CAT 2018 Question Paper with Solution
Slot 2 DILR

1.

|||Common|||

Direction: The base exchange rate of a currency X with respect to a currency Y is the number of units of currency Y which is equivalent in value to one unit of currency X. Currency exchange outlets buy currency at buying exchange rates that are lower than base exchange rates, and sell currency at selling exchange rates that are higher than base exchange rates.

A currency exchange outlet uses the local currency L to buy and sell three international currencies A, B, and C, but does not exchange one international currency directly with another. The base exchange rates of A, B, and C with respect to L are in the ratio 100:120:1 . The buying exchange rates of each of A, B, and C with respect to L are 5% below the corresponding base exchange rates, and their selling exchange rates are 10% above their corresponding base exchange rates. The following facts are known about the outlet on a particular day:

1) The amount of L used by the outlet to buy C equals the amount of L it received by selling C.

2) The amounts of L used by the outlet to buy A and B are in the ratio 5 : 3.

3) The amounts of L the outlet received from the sales of A and B are in the ratio 5 : 9.

4) The outlet received 88000 units of L by selling A during the day.

5) The outlet started the day with some amount of L, 2500 units of A, 4800 units of B, and 48000 units of C.

6) The outlet ended the day with some amount of L, 3300 units of A, 4800 units of B, and 51000 units of C.

|||End|||
How many units of currency A did the outlet buy on that day?

Answer ||| 1200

Solution |||

It is given that the base exchange rates of A, B, and C with respect to L are in the ratio 100:120:1. Let us assume that base exchange rates are '100x', '120x', and 'x' in that order.

It is given that the buying exchange rates of each of A, B, and C with respect to L are 5% below the corresponding base exchange rates.

Hence, buying exchange rates are 95x, 114x, 0.95x.

It is given that the selling exchange rates of each of A, B, and C with respect to L are 10% above their corresponding base exchange rates.

Hence, the selling exchange rates are 110x, 132x, 1.1x.

				No of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	95x	100x	110x	2500			3300
B	114x	120x	132x	4800			4800
C	0.95x	x	1.1x	48000			51000

Let 'a', 'b', and 'c' be the number of units of currency A, B, and C bought by the outlet on that day.

Then, we can say that the outlet sold 'a – 800', 'b', and 'c – 3000' units of currency A, B, and C respectively.

It is given that the amount of L used by the outlet to buy C equals the amount of L it received by selling C.

				No of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	95x	100x	110x	2500	a	a - 800	3300
B	114x	120x	132x	4800	b	B	4800

C	0.95x	x	1.1x	48000	c	c - 3000	51000

⇒ 0.95x * c = 1.1x * (c – 3000)

⇒ 0.15c = 3300

⇒ c = 22000

It is also given that the amounts of L used by the outlet to buy A and B are in the ratio 5:3.

⇒ $\frac{a \times 95x}{b \times 114x} = \frac{5}{3}$

⇒ a = 2b

Also, the amounts of L the outlet received from the sales of A and B are in the ratio 5:9.

⇒ $\frac{(a-800) \times 110x}{b \times 132x} = \frac{5}{9}$

⇒ $\frac{(2b-800) \times 110x}{b \times 132x} = \frac{5}{9}$

⇒ b = 600

Therefore, a = 2b = 2 * 600 = 1200.

It is given that the outlet received 88000 units of L by selling A during the day.

⇒ (a – 800) * 110x = 88000

⇒ (1200 – 800) * 110x = 88000

⇒ 44000x = 88000

⇒ x = 2

We can fill the entire table and answer all the questions.

				No. of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	190	200	220	2500	1200	400	3300
B	228	240	264	4800	600	600	4800
C	1.9	2	2.2	48000	22000	19000	51000

From the table we can see that the currency outlet bought 1200 units of A.

2.How many units of currency C did the outlet sell on that day?

A. 22000
B. 19000
C. 6000
D. 3000

Answer ||| B

Solution |||

It is given that the base exchange rates of A, B, and C with respect to L are in the ratio 100:120:1. Let us assume that base exchange rates are '100x', '120x', and 'x' in that order.

It is given that the buying exchange rates of each of A, B, and C with respect to L are 5% below the corresponding base exchange rates.

Hence, buying exchange rates are 95x, 114x, 0.95x.

It is given that the selling exchange rates of each of A, B, and C with respect to L are 10% above their corresponding base exchange rates.

Hence, the selling exchange rates are 110x, 132x, 1.1x.

				No of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	95x	100x	110x	2500			3300
B	114x	120x	132x	4800			4800
C	0.95x	x	1.1x	48000			51000

Let 'a', 'b', and 'c' be the number of units of currency A, B and C bought by the outlet on that day.

Then, we can say that the outlet sold 'a – 800', 'b' and 'c – 3000' units of currency A, B and C respectively.

It is given that the amount of L used by the outlet to buy C equals the amount of L it received by selling C.

				No of units			
Currenc y	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	95x	100x	110x	2500	a	a - 800	3300
B	114x	120x	132x	4800	b	B	4800
C	0.95x	x	1.1x	48000	c	c - 3000	51000

⇒ 0.95x * c = 1.1x * (c – 3000)

⇒ 0.15c = 3300

⇒ c = 22000

It is also given that the amounts of L used by the outlet to buy A and B are in the ratio 5:3

⇒ $\frac{a \times 95x}{b \times 114x} = \frac{5}{3}$

⇒ a = 2b

Also, the amounts of L the outlet received from the sales of A and B are in the ratio 5:9

⇒ $\frac{(a-800) \times 110x}{b \times 132x} = \frac{5}{9}$

⇒ $\frac{(2b-800) \times 110x}{b \times 132x} = \frac{5}{9}$

⇒ b = 600

Therefore, a = 2b = 2 * 600 = 1200.

It is given that the outlet received 88000 units of L by selling A during the day.

⇒ (a – 800) * 110x = 88000

⇒ (1200 – 800) * 110x = 88000

⇒ 44000x = 88000

⇒ x = 2

We can fill the entire table and answer all the questions.

				No. of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	190	200	220	2500	1200	400	3300
B	228	240	264	4800	600	600	4800
C	1.9	2	2.2	48000	22000	19000	51000

From the table we can see that the currency outlet sold 19000 units of currency C. Hence, option B is the correct answer.

3.What was the base exchange rate of currency B with respect to currency L on that day?

Answer ||| 240

Solution |||

It is given that the base exchange rates of A, B and C with respect to L are in the ratio 100:120:1. Let us assume that base exchange rates are '100x', '120x' and 'x' in that order.

It is given that the buying exchange rates of each of A, B, and C with respect to L are 5% below the corresponding base exchange rates.

Hence, buying exchange rates are 95x, 114x, 0.95x.

It is given that the selling exchange rates of each of A, B, and C with respect to L are 10% above their corresponding base exchange rates.

Hence, the selling exchange rates are 110x, 132x, 1.1x.

				No of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	95x	100x	110x	2500			3300
B	114x	120x	132x	4800			4800
C	0.95x	x	1.1x	48000			51000

Let 'a', 'b' and 'c' be the number of units of currency A, B and C bought by the outlet on that day.

Then, we can say that the outlet sold 'a – 800', 'b' and 'c – 3000' units of currency A, B and C respectively.

It is given that the amount of L used by the outlet to buy C equals the amount of L it received by selling C.

				No of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	95x	100x	110x	2500	a	a - 800	3300
B	114x	120x	132x	4800	b	B	4800
C	0.95x	x	1.1x	48000	c	c - 3000	51000

⇒ 0.95x * c = 1.1x * (c – 3000)

⇒ 0.15c = 3300

⇒ c = 22000

It is also given that the amounts of L used by the outlet to buy A and B are in the ratio 5:3

⇒ $\frac{a \times 95x}{b \times 114x} = \frac{5}{3}$

⇒ a = 2b

Also, the amounts of L the outlet received from the sales of A and B are in the ratio 5:9

⇒ $\frac{(a-800) \times 110x}{b \times 132x} = \frac{5}{9}$

⇒ $\frac{(2b-800) \times 110x}{b \times 132x} = \frac{5}{9}$

⇒ b = 600

Therefore, a = 2b = 2 * 600 = 1200.

It is given that the outlet received 88000 units of L by selling A during the day.

⇒ (a – 800) * 110x = 88000

⇒ (1200 – 800) * 110x = 88000

⇒ 44000x = 88000

⇒ x = 2

We can fill the entire table and answer all the questions.

				No. of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	190	200	220	2500	1200	400	3300
B	228	240	264	4800	600	600	4800
C	1.9	2	2.2	48000	22000	19000	51000

From the table we can see that the base exchange rate of currency B with respect to currency L was 240.

4.What was the buying exchange rate of currency C with respect to currency L on that day?

A. 1.10
B. 0.95
C. 2.20
D. 1.90

Answer ||| D

Solution |||

It is given that the base exchange rates of A, B and C with respect to L are in the ratio 100:120:1. Let us assume that base exchange rates are '100x', '120x' and 'x' in that order.

It is given that the buying exchange rates of each of A, B, and C with respect to L are 5% below the corresponding base exchange rates.

Hence, buying exchange rates are 95x, 114x, 0.95x.

It is given that the selling exchange rates of each of A, B, and C with respect to L are 10% above their corresponding base exchange rates.

Hence, the selling exchange rates are 110x, 132x, 1.1x.

				No of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	95x	100x	110x	2500			3300
B	114x	120x	132x	4800			4800
C	0.95x	x	1.1x	48000			51000

Let 'a', 'b' and 'c' be the number of units of currency A, B and C bought by the outlet on that day.

Then, we can say that the outlet sold 'a – 800', 'b' and 'c – 3000' units of currency A, B and C respectively.

It is given that the amount of L used by the outlet to buy C equals the amount of L it received by selling C.

				No of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	95x	100x	110x	2500	a	a - 800	3300
B	114x	120x	132x	4800	b	B	4800
C	0.95x	x	1.1x	48000	c	c - 3000	51000

⇒ 0.95x * c = 1.1x * (c – 3000)

⇒ 0.15c = 3300

⇒ c = 22000

It is also given that the amounts of L used by the outlet to buy A and B are in the ratio 5:3

⇒ $\frac{a \times 95x}{b \times 114x} = \frac{5}{3}$

⇒ a = 2b

Also, the amounts of L the outlet received from the sales of A and B are in the ratio 5:9

⇒ $\frac{(a-800) \times 110x}{b \times 132x} = \frac{5}{9}$

⇒ $\frac{(2b-800) \times 110x}{b \times 132x} = \frac{5}{9}$

⇒ b = 600

Therefore, a = 2b = 2 * 600 = 1200.

It is given that the outlet received 88000 units of L by selling A during the day.

