

CAT DILR Questions

Aspirants preparing for the CAT exam must be aware of the types of CAT DILR questions. Our experts have curated a few DILR questions which appeared in the CAT exam

Instructions: Answer the questions based on the information given below:

Ten musicians (A, B, C, D, E, F, G, H, I, and J) are experts in at least one of the following three percussion instruments: tabla, mridangam, and ghatam. Among them, three are experts in tabla but not in mridangam or ghatam, another three are experts in mridangam but not in tabla or ghatam, and one is an expert in ghatam but not in tabla or mridangam. Further, two are experts in tabla and mridangam but not in ghatam, and one is an expert in tabla and ghatam but not in mridangam.

The following facts are known about these ten musicians.

- 1) Both A and B are experts in mridangam, but only one of them is also an expert in tabla.
- 2) D is an expert in both tabla and ghatam.
- 3) Both F and G are experts in tabla, but only one of them is also an expert in mridangam.
- 4) Neither I nor J is an expert in tabla.
- 5) Neither H nor I is an expert in mridangam, but only one of them is an expert in ghatam.

Q- Who among the following is DEFINITELY an expert in tabla but not in either mridangam or ghatam?

- A. H
- B. A
- C. F
- D. C

Answer ||| A

Solution |||

From statement i, exactly one of A or B is an expert in only mridangam, and the other one is an expert in tabla and mridangam but not ghatam.

From statement ii, D is the only person who is an expert in tabla and ghatam but not mridangam.

From statement iii, one of F and G is an expert in only tabla, while the other is an expert in tabla and mridangam but not ghatam.

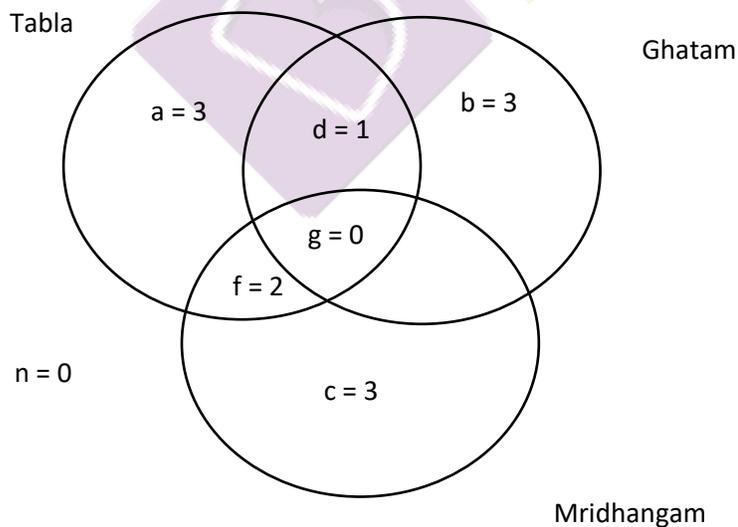
From statements iv and v, I is not an expert in tabla and mridangam; hence, I is an expert in only ghatam.

From statement v, H is not an expert in mridangam. Hence, the only possibility left is that H is an expert in only tabla.

From statement iv, J is not an expert in tabla. Hence, he must be an expert in only mridangam.

For the remaining two persons C and E, one should be an expert in only tabla, while the other should be an expert in only mridangam.

Using this data, we can get the Venn diagram as given below:



Regions:

$a = G/F, H, C/E$; $b = I$, $c = A/B, C/E, J$; $d = D$; $f = A/B, G/F$

From the above venn diagram, we can see that H is definitely an expert in tabla but not in mridangam or ghatam.

Q. Who among the following is DEFINITELY an expert in mridangam but not in either tabla or ghatam?

- A. J
- B. B
- C. G
- D. E

Answer ||| A

Solution |||

From statement i, exactly one of A or B is an expert in only mridangam, and the other one is an expert in tabla and mridangam but not ghatam.

From statement ii, D is the only person who is an expert in tabla and ghatam but not mridangam.

From statement iii, one of F and G is an expert in only tabla, while the other is an expert in tabla and mridangam but not ghatam.

