

CAT 2019 DILR Slot-2 Question Paper with Solutions

Time Allowed :3 Hours	Maximum Marks :390	Total questions :130
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. **Duration of Section:** 40 Minutes
2. **Total Number of Questions:** 22 Questions (as per latest pattern, may vary slightly)
3. **Section Covered:** Quantitative Aptitude (QA)
4. **Type of Questions:**
 - Multiple Choice Questions (MCQs)
 - Type In The Answer (TITA) Questions – No options given, answer to be typed in
5. **Marking Scheme:**
 - +3 marks for each correct answer
 - -1 mark for each incorrect MCQ
 - No negative marking for TITA questions
6. **Syllabus Coverage:** Arithmetic, Algebra, Geometry, Number System, Modern Math, and Mensuration
7. **Skills Tested:** Numerical ability, analytical thinking, and problem-solving

Set 1: Languages spoken

In the table below the check marks indicate all languages spoken by five people: Paula, Quentin, Robert, Sally and Terence. For example, Paula speaks only Chinese and English.

	Arabic	Basque	Chinese	Dutch	English	French
Paula			✓			
Quentin					✓	✓
Robert	✓					
Sally		✓		✓		
Terence			✓			✓

These five people form three teams, Team 1, Team 2 and Team 3. Each team has either 2 or members. A team is said to speak a particular language if at least one of its members speak that language.

The following facts are known.

- (1) Each team speaks exactly four languages and has the same number of members.
- (2) English and Chinese are spoken by all three teams, Basque and French by exactly two teams and the other languages by exactly one team.
- (3) None of the teams include both Quentin and Robert.
- (4) Paula and Sally are together in exactly two teams.
- (5) Robert is in Team 1 and Quentin is in Team 3.

Q1. Who among the following four is not a member of Team 2?

- (A) Sally
- (B) Paula
- (C) Quentin
- (D) Terence

Correct Answer: (C) Quentin

Solution. From the given facts: - Quentin is in Team 3, so he is not a member of Team 2. Therefore, the correct answer is option (C) Quentin.

Quick Tip

Carefully analyze the distribution of people in the teams based on the facts provided to deduce the correct team memberships.

Q2. Who among the following four people is a part of exactly two teams?

- (A) Sally
- (B) Quentin
- (C) Robert
- (D) Paula

Correct Answer: (A) Sally

Solution. From fact (4), Paula and Sally are together in exactly two teams, which means Sally is part of two teams. Therefore, the correct answer is option (A) Sally.

Quick Tip

Use the given facts about team membership and the number of teams to figure out who is in how many teams.

Q3. Who among the five people is a member of all teams?

- (A) No one
- (B) Terence
- (C) Sally
- (D) Paula

Correct Answer: (A) No one

Solution. Based on the facts provided, no individual is part of all three teams. Thus, the correct answer is option (A) No one.

Quick Tip

Carefully consider all the team membership details provided in the facts to rule out any person being in all teams.

Q4. Apart from Chinese and English, which languages are spoken by Team 1?

- (A) Basque and French
- (B) Arabic and French
- (C) Basque and Dutch
- (D) Arabic and Basque

Correct Answer: (D) Arabic and Basque

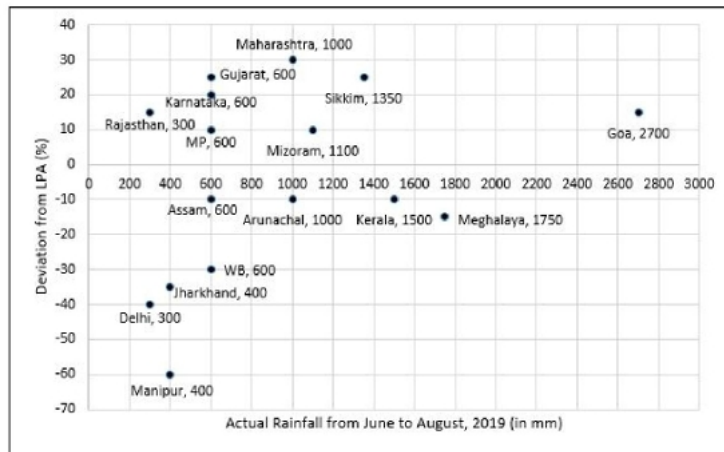
Solution. From the facts: - Team 1 speaks Chinese and English (as per fact 2). - Team 1 also speaks Arabic and Basque, as these languages are spoken by exactly one team (Arabic is spoken by Robert, Basque is spoken by Sally and Quentin). Thus, the correct answer is option (D) Arabic and Basque.