⇒ (a – 800) * 110x = 88000

⇒ (1200 – 800) * 110x = 88000

⇒ 44000x = 88000

⇒ x = 2

We can fill the entire table and answer all the questions.

				No. of units			
Currency	Buying rate	Base rate	Selling rate	Opening stock	Buy	Sell	Closing stock
A	190	200	220	2500	1200	400	3300
B	228	240	264	4800	600	600	4800
C	1.9	2	2.2	48000	22000	19000	51000

From the table we can see that the buying exchange rate of currency C with respect to currency L was 1.9. Hence, we can say that option D is the correct answer.

###TOPIC###Data Interpretation||Caselets||Caselets###

5.

|||Common|||

Direction: Each visitor to an amusement park needs to buy a ticket. Tickets can be Platinum, Gold, or Economy. Visitors are classified as Old, Middle-aged, or Young. The following facts are known about visitors and ticket sales on a particular day:

1) 140 tickets were sold.

2) The number of Middle-aged visitors was twice the number of Old visitors, while the number of Young visitors was twice the number of Middle-aged visitors.

3) Young visitors bought 38 of the 55 Economy tickets that were sold, and they bought half the total number of Platinum tickets that were sold.

4) The number of Gold tickets bought by Old visitors was equal to the number of Economy tickets bought by Old visitors.

|||End|||
If the number of Old visitors buying Platinum tickets was equal to the number of Middle-aged visitors buying Platinum tickets, then which among the following could be the total number of Platinum tickets sold?
A. 34
B. 36

C. 38
D. 32

Answer ||| D

Solution |||

Let 'a' be the number of Old visitors. Then, the number of middle-aged visitors = 2a

Also, the number of Young visitors = 2 * 2a = 4a

$\Rightarrow$ a + 2a + 4a = 140

$\Rightarrow$ a = 20

It is given that a total of 55 Economy tickets were sold out.

It is given that Young visitors bought half the total number of Platinum tickets that were sold.

Let 'b' be the number of Platinum tickets bought by the Young visitors.

Then, the number of Platinum tickets sold = 2b.

Consequently, we can say that the number of Gold tickets sold = 140 – 55 – 2b = 85 – 2b

	Platinum	Gold	Economy	Total
Old				20
Middle aged				40
Young	b		38	80
Total	2b	85-2b	55	140

Let us assume that 'c' is the number of Economy tickets bought by the Old visitors. It is given that the number of Gold tickets bought by Old visitors was equal to the number of Economy tickets bought by Old visitors.

	Platinum	Gold	Economy	Total
Old	20 – 2c	c	c	20
Middle aged	(b + 2c) – 20	43 - (b + c)	17 – c	40
Young	B	42 – b	38	80
Total	2b	85 - 2b	55	140

It is given that the number of Old visitors buying Platinum tickets was equal to the number of Middle-aged visitors buying Platinum tickets.

$20 - 2c = (b + 2c) - 20$

$b + 4c = 40$

$2b + 8c = 80$

$2b = 80 - 8c$

We can see that c can take only integer values. Therefore, we can say that the total number of Platinum tickets sold will be a multiple of 8. Hence, option D is the correct answer.

6. If the number of Old visitors buying Platinum tickets was equal to the number of Middle-aged visitors buying Economy tickets, then the number of Old visitors buying Gold tickets was

Answer ||| 3

Solution |||

Let 'a' be the number of Old visitors. Then, the number of middle–aged visitors = 2a.

Also, the number of Young visitors = 2 * 2a = 4a

$\Rightarrow a + 2a + 4a = 140$

$\Rightarrow a = 20$

It is given that a total of 55 Economy tickets were sold out.

It is given that the Young visitors bought half the total number of Platinum tickets that were sold.

Let 'b' be the number of Platinum tickets bought by the Young visitors.

Then, the number of Platinum tickets sold = 2b.

Consequently, we can say that the number of Gold tickets sold = 140 – 55 – 2b = 85 – 2b.

	Platinum	Gold	Economy	Total
Old				20
Middle aged				40
Young	b		38	80
Total	2b	85-2b	55	140

Let us assume that 'c' is the number of Economy tickets bought by the Old visitors. It is given that the number of Gold tickets bought by Old visitors was equal to the number of Economy tickets bought by Old visitors.

	Platinum	Gold	Economy	Total
Old	20 – 2c	c	c	20
Middle aged	(b + 2c) – 20	43 - (b + c)	17 – c	40
Young	B	42 – b	38	80
Total	2b	85 - 2b	55	140

It is given that the number of Old visitors buying Platinum tickets was equal to the number of Middle-aged visitors buying Economy tickets.

$20 - 2c = 17 - c$

$\Rightarrow c = 3$

Therefore, we can say that the number of Old visitors buying Gold tickets = 3

7.If the number of Old visitors buying Gold tickets was strictly greater than the number of Young visitors buying Gold tickets, then the number of Middle-aged visitors buying Gold tickets was

Answer ||| 0

Solution |||

Let 'a' be the number of Old visitors. Then, the number of middle–aged visitors = 2a

Also, the number of Young visitors = 2 * 2a = 4a

$\Rightarrow a + 2a + 4a = 140$

$\Rightarrow a = 20$

It is given that a total of 55 Economy tickets were sold out.

It is given that Young visitors bought half the total number of Platinum tickets that were sold.

Let 'b' be the number of Platinum tickets bought by the Young visitors.

Then, the number of Platinum tickets sold = 2b

Consequently, we can say that the number of Gold tickets sold = 140 – 55 – 2b = 85 – 2b

	Platinum	Gold	Economy	Total
Old				20
Middle aged				40
Young	b		38	80
Total	2b	85-2b	55	140

Let us assume that 'c' is the number of Economy tickets bought by the Old visitors. It is given that the number of Gold tickets bought by Old visitors was equal to the number of Economy tickets bought by Old visitors.

	Platinum	Gold	Economy	Total
Old	20 – 2c	c	c	20
Middle aged	(b + 2c) – 20	43 - (b + c)	17 – c	40
Young	B	42 – b	38	80
Total	2b	85 - 2b	55	140

It is given that the number of Old visitors buying Gold tickets was strictly greater than the number of Young visitors buying Gold tickets.

$c > 42 - b$

$c + b > 42$ ... (1)

The number of Middle-aged visitors buying Gold tickets = $43 - (b + c)$

Since $(b + c) > 42$, then We can say that $(b + c)_{min} = 43$.

Hence, the number of Middle–aged visitors buying Gold tickets = 43 – 43 = 0

8.Which of the following statements MUST be FALSE?

A. The numbers of Gold and Platinum tickets bought by Young visitors were equal
B. The numbers of Middle-aged and Young visitors buying Gold tickets were equal
C. The numbers of Old and Middle-aged visitors buying Platinum tickets were equal
D. The numbers of Old and Middle-aged visitors buying Economy tickets were equal

Answer ||| D

Solution |||

Let 'a' be the number of Old visitors. Then, the number of middle–aged visitors = 2a.

Also, the number of Young visitors = 2 * 2a = 4a

⇒ a + 2a + 4a = 140

⇒ a = 20

It is given that a total of 55 Economy tickets were sold out.

It is given that Young visitors half the total number of Platinum tickets that were sold.

Let 'b' be the number of Platinum tickets bought by the Young visitors.

Then, the number of Platinum tickets sold = 2b.

Consequently, we can say that the number of Gold tickets sold = 140 – 55 – 2b = 85 – 2b.

	Platinum	Gold	Economy	Total
Old				20
Middle aged				40
Young	b		38	80
Total	2b	85-2b	55	140

Let us assume that 'c' is the number of Economy tickets bought by the Old visitors. It is given that the number of Gold tickets bought by Old visitors was equal to the number of Economy tickets bought by Old visitors.

	Platinum	Gold	Economy	Total
Old	20 – 2c	c	c	20
Middle aged	(b + 2c) – 20	43 - (b + c)	17 – c	40
Young	B	42 – b	38	80
Total	2b	85 - 2b	55	140

Let us check with the help of options.

Option (A): The numbers of Gold and Platinum tickets bought by Young visitors were equal.

b = 42 – b

⇒ b = 21. Hence, this statement can be true.

Option (B): The numbers of Middle–aged and Young visitors buying Gold tickets were equal

43 – (b + c) = 42 – b

⇒ c = 1. Hence, this statement can be true.

Option (C): The numbers of Old and Middle–aged visitors buying Platinum tickets were equal

20 – 2c = (b + 2c) – 20

⇒ b + 4c = 40. Hence, this statement can be true.

Option (D): The numbers of Old and Middle–aged visitors buying Economy tickets were equal

c = 17 – c

⇒ Z = 8.5. This is not possible as c has to be an integer. Hence, we can say that this statement is false.

###TOPIC###Data Interpretation||Caselets||Caselets###

9.

|||Common|||

Direction: An agency entrusted to accredit colleges looks at four parameters: faculty quality (F), reputation (R), placement quality (P), and infrastructure (I). The four parameters are used to arrive at an overall score, which the agency uses to give an accreditation to the colleges. In each parameter, there are five possible letter grades given, each carrying certain points: A (50 points), B (40 points), C (30 points), D (20 points), and F (0 points). The overall score for a college is the weighted sum of the points scored in the four parameters. The weights of the parameters are 0.1, 0.2, 0.3 and 0.4 in some order, but the order is not disclosed. Accreditation is awarded based on the following scheme:

Range	Accreditation
Overall score ≥ 45	AAA
35 ≤ Overall score < 45	BAA
25 ≤ Overall score < 35	BBA
15 ≤ Overall score < 25	BBB
Overall score < 15	Junk

Eight colleges apply for accreditation, and receive the following grades in the four parameters (F, R, P, and I):

	F	R	P	I
A-one	A	A	A	B
Best Ed	B	C	D	D
Cosmopolitan	B	D	D	C
Dominance	D	D	B	C
Education Aid	A	A	B	A
Fancy	A	A	B	B
Global	C	F	D	D
High Q	C	D	D	B

It is further known that in terms of overall scores:

1) High Q is better than Best Ed;

2) Best Ed is better than Cosmopolitan;

3) Education Aid is better than A-one.

|||End|||
What is the weight of the faculty quality parameter?
A. 0.2
B. 0.3
C. 0.4
D. 0.1

Answer ||| D

Solution |||

High Q > Best Ed > Cosmopolitan and Education Aid > A-one

Hence, High Q > Cosmopolitan

Both High Q and Cosmopolitan got same points in reputation (R) and placement quality (P). High Q received more points in infrastructure (I) than Cosmopolitan whereas Cosmopolitan received more points in faculty Quality (F) than High Q.

Hence, I > F

Best Ed and Cosmopolitan got same points in F and P
Best Ed received more points in R than Cosmopolitan
Cosmopolitan received more points in I than Best Ed.

