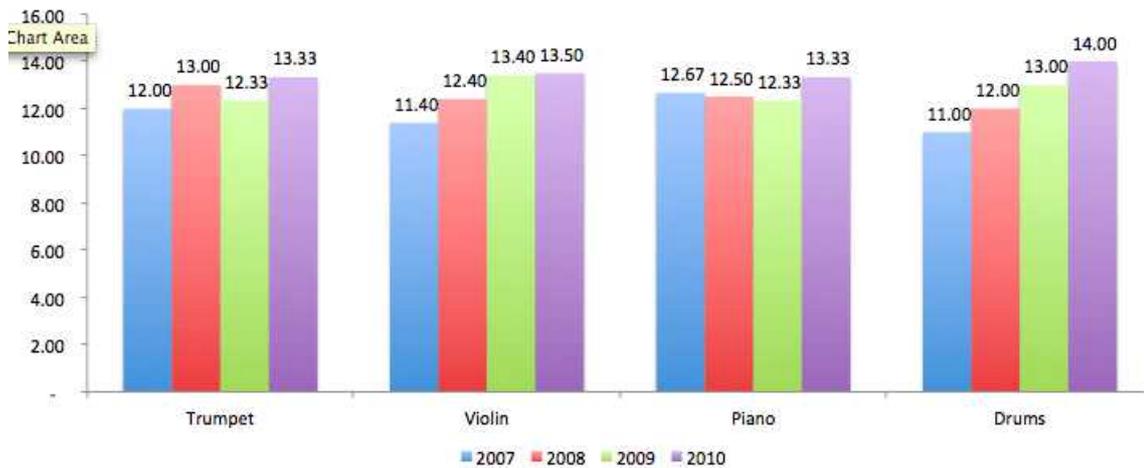
Therefore, the absolute value of Corundum would be the highest.

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Instructions

A school band has 2 trumpeteers, 5 violinists, 3 pianists and 6 drummers at the start of the school year in July 2007. For the next four

years, the band adds a member to it on 31st December, assigning the new recruit to one of the four groups. At the time of joining the band, each of the new recruit is 9 years old. Over the four years each group got one new member. Also, one of the band members graduated from the school in these four years and hence left the band at the age of 17. The graph shows a groupwise average age over the four years 2007-2010 as measured on 31 December after the changes to the band.



Question 7

What was the age of the new recruit who joined the trumpet section as on 31st Dec 2010?

- A 10
- B 11
- C 12
- D 13
- E Can't be determined

Answer: A

Explanation:

If there are no additions/deletions in a group, the average should increase by 1 year.

As Drums group shows no changes between Dec 2007-Dec 2010, the new recruit into Drums would have joined on Dec 2007.

In Trumpets group, the average changes from 13 to 12.33 suggesting the latter average is calculated by dividing by a multiple of 3. Hence, there was an addition to the Trumpet group in 2009.

Violin group, the average changes from 13.4 to 13.5 over the last year indicating the divisor is now either 4 or 6.

An average of 13.4 indicates the divisor is 5.

Hence the sum of the ages changes from 67 to either 54 or 81.

If a 17 yr old member had left then the change would have been $67-17+4=54$.

If a 9 yr old member had been added the change would have been $67+5+9=81$.

In Piano group, average changes from 12.67 to 12.5.

Hence the number of members has changed from 3 to either 2 or 4.

Hence sum of ages = 38 changes to either 25 or 50.

If the change was due to graduation of member it should have changed to $38-17+2=23$.

Therefore, it cannot be a deletion. Hence a member is added in 2008.

Hence the change in 2009 has to be a deletion due to graduation.

Thus, a member was added to Violin in 2010.

As per the explanation a new recruit was added to Trumpets section in 2009.

Hence, his/her age in 2010 would be $= 9+1 = 10$ years

Question 8

If one of the members from the Piano group was aged 12 on 31/12/2007 then what was the age of the youngest group member on 31/12/2007?