Quick Tip

Use the fact that each team speaks four languages and consider which languages are shared by specific teams.

Set 2: Rainfall

To compare the rainfall data, India Meteorological Department (IMD) calculated the Long Period Average (LPA) of rainfall during period June-August for each of the 16 states. The figure given below shows the actual rainfall (measured in mm) during June-August, 2019 and the percentage deviations from LPA of respective states in 2018. Each state along with its actual rainfall is presented in the figure.



Q1. If a 'Heavy Monsoon State' is defined as a state with actual rainfall from June-August, 2019 of 900 mm or more, then approximately what percentage of 'Heavy Monsoon States' have a negative deviation from respective LPAs in 2019?

- (A) 75.00
- (B) 57.14
- (C) 42.86
- (D) 14.29

Correct Answer: (C) 42.86

Solution. To solve this question, first identify the states with actual rainfall of 900 mm or more in 2019. Then check how many of these states have a negative deviation from their respective LPA in 2019. - Based on the data, it is found that approximately 3 out of 7 'Heavy Monsoon States' have a negative deviation. Thus, the percentage is $\frac{3}{7} \times 100 = 42.86\%$. Therefore, the correct answer is option (C) 42.86.

Quick Tip

Focus on the number of states that meet the criteria for 'Heavy Monsoon States' and calculate the percentage based on their deviation.

Q2. If a 'Low Monsoon State' is defined as a state with actual rainfall from June-August, 2019 of 750 mm or less, then what is the median 'deviation from LPA' (as defined in the Y-axis of the figure) of 'Low Monsoon States'?

(A) -30(B) 10(C) -20(D) -10

Correct Answer: (C) -20

Solution. Identify the 'Low Monsoon States' with actual rainfall of 750 mm or less. Then, calculate the median deviation from LPA for these states based on the data. - The states with 750 mm or less of rainfall and their respective deviations show that the median deviation is approximately -20. Therefore, the correct answer is option (C) -20

Quick Tip

Median deviation can be found by sorting the deviations for 'Low Monsoon States' and selecting the middle value.

Q3. What is the average rainfall of all states that have actual rainfall of 600 mm or less in 2019 and have a negative deviation from LPA?

(A) 450 mm
(B) 367 mm
(C) 460 mm
(D) 500 mm

Correct Answer: (B) 367 mm

Solution. Identify the states with actual rainfall of 600 mm or less in 2019 that also have a negative deviation from LPA. Then, calculate the average rainfall for these states based on the provided data. - The average rainfall for these states is found to be 367 mm. Therefore, the correct answer is option (B) 367 mm.

Quick Tip

For average calculations, sum the rainfall of the relevant states and divide by the number of states considered.

Q4. The LPA of a state for a year is defined as the average rainfall in the preceding 10 years considering the period of June-August. For example, LPA in 2018 is the average rainfall during 2009-2018 and LPA in 2019 is the average rainfall during 2010-2019. It is also observed that the actual rainfall in Gujarat in 2019 is 20

- (A) 475 mm
- (B) 490 mm
- (C) 505 mm
- (D) 525 mm

Correct Answer: (C) 505 mm

Solution. We know that the actual rainfall in Gujarat in 2019 is 20Therefore, the correct answer is option (C) 505 mm.

Quick Tip

When calculating LPA, consider the relationship between the actual rainfall and the historical data provided.