Hence, R > I

Similarly, both Education Aid and A-one got same points in F and R.
Education Aid received more points in I than A-one.
A-one received more points in P than Education Aid.

Hence, I > P

Hence, there are two possible cases: R > I > P > F or R > I > F > P

Case 1: Order of weights assigned = R > I > P > F

R = 0.4, I = 0.3. P = 0.2, F = 0.1

Overall score received by Best Ed = 0.1 * 40 + 0.4 * 30 + 0.2 * 20 + 0.3 * 20 = 26

Overall score received by High Q = 0.1 * 30 + 0.4 * 20 + 0.2 * 20 + 0.3 * 40 = 27

High Q's overall score is higher than Best Ed. Hence, this case is possible.

Case 2: Order of weights assigned = R > I > F > P

R = 0.4, I = 0.3. P = 0.1, F = 0.2

Overall score received by Best Ed = 0.2*40+0.4*30+0.1*20+0.3*20 = 28

Overall score received by High Q = 0.2*30+0.4*20+0.1*20+0.3*40 = 28

Best Ed’s overall score is not less than the overall score received by High Q's. Hence, this case is not possible.

	F (0.1)	R (0.4)	P (0.2)	I (0.3)	Overall score	Accreditation
A-one	50	50	50	40	47	AAA
Best Ed	40	30	20	20	26	BBA
Cosmopolitan	40	20	20	30	25	BBA
Dominance	20	20	40	30	27	BBA
Education Aid	50	50	40	50	48	AAA
Fancy	50	50	40	40	45	AAA
Global	30	0	20	20	13	Junk
High Q	30	20	20	40	27	BBA

We can see that weight of the faculty quality parameter = 0.1. Hence, option D is the correct answer.

10.How many colleges receive the accreditation of AAA?

Answer ||| 3

Solution |||

High Q > Best Ed > Cosmopolitan and Education Aid > A-one

Hence, High Q > Cosmopolitan

Both High Q and Cosmopolitan got same points in reputation (R) and placement quality (P). High Q received more points in infrastructure (I) than Cosmopolitan whereas Cosmopolitan received more points in faculty Quality (F) than High Q.

Hence, I > F

Best Ed and Cosmopolitan got same points in F and P
Best Ed received more points in R than Cosmopolitan
Cosmopolitan received more points in I than Best Ed.

Hence, R > I

Similarly, both Education Aid and A-one got same points in F and R.
Education Aid received more points in I than A-one.
A-one received more points in P than Education Aid.

Hence, I > P

Hence, there are two possible cases: R > I > P > F or R > I > F > P

Case 1: Order of weights assigned = R > I > P > F

R = 0.4, I = 0.3. P = 0.2, F = 0.1

Overall score received by Best Ed = 0.1 * 40 + 0.4 * 30 + 0.2 * 20 + 0.3 * 20 = 26

Overall score received by High Q = 0.1 * 30 + 0.4 * 20 + 0.2 * 20 + 0.3 * 40 = 27

High Q's overall score is higher than Best Ed. Hence, this case is possible.

Case 2: Order of weights assigned = R > I > F > P

R = 0.4, I = 0.3. P = 0.1, F = 0.2

Overall score received by Best Ed = 0.2*40+0.4*30+0.1*20+0.3*20 = 28

Overall score received by High Q = 0.2*30+0.4*20+0.1*20+0.3*40 = 28

Best Ed’s overall score is not less than the overall score received by High Q's. Hence, this case is not possible.

	F (0.1)	R (0.4)	P (0.2)	I (0.3)	Overall score	Accreditation
A-one	50	50	50	40	47	AAA
Best Ed	40	30	20	20	26	BBA
Cosmopolitan	40	20	20	30	25	BBA
Dominance	20	20	40	30	27	BBA
Education Aid	50	50	40	50	48	AAA
Fancy	50	50	40	40	45	AAA
Global	30	0	20	20	13	Junk
High Q	30	20	20	40	27	BBA

From the table, we can see that three received the accreditation of AAA .

11.What is the highest overall score among the eight colleges?

Answer ||| 48

Solution |||

High Q > Best Ed > Cosmopolitan and Education Aid > A-one

Hence, High Q > Cosmopolitan

Both High Q and Cosmopolitan got same points in reputation (R) and placement quality (P). High Q received more points in infrastructure (I) than Cosmopolitan whereas Cosmopolitan received more points in faculty Quality (F) than High Q.

Hence, I > F

Best Ed and Cosmopolitan got same points in F and P
Best Ed received more points in R than Cosmopolitan
Cosmopolitan received more points in I than Best Ed.

Hence, R > I

Similarly, both Education Aid and A-one got same points in F and R.
Education Aid received more points in I than A-one.
A-one received more points in P than Education Aid.

Hence, I > P

Hence, there are two possible cases: R > I > P > F or R > I > F > P

Case 1: Order of weights assigned = R > I > P > F

R = 0.4, I = 0.3. P = 0.2, F = 0.1

Overall score received by Best Ed = 0.1 * 40 + 0.4 * 30 + 0.2 * 20 + 0.3 * 20 = 26

Overall score received by High Q = 0.1 * 30 + 0.4 * 20 + 0.2 * 20 + 0.3 * 40 = 27

High Q's overall score is higher than Best Ed. Hence, this case is possible.

Case 2: Order of weights assigned = R > I > F > P

R = 0.4, I = 0.3. P = 0.1, F = 0.2

Overall score received by Best Ed = 0.2*40+0.4*30+0.1*20+0.3*20 = 28

Overall score received by High Q = 0.2*30+0.4*20+0.1*20+0.3*40 = 28

Best Ed’s overall score is not less than the overall score received by High Q's. Hence, this case is not possible.

	F (0.1)	R (0.4)	P (0.2)	I (0.3)	Overall score	Accreditation
A-one	50	50	50	40	47	AAA
Best Ed	40	30	20	20	26	BBA
Cosmopolitan	40	20	20	30	25	BBA
Dominance	20	20	40	30	27	BBA
Education Aid	50	50	40	50	48	AAA
Fancy	50	50	40	40	45	AAA
Global	30	0	20	20	13	Junk
High Q	30	20	20	40	27	BBA

From the table we can see that Education Aid scored the highest overall score = 48.

12.How many colleges have overall scores between 31 and 40, both inclusive?

A. 0
B. 2
C. 1
D. 3

Answer ||| A

Solution |||

High Q > Best Ed > Cosmopolitan and Education Aid > A-one

Hence, High Q > Cosmopolitan

Both High Q and Cosmopolitan got same points in reputation (R) and placement quality (P). High Q received more points in infrastructure (I) than Cosmopolitan whereas Cosmopolitan received more points in faculty Quality (F) than High Q.

Hence, I > F

Best Ed and Cosmopolitan got same points in F and P
Best Ed received more points in R than Cosmopolitan
Cosmopolitan received more points in I than Best Ed.

Hence, R > I

Similarly, both Education Aid and A-one got same points in F and R.
Education Aid received more points in I than A-one.
A-one received more points in P than Education Aid.

Hence, I > P

Hence, there are two possible cases: R > I > P > F or R > I > F > P

Case 1: Order of weights assigned = R > I > P > F

R = 0.4, I = 0.3. P = 0.2, F = 0.1

Overall score received by Best Ed = 0.1 * 40 + 0.4 * 30 + 0.2 * 20 + 0.3 * 20 = 26

Overall score received by High Q = 0.1 * 30 + 0.4 * 20 + 0.2 * 20 + 0.3 * 40 = 27

High Q's overall score is higher than Best Ed. Hence, this case is possible.

Case 2: Order of weights assigned = R > I > F > P

R = 0.4, I = 0.3. P = 0.1, F = 0.2

Overall score received by Best Ed = 0.2*40+0.4*30+0.1*20+0.3*20 = 28

Overall score received by High Q = 0.2*30+0.4*20+0.1*20+0.3*40 = 28

Best Ed's overall score is not less than the overall score received by High Q's. Hence, this case is not possible.

	F (0.1)	R (0.4)	P (0.2)	I (0.3)	Overall score	Accreditation
A-one	50	50	50	40	47	AAA
Best Ed	40	30	20	20	26	BBA
Cosmopolitan	40	20	20	30	25	BBA
Dominance	20	20	40	30	27	BBA
Education Aid	50	50	40	50	48	AAA
Fancy	50	50	40	40	45	AAA
Global	30	0	20	20	13	Junk
High Q	30	20	20	40	27	BBA

None of the mentioned college received an overall scores between 31 and 40, both inclusive. Hence, option A is the correct answer.

###TOPIC###Data Interpretation||Tables||Tables###

13.

|||Common|||

Direction: Fun Sports (FS) provides training in three sports - Gilli-danda (G), Kho-Kho (K), and Ludo (L). Currently it has an enrollment of 39 students each of whom is enrolled in at least one of the three sports. The following details are known:

1) The number of students enrolled only in L is double the number of students enrolled in all the three sports.

2) There are a total of 17 students enrolled in G.

3) The number of students enrolled only in G is one less than the number of students enrolled only in L.

4) The number of students enrolled only in K is equal to the number of students who are enrolled in both K and L.

5) The maximum student enrollment is in L.

6) Ten students enrolled in G are also enrolled in at least one more sport.

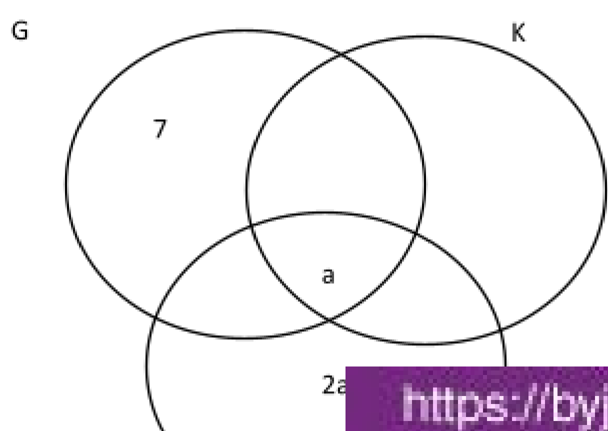
|||End|||
What is the minimum number of students enrolled in both G and L but not in K?