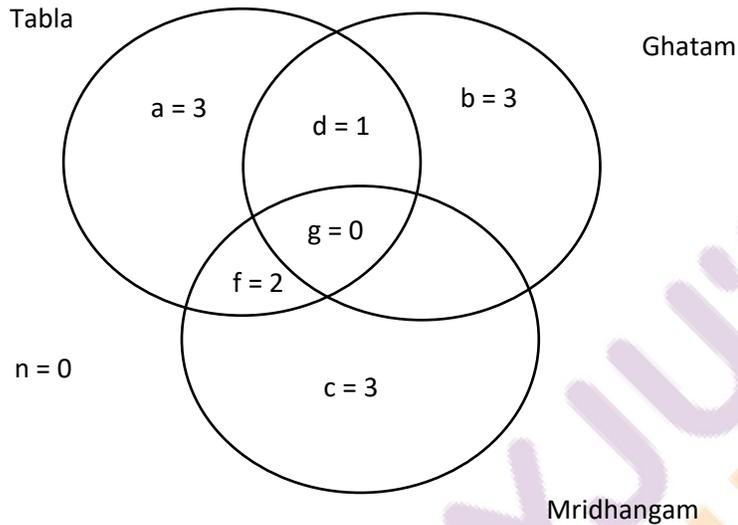
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For the remaining two persons C and E, one should be an expert in only tabla, while the other should be an expert in only mridangam.

Using this data, we can get the venn diagram as given below:



Regions:

$a = G/F, H, C/E$; $b = I, c = A/B, C/E, J$; $d = D$; $f = A/B, G/F$

J is definitely an expert in mridangam but not in tabla or ghatam.

Q. Which of the following pairs CANNOT have any musician who is an expert in both tabla and mridangam but not in ghatam?

- A. C and E
- B. A and B
- C. C and F
- D. F and G

Answer ||| A

Solution |||

From statement i, exactly one of A or B is an expert in only mridangam, and the other one is an expert in tabla and mridangam but not ghatam.

From statement ii, D is the only person who is an expert in tabla and ghatam but not mridangam.

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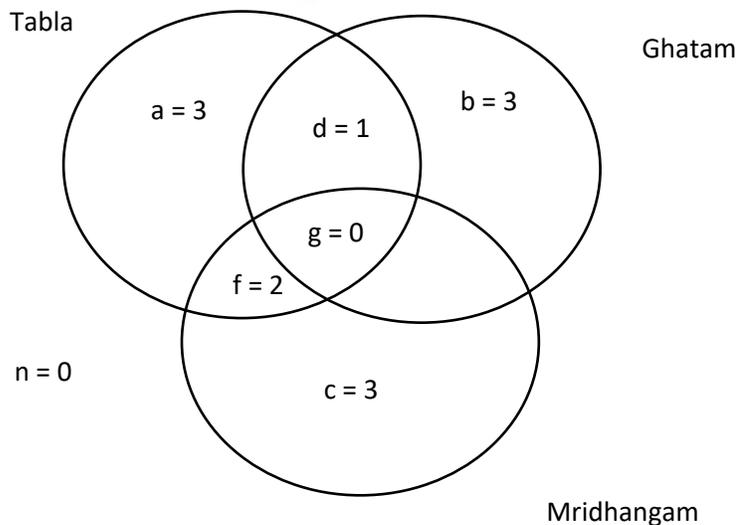
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For the remaining two persons C and E, one should be an expert in only tabla, while the other should be an expert in only mridangam.

Using this data, we can get the venn diagram as given below:



Regions:

$a = G/F, H, C/E$; $b = I$, $c = A/B, C/E, J$; $d = D$; $f = A/B, G/F$

Neither C nor E is an expert in both tabla and mridangam but not in ghatam.

Q. If C is an expert in mridangam and F is not, then which are the three musicians who are experts in tabla but not in either mridangam or ghatam?

- A. E, G, and H
- B. C, E, and G
- C. E, F, and H
- D. C, G, and H

Answer ||| C

Solution |||

From statement i, exactly one of A or B is an expert in only mridangam, and the other one is an expert in tabla and mridangam but not ghatam.

From statement ii, D is the only person who is an expert in tabla and ghatam but not mridangam.

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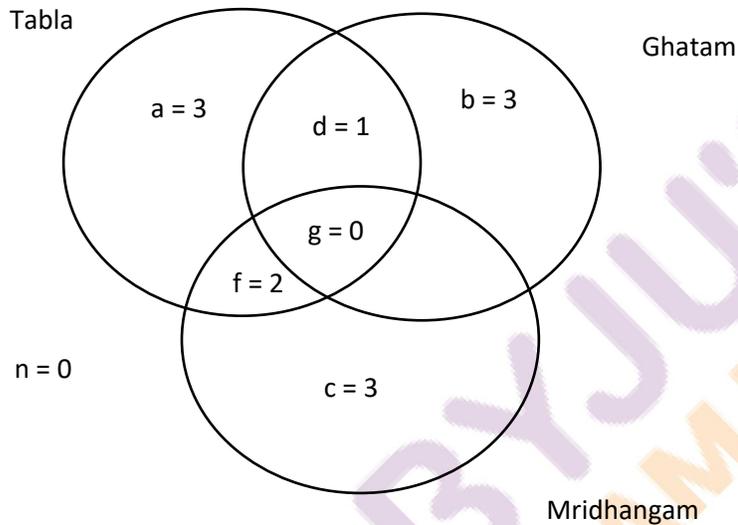
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From statement v, H is not an expert in mridangam. Hence, the only possibility left is that H is an expert in only tabla.