- A 11

- B 12
- C 10
- D 14
- E Insufficient data

Answer: A

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 Therefore, it cannot be a deletion. So, a member is added in 2008.
 Hence the change in 2009 has to be a deletion due to graduation.
 Thus, a member was added to Violin in 2010.
 As per the explanation, a member was added to the Piano group in 2008 and a member graduated from the group in 2009 at the age of 17.
 In 2009, the sum of the ages hence was $12.33 \times 3 = 37 = 10 + x + y$.
 Hence $x + y = 27$.
 If one of the members was 12 in 2007, they would be 14 in 2009.
 Hence $y = 27 - 14 = 13$.
 Hence the youngest member was $13 - 2 = 11$ years old.

Question 9

The band member who left the band played which instrument?

- A Trumpet
- B Violin
- C Piano
- D Drums
- E Can not be determined

Answer: C

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 In Trumpets group, the average changes from 13 to 12.33 suggesting the latter average is calculated by dividing by a multiple of 3.
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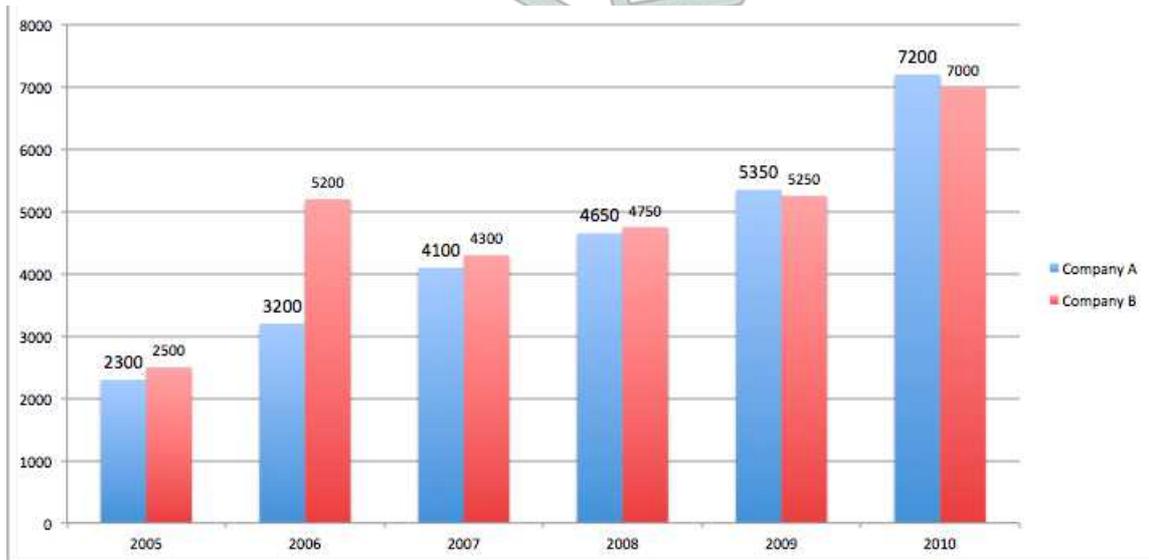
Thus, a member was added to Violin in 2010.

As per the explanation, the member who left was from the Piano group

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Instructions

The bar chart shows the number of cars made by companies A and B in the years 2005 to 2010. Answer the questions based on the data.



Question 10

If company B exhibits the same cumulative annual growth rate, then approximately how many cars will be produced by company B in the year 2011?

- A 7600
- B 8600
- C 7280
- D 8940

Answer: B

Explanation:

CAGR for B:

$$2500(1+x)^5 = 7000$$

$$\Rightarrow (1+5x+10x^2) = 2.8$$

$$\Rightarrow x \sim 25\% \text{ (over approximation)}$$

$$\text{Cars produced in 2011} = 7000 * (1.25)$$

$$= 8750$$

So, the end value should be close to 8750 but less than it. Hence, answer is option B.

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