Answer ||| 4

Solution |||

Let 'a' be the number of students enrolled in all three sports. Then the number of students enrolled only in L = 2a

There are a total of 17 students enrolled in G.
10 students enrolled in G are also enrolled in at least one more sport. Hence, the number of students enrolled in only G = 17 – 10 = 7



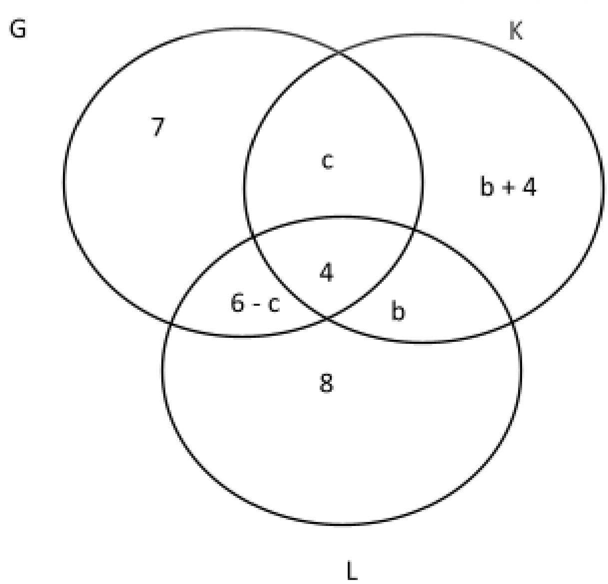
The number of students enrolled only in G is one less than the number of students enrolled only in L. Hence, the number of students enrolled only in L = 7 + 1

⇒ 2a = 8

⇒ a = 4

Let us assume that 'b' students are enrolled in K and L but not G. Then, the number of students enrolled only in K = b + 4

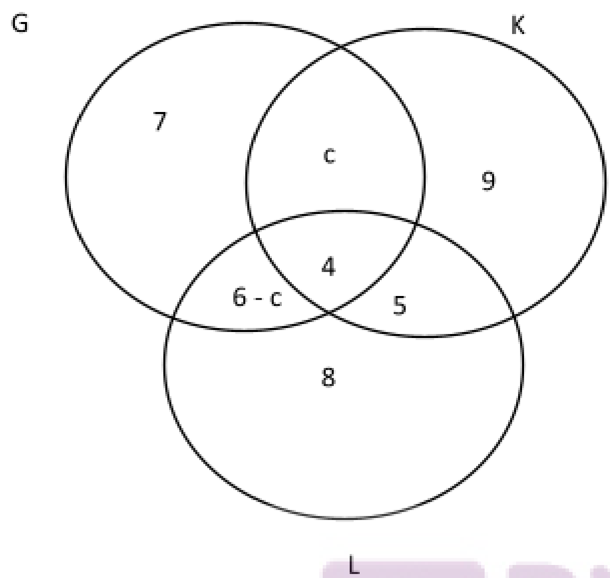
Let us assume that 'c' be the number of students enrolled in G and K but not L. Then, the number of students enrolled G and L bot not K = 10 – 4 – c = 6 – c



It is given that a total of 39 students in the sports.

$7 + c + 4 + 6 - c + 8 + b + b + 4 = 39$

$\Rightarrow b = 5$



Number of students enrolled in G = 17

Number of students enrolled in K = $9 + 4 + 5 + c = 18 + c$

Number of students enrolled in L = $6 - c + 4 + 5 + 8 = 23 - c$

It is given that the maximum student enrollment is in L.

$\Rightarrow 23 - c > 18 + c$

$\Rightarrow 2c < 5$

$\Rightarrow c < 2.5$

Therefore, we can say that c can take three values = {0, 1, 2}

The number of students enrolled in both G and L but not in K = 6 − c. This number will be minimum when 'c' is maximum. $c_{max} = 2$

Therefore, the minimum number of students enrolled in both G and L but not in K = $6 - 2 = 4$

14.If the numbers of students enrolled in K and L are in the ratio 19:22, then what is the number of students enrolled in L?

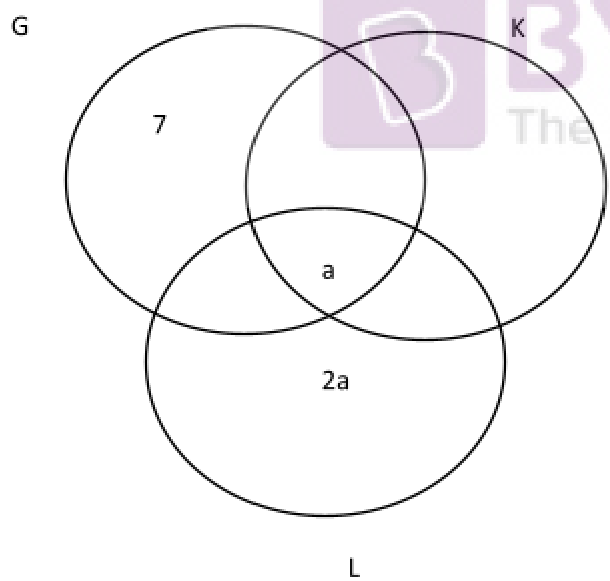
A. 18
B. 17
C. 22
D. 19

Answer ||| C

Solution |||

Let 'a' be the number of students enrolled in all three sports. Then the number of students enrolled only in L = 2a

There are a total of 17 students enrolled in G.
10 students enrolled in G are also enrolled in at least one more sport. Hence, the number of students enrolled in only G = 17 – 10 = 7



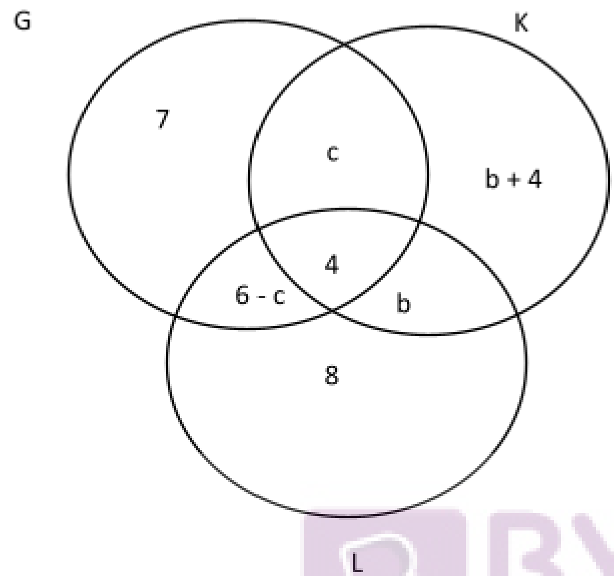
The number of students enrolled only in G is one less than the number of students enrolled only in L. Hence, the number of students enrolled only in L = 7 + 1

$\Rightarrow$ 2a = 8

$\Rightarrow$ a = 4

Let us assume that 'b' students are enrolled in K and L but not G. Then, the number of students enrolled only in K = b + 4

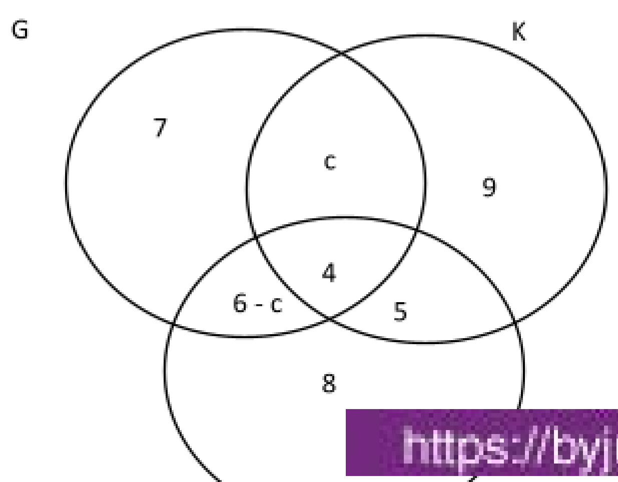
Let us assume that 'c' be the number of students enrolled in G and K but not L. Then, the number of students enrolled G and L bot not K = 10 − 4 − c = 6 − c



It is given that a total of 39 students in the sports.

7 + c + 4 + 6 − c + 8 + b + b + 4 = 39

⇒ b = 5



Number of students enrolled in G = 17

Number of students enrolled in K = 9 + 4 + 5 + c = 18 + c

Number of students enrolled in L = 6 − c + 4 + 5 + 8 = 23 − c

It is given that the maximum student enrollment is in L.

⇒ 23 − c > 18 + c

⇒ 2c < 5

⇒ c < 2.5

Therefore, we can say that c can take three values = {0, 1, 2}

It is given that the numbers of students enrolled in K and L are in the ratio 19:22.

$\frac{18+c}{23-c} = \frac{19}{22}$

Hence, c = 1 which is a possible solution as well.

In this case the number of students enrolled in L = 23 − c = 23 − 1 = 22. Hence, option C is the correct answer.

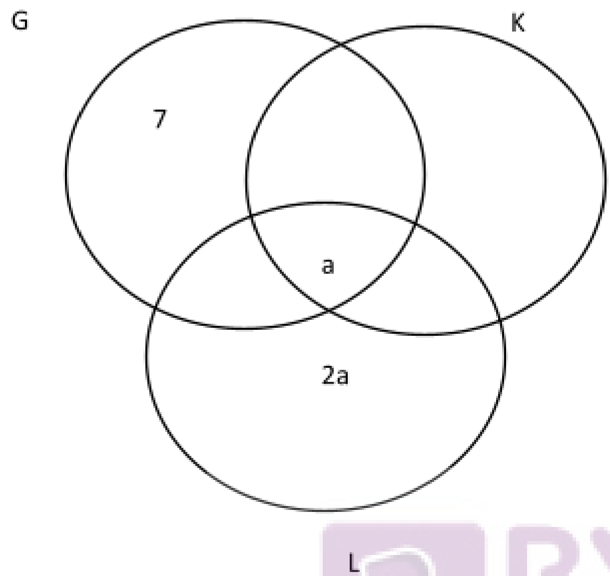
15.Due to academic pressure, students who were enrolled in all three sports were asked to withdraw from one of the three sports. After the withdrawal, the number of students enrolled in G was six less than the number of students enrolled in L, while the number of students enrolled in K went down by one. After the withdrawal, how many students were enrolled in both G and K?