From statement iv, J is not an expert in tabla. Hence, he must be an expert in only mridangam.

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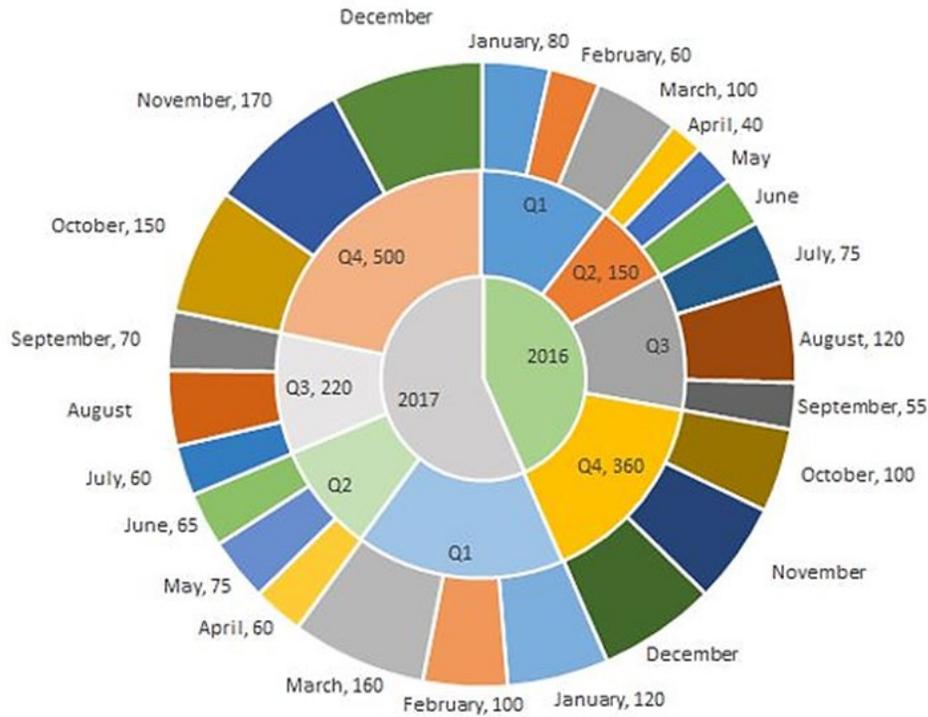


Regions:

$a = G/F, H, C/E$; $b = I$, $c = A/B, C/E, J$; $d = D$; $f = A/B, G/F$

So, E, F, and H are the three musicians who are experts in tabla but not in either mridangam or ghatam.

Direction: The multi-layered pie-chart below shows the sales of LED television sets for a big retail electronics outlet during 2016 and 2017 . The outer layer shows the monthly sales during this period, with each label showing the month followed by the sales figure of that month. For some months, the sales figures are not given in the chart. The middle-layer shows quarter-wise aggregate sales figures (in some cases, aggregate quarter-wise sales numbers are not given next to the quarter). The innermost layer shows annual sales. It is known that the sales figures during the three months of the second quarter (April, May, June) of 2016 form an arithmetic progression, as do the three monthly sales figures in the fourth quarter (October, November, December) of that year.



Q-What is the percentage increase in sales in December 2017 as compared to the sales in December 2016?

- A. 22.22
- B. 28.57
- C. 38.46
- D. 50.00

Answer: B

Solution:

It is given that the sales figures during the three months of the second quarter (April, May, June) of 2016 form an arithmetic progression. So, $40 + (40 + a) + (40 + 2a) = 150$

Hence, $a = 10$.

Sales: April 2016 = 40, May 2016 = 50, June 2016 = 60

The same case holds for October, November, and December of 2016. $100 + (100 + b) + (100 + 2b) = 360$

Or $b = 20$

Sales: October 2016 = 100, November 2016 = 120, December 2016 = 140
 August 2017 = 220 - 130 = 90.