Answer ||| 2

Solution |||

Let 'a' be the number of students enrolled in all three sports. Then the number of students enrolled only in L = 2a

There are a total of 17 students enrolled in G.
10 students enrolled in G are also enrolled in at least one more sport. Hence, the number of students enrolled in only G = 17 − 10 = 7



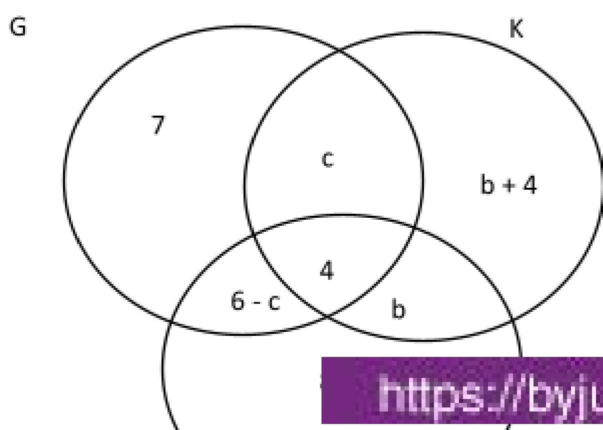
The number of students enrolled only in G is one less than the number of students enrolled only in L. Hence, the number of students enrolled only in L = 7 + 1

⇒ 2a = 8

⇒ a = 4

Let us assume that 'b' students are enrolled in K and L but not G. Then, the number of students enrolled only in K = b + 4

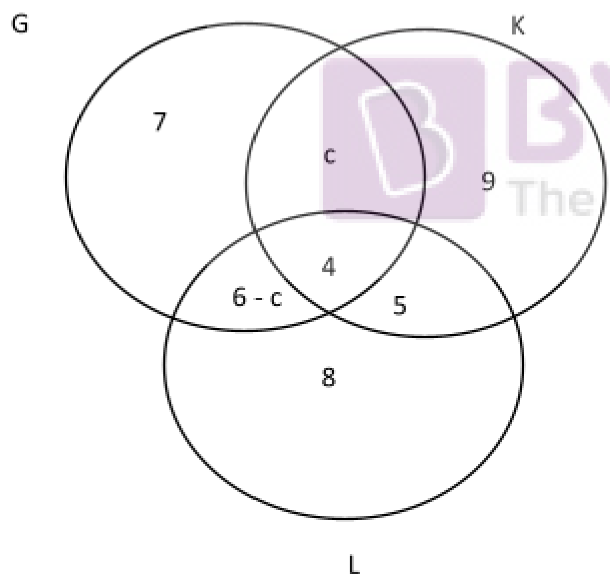
Let us assume that 'c' be the number of students enrolled in G and K but not L. Then, the number of students enrolled G and L bot not K = 10 − 4 − c = 6 − c



It is given that a total of 39 students in the sports.

7 + c + 4 + 6 − c + 8 + b + b + 4 = 39

⇒ b = 5



Number of students enrolled in G = 17

Number of students enrolled in K = 9 + 4 + 5 + c = 18 + c

Number of students enrolled in L = 6 − c + 4 + 5 + 8 = 23 − c

It is given that the maximum student enrollment is in L.

⇒ 23 – c > 18 + c

⇒ 2c < 5

⇒ c < 2.5

Therefore, we can say that c can take three values = {0, 1, 2}

Hence, the number of students enrolled in K = 18 + z = {18, 19, 20}

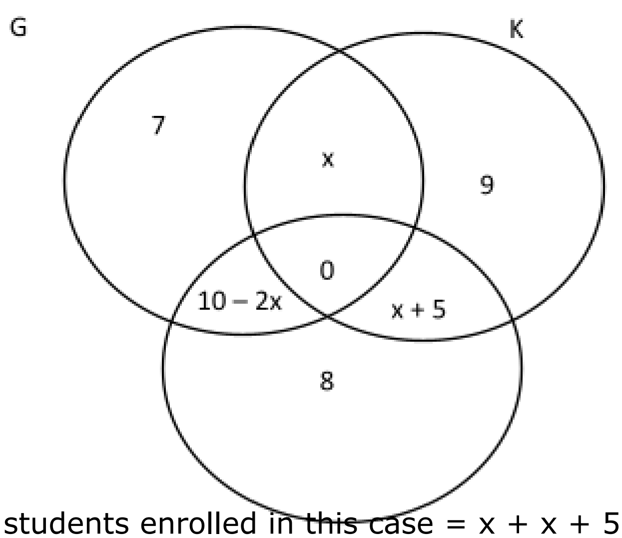
It is given that after withdrawal, the number of students enrolled in K went down by one. This one student must have left sports K. Hence, the remaining 3 students must have left either G or L.

Before withdrawal, there were a total of 24 students were enrolled in exactly 1 sport, 11 students were enrolled in exactly 2 courses and 4 students were enrolled in all three sports.

The students who were enrolled in all three sports, withdrew from one of the sports. Hence, the number of students who were enrolled in exactly 2 sports = 11 + 4 = 15.

Let 'x' be the number of students who were enrolled in G and K but not L. Then, the number of students who were enrolled in L and K but not G = x + 5

Consequently, we can say that the number of students enrolled in G and L but not K = 15 – (2x + 5) = 10 – 2x



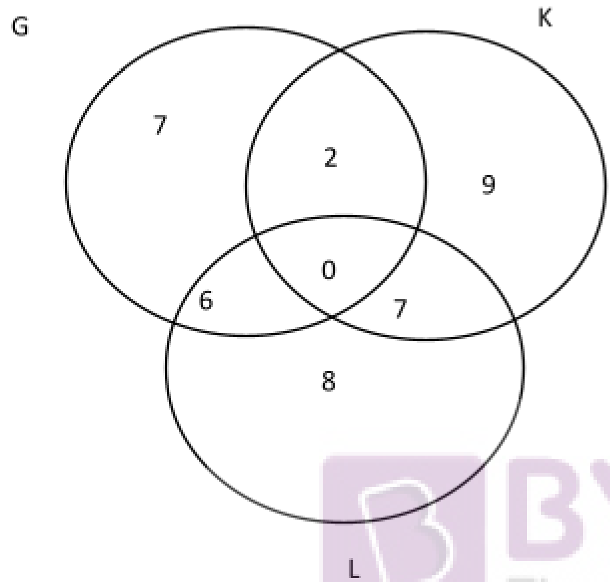
Number of students enrolled in this case = x + x + 5 + 9 = 14 + 2x. We can see that '14 + 2x' is an even number. It is given that the number of students enrolled in K went down by one. Therefore, we can say that the number of students enrolled in K earlier was an odd number.

Hence, the number of students enrolled in K = 18 + c = {18, 19, 20}

We can see that only '19' is an odd number. Hence, we can say that the number of students enrolled in K after withdrawal = 18

⇒ 14 + 2x = 18

⇒ x = 2



Hence, the number of students enrolled in both G and K = 2.

16.Due to academic pressure, students who were enrolled in all three sports were asked to withdraw from one of the three sports. After the withdrawal, the number of students enrolled in G was six less than the number of students enrolled in L, while the number of students enrolled in K went down by one. After the withdrawal, how many students were enrolled in both G and L?

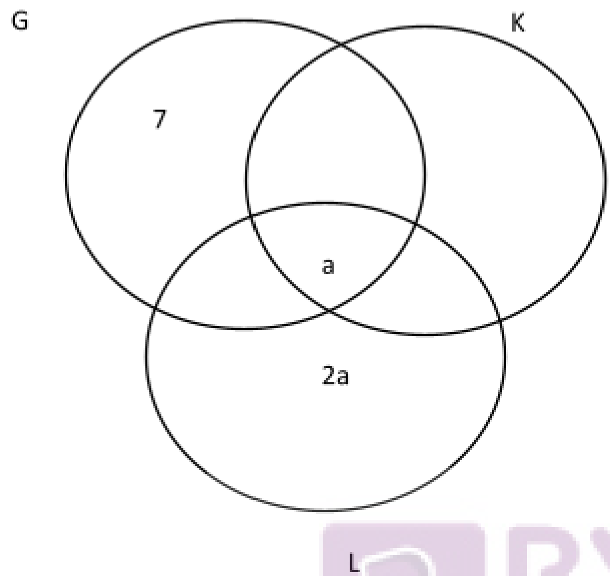
A. 6
B. 5
C. 7
D. 8

Answer ||| A

Solution |||

Let 'a' be the number of students enrolled in all three sports. Then the number of students enrolled only in L = 2a

There are a total of 17 students enrolled in G.
10 students enrolled in G are also enrolled in at least one more sport. Hence, the number of students enrolled in only G = 17 − 10 = 7



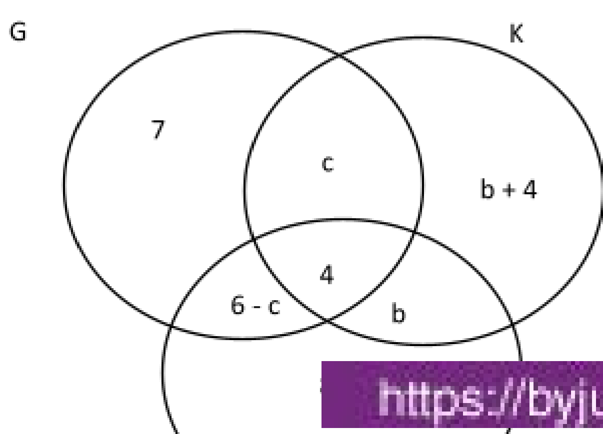
The number of students enrolled only in G is one less than the number of students enrolled only in L. Hence, the number of students enrolled only in L = 7 + 1

⇒ 2a = 8

⇒ a = 4

Let us assume that 'b' students are enrolled in K and L but not G. Then, the number of students enrolled only in K = b + 4

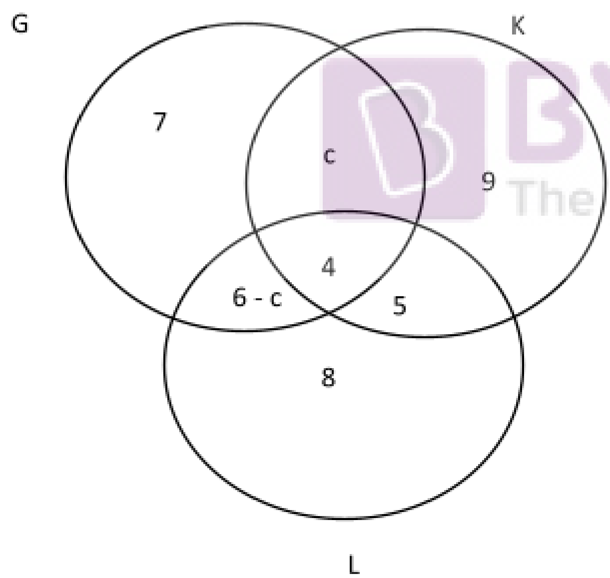
Let us assume that 'c' be the number of students enrolled in G and K but not L. Then, the number of students enrolled G and L bot not K = 10 − 4 − c = 6 − c



It is given that a total of 39 students in the sports.

$7 + c + 4 + 6 - c + 8 + b + b + 4 = 39$

$\Rightarrow b = 5$



Number of students enrolled in G = 17

Number of students enrolled in K = $9 + 4 + 5 + c = 18 + c$

Number of students enrolled in L = $6 - c + 4 + 5 + 8 = 23 - c$

It is given that the maximum student enrollment is in L.

$\Rightarrow 23 - c > 18 + c$

$\Rightarrow 2c < 5$

$\Rightarrow c < 2.5$

Therefore, we can say that c can take three values = {0, 1, 2}

Hence, the number of students enrolled in K = 18 + z = {18, 19, 20}

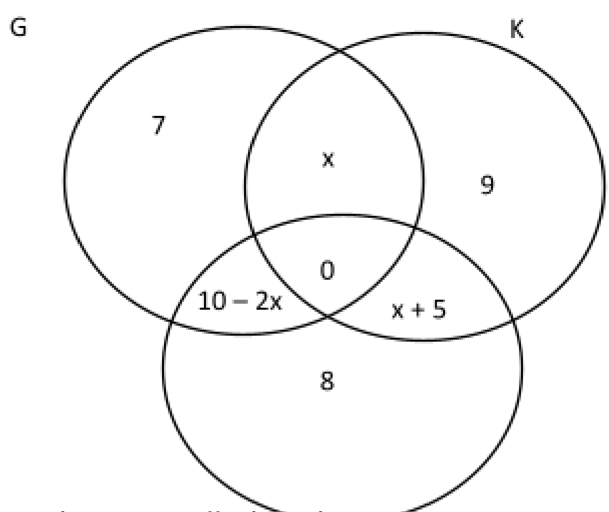
It is given that after withdrawal, the number of students enrolled in K went down by one. This one student must have left sports K. Hence, the remaining 3 students must have left either G or L.

Before withdrawal, there were a total of 24 students were enrolled in exactly 1 sport, 11 students were enrolled in exactly 2 courses and 4 students were enrolled in all three sports.

The students who were enrolled in all three sports, withdrew from one of the sports. Hence, the number of students who were enrolled in exactly 2 sports = 11 + 4 = 15.

Let 'x' be the number of students who were enrolled in G and K but not L. Then, the number of students who were enrolled in L and K but not G = x + 5

Consequently, we can say that the number of students enrolled in G and L but not K = 15 – (2x + 5) = 10 – 2x



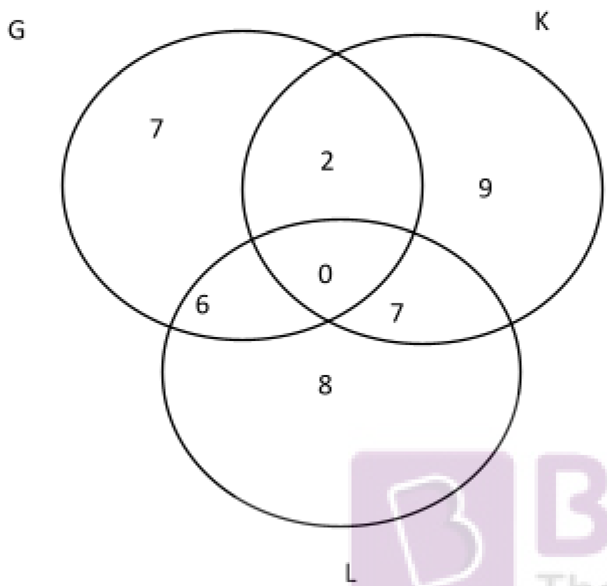
Number of students enrolled in this case = x + x + 5 + 9 = 14 + 2x. We can see that '14 + 2x' is an even number. It is given that the number of students enrolled in K went down by one. Therefore, we can say that the number of students enrolled in K earlier was an odd number.

Hence, the number of students enrolled in K = 18 + c = {18, 19, 20}

We can see that only '19' is an odd number. Hence, we can say that the number of students enrolled in K after withdrawal = 18

⇒ 14 + 2x = 18

⇒ x = 2



The number of students enrolled in both G and L = 6. Hence, option A is the correct answer.

###TOPIC###Logical Reasoning||Venn Diagrams||Venn Diagrams###

17.

|||Common|||

Direction: According to a coding scheme the sentence:

"Peacock is designated as the national bird of India" is coded as 5688999 35 1135556678 56 458 13666689 1334 79 13366

This coding scheme has the following rules:

a: The scheme is case-insensitive. (does not distinguish between uppercase and lowercase letters)

b: Each letter has a unique code which is a single digit from among 1,2,3, …, 9

c: The digit 9 codes two letters, and every other digit codes three letters.

d: The code for a word is constructed by arranging the digits corresponding to its letters in a non-decreasing sequence.

Answer these questions on the basis of this information.

|||End|||
What best can be concluded about the code for the letter L?A. 1
B. 8
C. 1 or 8
D. 6

Answer ||| A

Solution |||

Peacock	is	designated	as	the	national	bird	of	India
5688999	35	1135556678	56	458	13666689	1334	79	13366

India's code is 13366 therefore we can say that I's code is either 3 or 6.

The code for the word "is" is 35, hence, I's code is 3 and S's code is 5.

The code of the word 'as' is 56, hence, we can say that A's code is 6.

There is only one letter 'O' common in words 'of' and 'national'. In code words as well only digit '9' is common in both. Hence, we can say that letter 'O' is assigned numerical '9' and F is assigned number 7.

	1	2	3	4	5	6	7	8	9
Letters			I		S	A	F		O

It is given that '9' is assigned to only two alphabets and one of them is 'O'.
There are three 9's in Peacock's code.
One of the digits '9' is used for 'O'. Remaining two 9's must represent the same letter.
We can see that only the letter 'C' has appeared twice in Peacock. Hence, 'C' is coded '9'.

The word national 'N' has appeared twice. In code only digit '6' has appeared more than once. Hence, we can say that code of letter N is '6' and the code for letter 'D' is '1'

	1	2	3	4	5	6	7	8	9
Letters	D		I		S	N, A	F		C, O

In words, 'the' and 'national' only letter 't' is common.
Hence, the code for letter 't' is 8.

In words, 'the' and 'peacock' only have the letter 'e' is common.
Hence, the code for letter 'e' is 5.
'H's code is 4.

	1	2	3	4	5	6	7	8	9
Letters	D		I	H	S, E	N, A	F	T	C, O

We can see that code for the word "NATIONAL" is 13666689. Hence, we can say that the code for the letter L is '1'. Hence, option A is the correct answer.

18.What best can be concluded about the code for the letter B?

A. 3 or 4
B. 1 or 3 or 4
C. 1
D. 3

Answer ||| A

Solution |||

Peacock	is	designated	as	the	national	bird	of	India
5688999	35	1135556678	56	458	13666689	1334	79	13366

India's code is 13366 therefore we can say that I's code is either 3 or 6.

The code for the word "is" is 35, hence, I's code is 3 and S's code is 5.

The code of the word 'as' is 56, hence, we can say that A's code is 6.

There is only one letter 'O' common in words 'of' and 'national'. In code words as well only digit '9' is common in both. Hence, we can say that letter 'O' is assigned numerical '9' and F is assigned number 7.

	1	2	3	4	5	6	7	8	9
Letters			I		S	A	F		O

It is given that '9' is assigned to only two alphabets and one of them is 'O'.
There are three 9's in Peacock's code.
One of the digits '9' is used for 'O'. Remaining two 9's must represent the same letter.
We can see that only the letter 'C' has appeared twice in Peacock. Hence, 'C' is coded '9'.

In word national 'N' has appeared twice. In code only digit '6' has appeared more than once. Hence, we can say that code of letter N is '6' and the code for letter 'D' is '1'

	1	2	3	4	5	6	7	8	9
Letters	D		I		S	N, A	F		C, O

In words, 'the' and 'national' only letter 't' is common.
Hence, the code for letter 't' is 8.

In words, 'the' and 'peacock' only have the letter 'e' is common.
Hence, the code for letter 'e' is 5.
'H's code is 4.

	1	2	3	4	5	6	7	8	9
Letters	L, D		I	H	S, E	N, A	F	T	C, O

We can see that the code for the word "BIRD" is 1334. 1 corresponds to D and one 3 corresponds to I. Hence, the code for letters 'R' and 'B' are '3' and '4' in any order.

Therefore, we can say that for letter 'B' there are two possible numbers: 3 or 4

Hence, option A is the correct answer.

19.For how many digits can the complete list of letters associated with that digit be identified?

A. 1
B. 2
C. 0
D. 3

Answer ||| B

Solution |||

Peacock	is	designated	as	the	national	bird	of	India
5688999	35	1135556678	56	458	13666689	1334	79	13366

India's code is 13366 therefore we can say that I's code is either 3 or 6.

The code for the word "is" is 35, hence, I's code is 3 and S's code is 5.

The code of the word 'as' is 56, hence, we can say that A's code is 6.

There is only one letter 'O' common in words 'of' and 'national'. In code words as well only digit '9' is common in both. Hence, we can say that letter 'O' is assigned numerical '9' and F is assigned number 7.

	1	2	3	4	5	6	7	8	9
Letters			I		S	A	F		O

It is given that '9' is assigned to only two alphabets and one of them is 'O'.
There are three 9's in Peacock's code.
One of the digits '9' is used for 'O'. Remaining two 9's must represent same letter. We can see that only the letter 'C' has appeared twice in Peacock. Hence, 'C' is coded '9'.

In word national 'N' has appeared twice. In code only digit '6' has appeared more than once. Hence, we can say that code of letter N is '6' and the code for letter 'D' is '1'

	1	2	3	4	5	6	7	8	9
Letters	D		I		S	N, A	F		C, O

In words, 'the' and 'national' only letter 't' is common.
Hence, the code for letter 't' is 8.

In words, 'the' and 'peacock' only have the letter 'e' is common.
Hence, the code for letter 'e' is 5.
'H's code is 4.

	1	2	3	4	5	6	7	8	9
Letters	D		I	H	S, E	N, A	F	T	C, O

We can see that the code for the word "NATIONAL" is 13666689. Hence, we can say that the code for the letter L is '1'.

1	D,L
2	
3	I
4	H
5	E,S
6	N,A
7	G,F
8	K,P,T
9	C,O

Therefore, we can say that for only two digits (8 and 9), the complete list of letters associated is known. Hence, option B is the correct answer.

20.Which set of letters CANNOT be coded with the same digit?

A. S, E, Z
B. I, B, M
C. S, U, V
D. X, Y, Z

Answer ||| C

Solution |||

Peacock	is	designated	as	the	national	bird	of	India
5688999	35	1135556678	56	458	13666689	1334	79	13366

India's code is 13366 therefore we can say that I's code is either 3 or 6.

The code for the word "is" is 35, hence, I's code is 3 and S's code is 5.

The code of the word 'as' is 56, hence, we can say that A's code is 6.

There is only one letter 'O' common in words 'of' and 'national'. In code words as well only digit '9' is common in both. Hence, we can say that letter 'O' is assigned numerical '9' and F is assigned number 7.