Similarly, sales for December 2017 = 500 - 320 = 180

We can obtain the following table:

2016			2017		
Quarter	Month	Sales Figure	Quarter	Month	Sales Figure
Q1(240)	January	80	Q1(240)	January	120
	February	60		February	100
	March	100		March	160
Q2(150)	April	40	Q2(150)	April	60
	May	50		May	75
	June	60		June	65
Q3(250)	July	75	Q3(250)	July	60
	August	120		August	90
	September	55		September	70
Q4(360)	October	100	Q4(360)	October	150
	November	120		November	170
	December	140		December	180

Sales in December 2017 = 180

Sales in December 2016 = 140

Required percentage increase = $(40/140) \times 100 = 28.57\%$

The correct option is B.

Q- In which quarter of 2017, was the percentage increase in sales from the same quarter of 2016 the highest?

- A. Q1
- B. Q2
- C. Q3
- D. Q4

Answer: A

Solution:

It is given that the sales figures during the three months of the second quarter (April, May, June) of 2016 form an arithmetic progression. So $40 + (40 + a) + (40 + 2a) = 150$

Hence, $a = 10$.

Sales: April 2016 = 40, May 2016 = 50, June 2016 = 60

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Q4(360)	October	100	Q4(360)	October	150
	November	120		November	170
	December	140		December	180

The following table shows the percentage increase in sales in 2017 for the same quarter of 2016.

	2017	2016	Percentage increase
Q1	380	240	$(140/240)*100 = 58.33$
Q2	200	150	$(50/150)*100 = 33.33$
Q3	220	250	$(-30/250)*100 = -12$
Q4	500	360	$(140/560)*100 = 38.88$

Hence, we can say that in Q1 the percentage increase in sales was the highest.

The correct option is A.

Q-. During which quarter was the percentage decrease in sales from the previous quarter's sales the highest?

- A. Q2 of 2016
- B. Q1 of 2017
- C. Q2 of 2017
- D. Q4 of 2017

Answer: C

Solution:

It is given that the sales figures during the three months of the second quarter (April, May, June) of 2016 form an arithmetic progression. So $40 + (40 + a) + (40 + 2a) = 150$

Hence, $a = 10$.

Sales: April 2016 = 40, May 2016 = 50, June 2016 = 60

The same case holds for October, November, and December of 2016. $100 + (100 + b) + (100 + 2b) = 360$

Or $b = 20$

Sales: October 2016 = 100, November 2016 = 120, December 2016 = 140
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Q4(360)	October	100	Q4(360)	October	150
	November	120		November	170
	December	140		December	180

Solving the question by calculating the options, we get:

→Q2 of 2016

$$= \frac{(150-240)}{240} \times 100 = -37.5\% \text{ increase or } 37.5\% \text{ decrease}$$

→Q1 of 2017

$$= \frac{(380-360)}{360} \times 100 = 5.55\% \text{ increase.}$$

→Q2 of 2017

$$= \frac{(200-380)}{380} \times 100 = -47.36 \text{ or } 47.36\% \text{ decrease}$$

→Q4 of 2017

There is an increase from 220 to 500.

So, sales of Q2 of 2017, had the highest percentage decrease compared with Q1 of 2017.

The correct option is C .

Q-. During which month was the percentage increase in sales from the previous month's sales the highest?

- A. March of 2016
- B. October of 2016
- C. March of 2017
- D. October of 2017

Answer: D

Solution:

It is given that the sales figures during the three months of the second quarter (April, May, June) of 2016 form an arithmetic progression. So $40 + (40 + a) + (40 + 2a) = 150$

Hence, $a = 10$.

Sales: April 2016 = 40, May 2016 = 50, June 2016 = 60

The same case holds for October, November, and December of 2016. $100 + (100 + b) + (100 + 2b) = 360$

Or $b = 20$

Sales: October 2016 = 100, November 2016 = 120, December 2016 = 140
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Similarly, sales of December 2017 = 500 - 320 = 180

We can obtain the following table:

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Q4(360)	October	100	Q4(360)	October	150
	November	120		November	170
	December	140		December	180

Solving the question by calculating the options, we get:

→ March 2016

$$= \frac{(100-60)}{60} \times 100 = 66.67\% \text{ increase}$$

→ October 2016

$$= \frac{(100-55)}{55} \times 100 = 81.81\% \text{ increase.}$$

→ March 2017

$$= \frac{(160-100)}{100} \times 100 = 60\% \text{ increase}$$

→ October 2017

$$= \frac{(150-70)}{70} \times 100 = 114.2\% \text{ increase}$$

So, sales of October 2017 compared with September 2017, had the highest percentage increase of 114.2%.

The correct option is D.