	1	2	3	4	5	6	7	8	9
Letters			I		S	A	F		O

It is given that '9' is assigned to only two alphabets and one of them is 'O'.
There are three 9's in Peacock's code.
One of the digits '9' is used for 'O'. Remaining two 9's must represent the same letter.
We can see that only the letter 'C' has appeared twice in Peacock. Hence, 'C' is coded '9'.

In word national 'N' has appeared twice. In code only digit '6' has appeared more than once. Hence, we can say that code of letter N is '6' and the code for letter 'D' is '1'

	1	2	3	4	5	6	7	8	9
Letters	D		I		S	N, A	F		C, O

In words, 'the' and 'national' only letter 't' is common.
Hence, the code for letter 't' is 8.

In words, 'the' and 'peacock' only have the letter 'e' is common.
Hence, the code for letter 'e' is 5.
'H's code is 4.

	1	2	3	4	5	6	7	8	9
Letters	D		I	H	S, E	N, A	F	T	C, O

We can see that the code for the word "NATIONAL" is 13666689. Hence, we can say that the code for the letter L is '1'.

1	D,L
2	
3	I
4	H
5	E,S
6	N,A

7	G,F
8	K,P,T
9	C,O

We can see that the code for the word "PEACOCK" is 5688999. Hence, we can say that the code for the letters 'P' and 'K' is '8'.

Let us check this by options:

(A) S, E, Z: If letter 'Z' is assigned code '5' then this case is possible.

(B) I, B, M: If letters 'B' and 'M' are assigned code '3' then this case is possible.

(C) S, U, V: If letters 'U' and 'V' are assigned code '5' then this case is possible. But in that case digit 5 will have 4 letters associated with it which is not possible. Hence, this is the answer.

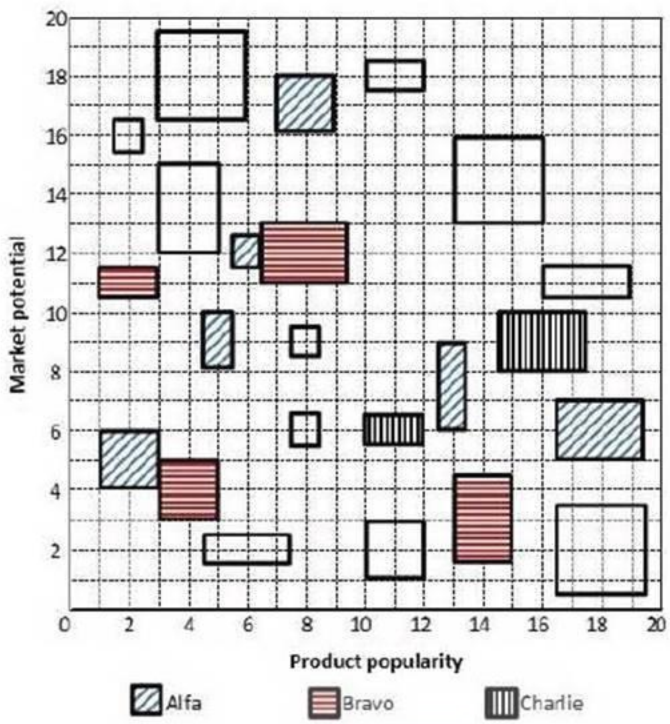
(D) X, Y, Z: If letters 'X', 'Y' and 'Z' are assigned code '2' then this case is possible.

###TOPIC###Logical Reasoning||Coding - Decoding||Coding - Decoding###

21.

|||Common|||

Direction: Each of the 23 boxes in the picture below represents a product manufactured by one of the following three companies: Alfa, Bravo and Charlie. The area of a box is proportional to the revenue from the corresponding product, while its centre represents the Product popularity and Market potential scores of the product (out of 20). The shadings of some of the boxes have got erased.



The companies classified their products into four categories based on a combination of scores (out of 20) on the two parameters -Product popularity and Market potential as given below:

	Promising	Blockbuster	Doubtful	No-hope
Product popularity score	>10	>10	≤10	≤10
Market potential score	>10	≤10	>10	≤10

The following facts are known:

1) Alfa and Bravo had the same number of products in the Blockbuster category.

2) Charlie had more products than Bravo but fewer products than Alfa in the No-hope category.

3) Each company had an equal number of products in the Promising category.

4) Charlie did not have any product in the Doubtful category, while Alfa had one product more than Bravo in this category

5) Bravo had a higher revenue than Alfa from products in the Doubtful category.

6) Charlie had a higher revenue than Bravo from products in the Blockbuster category.

7) Bravo and Charlie had the same revenue from products in the No-hope category.

8) Alfa and Charlie had the same total revenue considering all products.

|||End|||

Considering all companies' products, which product category had the highest revenue?

A. No-hope

B. Blockbuster

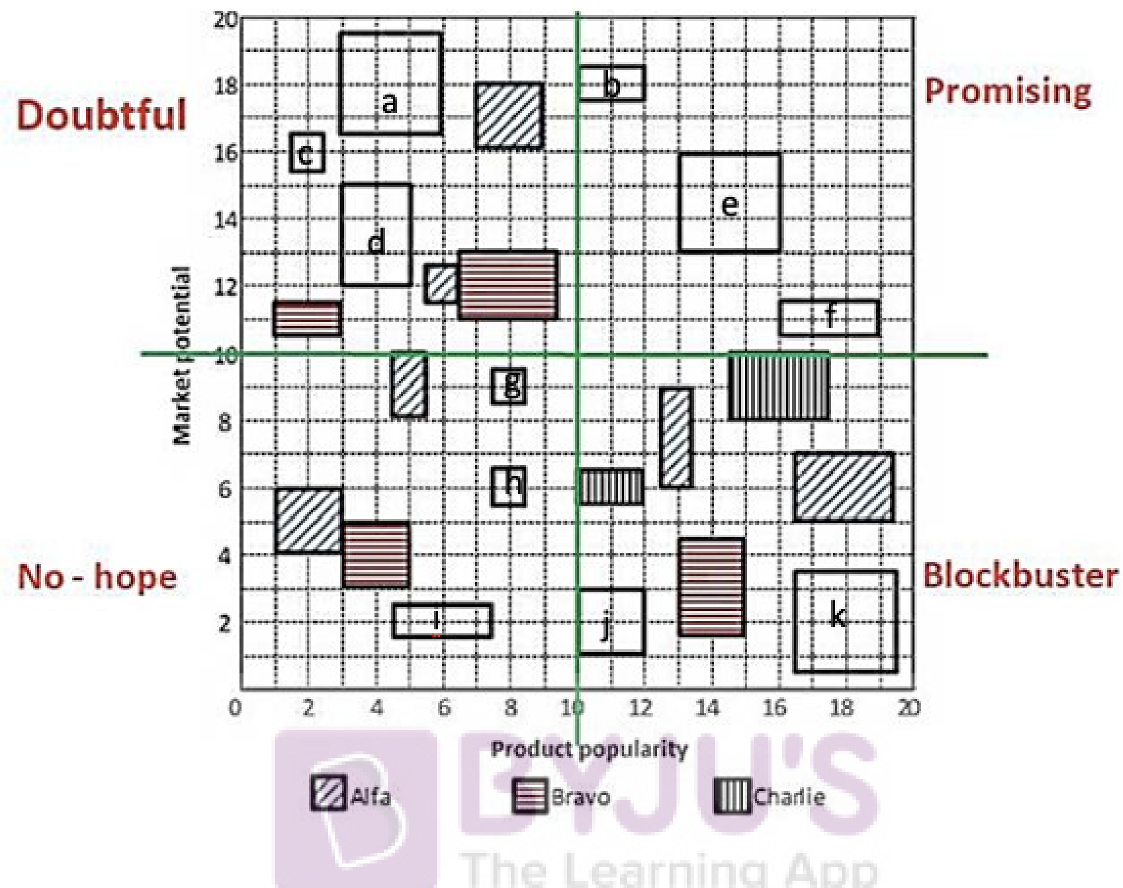
C. Doubtful

D. Promising

Answer ||| B

Solution |||

Let us divide the given figure in four quadrants (Q1, Q2, Q3, Q4).



The letters correspond to the given companies.

Alfa	**b, c, d, g/h**
Bravo	**a, f, j**
Charlie	**e, h/g, i, k**

Areas of the categories:
No hope = 4 + 4 + 3 + 2 + 1 + 1 = 15
Blockbuster = 2 + 4 + 3 + 6 + 6 + 6 + 9 = 36
Doubtful = 2 + 1 + 6 + 6 + 1 + 9 + 4 = 29
Promising = 2 + 9 + 3 = 14
Since, area is proportional to the revenue, blockbuster had the highest revenue.

22.Which of the following is the correct sequence of numbers of products Bravo had in No-hope, Doubtful, Promising and Blockbuster categories respectively?

A. 1, 3, 1, 2
B. 1, 3, 1, 3

C. 3, 3, 1, 2
D. 2, 3, 1, 2

Answer ||| A

Bravo had in No–hope, Doubtful, Promising and Blockbuster categories respectively = 1, 3, 1, 2. Hence, option A is the correct answer.

23.Which of the following statements is NOT correct?

A. Alfa's revenue from Blockbuster products was the same as Charlie's revenue from Promising products
B. Bravo's revenue from Blockbuster products was greater than Alfa's revenue from Doubtful products
C. Bravo and Charlie had the same revenues from No-hope products
D. The total revenue from No-hope products was less than the total revenue from Doubtful products

Answer ||| B

Solution |||

Let us go from the options:

Option (A): Alfa's revenue from Blockbuster products was the same as Charlie's revenue from Promising products Alfa's revenue from Blockbuster products = 6 + 3 = 9 units.

Charlie's revenue from Promising products = 9 units. Hence, this statement is true.

Option (B): Bravo's revenue from Blockbuster products was greater than Alfa's revenue from Doubtful products.

Bravo's revenue from Blockbuster products = 6 + 4 = 10 units.

Alfa's revenue from Doubtful products = 6 + 4 + 1 + 1 = 12 units. Hence, this statement is false.

Option (C): Bravo and Charlie had the same revenues from No-hope products.

Bravo's revenue from No-hope products = 4 units.

Charlie's revenue from No-hope products = 3 + 1 = 4 units. Hence, this statement is true.

Option (D): The total revenue from No-hope products was less than the total revenue from Doubtful products

Revenue generated by the products in Doubtful category = 1 + 9 + 4 + 6 + 2 + 1 + 6 = 29 units.

Revenue generated by the products in No-hope category = 4 + 4 + 3 + 2 + 1 + 1 = 15 units. Hence, this statement is true.

Hence, option B is the correct answer.

24.If the smallest box on the grid is equivalent to revenue of Rs.1 crore, then what approximately was the total revenue of Bravo in Rs. crore?

A. 40
B. 24
C. 34
D. 30

Answer ||| C

Solution |||

Total revenue generated by Bravo products alone = From Blockbuster + From No-hope + From Doubtful + From Promising

$\Rightarrow (6 + 4) + (4) + (9 + 6 + 2) + (3) = 34$ units

One box is equivalent to Rs. 1 crore .

Hence, the total revenue generated by Bravo = Rs. 34 crores. Hence, option C is the correct answer.

###TOPIC###Data Interpretation||Mixed Charts and Graphs||Mixed Charts and Graphs###

25.

|||Common|||

Direction: Seven candidates, Akil, Balaram, Chitra, Divya, Erina, Fatima, and Ganeshan, were invited to interview for a position. Candidates were required to reach the venue before 8 am. Immediately upon arrival, they were sent to one of three interview rooms: 101, 102, and 103. The following venue log shows the arrival times for these candidates. Some of the names have not been recorded in the log and have been marked as '?'.

Time	7:10 AM	7:15 AM	7:25 AM	7:30 AM	7:40 AM	7:45 AM
Person	Akil, ?	?	?	Chitra	Fatima	?

Additionally here are some statements from the candidates:

Balaram: I was the third person to enter Room 101.

Chitra: I was the last person to enter the room I was allotted to.

Erina: I was the only person in the room I was allotted to.

Fatima: Three people including Akhil were already in the room that I was allotted to when I entered it.

Ganeshan : I was one among the two candidates allotted to Room 102.

|||End|||
What best can be said about the room to which Divya was allotted?A. Definitely Room 101
B. Definitely Room 103
C. Definitely Room 102
D. Either Room 101 or Room 102

Answer ||| A

Solution |||

Balram - 3rd to enter 101.
Erina – either 102 or 103.
3 persons entered before Fatima, hence, Akil and Fatima entered 101.
Ganeshan and another person entered 102.
Hence, only Erina entered 103.
Chitra was the last to enter, hence she entered with Ganeshan to room 102.
Divya was the 2nd to enter 101.

101	102	103
Akil (7:10)	Ganeshan	Erina(7:45)
Divya	Chitra(7:30)	
Balaram		
Fatima(7:40)		

From the table we can see that Divya was allotted room no 101. Hence, option A is the correct answer.

26.Who else was in Room 102 when Ganeshan entered?

A. Akil
B. Divya
C. Chitra
D. No one

Answer ||| D

Solution |||

Balram - 3rd to enter 101.
Erina – either 102 or 103.
3 persons entered before Fatima, hence, Akil and Fatima entered 101.
Ganeshan and another person entered 102.
Hence, only Erina entered 103.
Chitra was the last to enter, hence she entered with Ganeshan to room 102.
Divya was the 2nd to enter 101.

101	102	103
Akil (7:10)	Ganeshan	Erina(7:45)
Divya	Chitra(7:30)	
Balaram		
Fatima(7:40)		

From the table we can see that Ganeshan is the first person to enter room 102. Hence, option D is the correct answer.

27.When did Erina reach the venue?

A. 7:45 am
B. 7:25 am
C. 7:15 am
D. 7:10 am

Answer ||| A

Solution |||

Balram - 3rd to enter 101.
Erina – either 102 or 103.
3 persons entered before Fatima, hence, Akil and Fatima entered 101.
Ganeshan and another person entered 102.
Hence, only Erina entered 103.
Chitra was the last to enter, hence she entered with Ganeshan to room 102.
Divya was the 2nd to enter 101.

101	102	103
Akil (7:10)	Ganeshan	Erina(7:45)
Divya	Chitra(7:30)	
Balaram		
Fatima(7:40)		

From the table we can see that Erina reached the venue at 7:45 am. Hence, option A is the correct answer.

28.If Ganeshan entered the venue before Divya, when did Balaram enter the venue?

A. 7:25 am
B. 7:10 am
C. 7:15 am
D. 7:45 am

Answer ||| A

Solution |||

Balram - 3rd to enter 101.
Erina – either 102 or 103.
3 persons entered before Fatima, hence, Akil and Fatima entered 101.
Ganeshan and another person entered 102.
Hence, only Erina entered 103.
Chitra was the last to enter, hence she entered with Ganeshan to room 102.
Divya was the 2nd to enter 101.

101	102	103
Akil (7:10)	Ganeshan	Erina(7:45)
Divya	Chitra(7:30)	
Balaram		
Fatima(7:40)		

Ganeshan entered the venue before Divya. Hence, Ganeshan must have entered with Akhil at 7:10 am. In that case, Divya and Balaram must have entered at 7:15 am and 7:25 am respectively. Hence, option A is the correct answer.

###TOPIC###Logical Reasoning||Logical Sequence||Logical Sequence###

29.

|||Common|||

Direction: There are only four brands of entry level smartphones called Azra, Bysi, Cxqi, and Dipq in a country. Details about their market share, unit selling price, and profitability (defined as the profit as a percentage of the revenue) for the year 2016 are given in the table below:

Brand	Market Share (%)	Unit Selling Price (Rs.)	Profitability (%)
Azra	40	15,000	10
Bysi	25	20,000	30
Cxqi	15	30,000	40
Dipq	20	25,000	30

In 2017, sales volume of entry level smartphones grew by 40% as compared to that in 2016. Cxqi offered a 40% discount on its unit selling price in 2017, which resulted in a 15% increase in its market share. Each of the other three brands lost 5% market share. However, the profitability of Cxqi came down to half of its value in 2016. The unit selling prices of the other three brands and their profitability values remained the same in 2017 as they were in 2016

|||End|||
The brand that had the highest revenue in 2016 is:
A. Cxqi
B. Bysi
C. Azra
D. Dipq

Answer ||| C

Solution |||

Let '100a' be the number of smartphones sold in 2016.

Total revenue generated by Azra = 40a * 15000 = Rs. 600000a

Total revenue generated by Bysi = 25a * 20000 = Rs. 500000a

Total revenue generated by Cxqi = 15a * 30000 = Rs. 450000a

Total revenue generated by Dipq = 20a * 25000 = Rs. 500000a

We can see that revenue generated by Azra is the highest among all four brands. Hence, option C is the correct answer.

30.The brand that had the highest profit in 2016 is:

A. Bysi
B. Dipq

C. Cxqi
D. Azra

Answer ||| C

Solution |||

Let '100a' be the number of smartphones sold in 2016.

Total revenue generated by Azra = 40a * 15000 = Rs. 600000a

Profitability is defined as the profit as a percentage of the revenue. Therefore, profit generated by Azra = $\frac{10}{100}$ * 600000a = Rs. 60000a

Total revenue generated by Bysi = 25a * 20000 = Rs. 500000a

Profit generated by Bysi = $\frac{30}{100}$ * 500000a = Rs. 150000a

Total revenue generated by Cxqi = 15a * 30000 = Rs. 450000a

Profit generated by Cxqi = $\frac{40}{100}$ * 450000a = Rs. 180000a

Total revenue generated by Dipq = 20a * 25000 = Rs. 500000a

Profit generated by Dipq = $\frac{30}{100}$ * 500000a = Rs. 150000a

We can see that profit generated by Cxqi is the highest among all four brands.
Hence, option C is the correct answer.

31.The brand that had the highest profit in 2017 is:

A. Bysi
B. Azra
C. Cxqi
D. Dipq

Answer ||| A

Solution |||

Let '100a' be the number of smartphones sold in 2016. Then the number of smartphones sold in 2017 = 1.4*100a = 140a

It is given that Cxqi offered a 40% discount on its unit selling price in 2017 i.e., selling price in 2017 = 0.6*30000 = Rs. 18000

Also Cxqi's merket share increased by 15% whereas the other three brands lost 5% market share.

Brand	Maket Share (%)	No of units	Unit Selling Price (Rs.)	Profitibility(%)
Azra	35	49x	15,000	10
Bysi	20	28x	20,000	30
Cxqi	30	42x	18,000	20
Dipq	15	21x	25,000	30

Amount of profit generated by Azra = $\frac{10}{100}$ * 15000 * 49a = 73500a

Amount of profit generated by Bysi = $\frac{30}{100}$ * 20000 * 28a = 168000a

Amount of profit generated by Cxqi = $\frac{20}{100}$ * 18000 * 42a = 151200a

Amount of profit generated by Dipq = $\frac{30}{100}$ * 25000 * 21a = 157500a

We can see that brand Bysi generated maximum profit in 2017. Hence, option A is the correct answer.

32.The complete list of brands whose profits went up in 2017 from 2016 is:

A. Azra, Bysi, Dipq
B. Cxqi, Azra, Dipq
C. Azra, Bysi, Cxqi
D. Bysi, Cxqi, Dipq

Answer ||| A

Solution |||

Let '100a' be the number of smartphones sold in 2016.

Total revenue generated by Azra = 40a * 15000 = Rs. 600000a

Profitability is defined as the profit as a percentage of the revenue. Therefore, profit generated by Azra = $\frac{10}{100}$ * 600000a = Rs. 60000a

Total revenue generated by Bysi = 25a * 20000 = Rs. 500000a

Profit generated by Bysi = $\frac{30}{100}$ * 500000a = Rs. 150000a

Total revenue generated by Cxqi = 15a * 30000 = Rs. 450000a

Profit generated by Cxqi = $\frac{40}{100}$ * 450000a = Rs. 180000a

Total revenue generated by Dipq = 20a * 25000 = Rs. 500000a

Profit generated by Dipq = $\frac{30}{100}$ * 500000a = Rs. 150000a

It is given that the market sales increased by 40%. Hence, the number of smartphones sold in 2017 = 140% * 100a = 140a

It is given that Cxqi offered a 40% discount on its unit selling price in 2017 i.e., selling price in 2017 = 60% * 30000 = Rs. 18000

Also, Cxqi's merket share increased by 15% whereas the other three brands lost 5% market share.

Brand	Maket Share (%)	No of units	Unit Selling Price (Rs.)	Profitibility(%)
Azra	35	49x	15,000	10
Bysi	20	28x	20,000	30
Cxqi	30	42x	18,000	20
Dipq	15	21x	25,000	30

Amount of profit generated by Azra = $\frac{10}{100}$ * 15000 * 49a = 73500a

Amount of profit generated by Bysi = $\frac{30}{100}$ * 20000 * 28a = 168000a

Amount of profit generated by Cxqi = $\frac{20}{100}$ * 18000 * 42a = 151200a

Amount of profit generated by Dipq = $\frac{30}{100}$ * 25000 * 21a = 157500a

We can see that profit of brands Azra, Bysi and Dipq increased in the year 2017 as compared to 2016. Hence, option A is the correct answer.

###TOPIC###Data Interpretation||Tables||Tables###