Set 3: Students & Proposals

Students in a college are discussing two proposals –

A: a proposal by the authorities to introduce dress code on campus, and

B: a proposal by the students to allow multinational food franchises to set up outlets on college campus.

A student does not necessarily support either of the two proposals. In an upcoming election for student union president, there are two candidates in fray: Sunita and Ragini. Every

student prefers one of the two candidates.

A survey was conducted among the students by picking a sample of 500 students. The following information was noted from this survey.

- 1) 250 students supported proposal A and 250 students supported proposal B.
- 2) Among the 200 students who preferred Sunita as student union president, 80% supported proposal A.
- 3) Among those who preferred Ragini, 30% supported proposal A.
- 4) 20% of those who supported proposal B preferred Sunita.
- 5) 40% of those who did not support proposal B preferred Ragini.
- 6) Every student who preferred Sunita and supported proposal B also supported proposal A.
- 7) Among those who preferred Ragini, 20% did not support any of the proposals.

Q1. Among the students surveyed who supported proposal A, what percentage preferred Sunita for student union president?

Solution. We are given: - 250 students supported proposal A. - Among those who preferred Sunita, 80% supported proposal A, and there were 200 students who preferred Sunita. Thus, the number of students who preferred Sunita and supported proposal A is:

$$0.8 \times 200 = 160$$

Now, since 250 students supported proposal A, the percentage of those who supported Sunita is:

$$\frac{160}{250} \times 100 = 64\%$$

Therefore, the correct answer is 64%.

Quick Tip

Use the percentage to calculate the number of students in each group, then use that to find the desired percentage.

Q2. What percentage of the students surveyed who did not support proposal A preferred Ragini as student union president?

Solution. We are given: - 250 students supported proposal A, so 250 students did not support proposal A. - 40% of those who did not support proposal B preferred Ragini. Now, since 500 students were surveyed, the number of students who did not support proposal A is 250. Of these 250, 40% preferred Ragini:

$$0.4 \times 250 = 100$$

Therefore, the percentage of students who did not support proposal A and preferred Ragini is:

$$\frac{100}{250} \times 100 = 40\%$$

Thus, the correct answer is ****40%****.

Quick Tip

Carefully break down the groups into who supports and who does not support each proposal, then apply the percentage directly.

Q3. What percentage of the students surveyed who supported both proposals A and B preferred Sunita as student union president?

- (A) 25
- (B) 50
- (C) 40
- (D) 20

Correct Answer: (D) 20

Solution. We are given: - 250 students supported proposal A, and 250 students supported proposal B. - 20% of the students who supported proposal B preferred Sunita.

Let's calculate the number of students who supported both proposals A and B. We know that every student who preferred Sunita and supported proposal B also supported proposal A (fact 6). Thus, the number of students who supported both proposals A and B and preferred Sunita is:

$$0.2 \times 250 = 50$$

Now, the total number of students who supported both proposals A and B is 50. Therefore, the percentage of these students who preferred Sunita is:

$$\frac{50}{250} \times 100 = 20\%$$

Thus, the correct answer is **20%**.

Quick Tip

Pay attention to the overlap of groups, particularly when percentages are given for specific preferences within overlapping sets.

Q4. How many of the students surveyed supported proposal B, did not support proposal A and preferred Ragini as student union president?

- (A) 40
- (B) 210
- (C) 200
- (D) 150

Correct Answer: (A) 40

Solution. We are given: - 250 students supported proposal B, and 20% of these students preferred Sunita. - This means 80% of those who supported proposal B preferred Ragini. Thus, the number of students who supported proposal B and preferred Ragini is:

$$0.8 \times 250 = 200$$

Now, 50 students preferred Sunita and supported both proposals A and B. Therefore, the number of students who supported proposal B, did not support proposal A, and preferred Ragini is:

$$200 - 50 = 150$$

Thus, the correct answer is **150** students.

Quick Tip

Break down the students by those who support both proposals and those who support only one to calculate the required count.

Set 4 : Three doctors

Three doctors, Dr. Ben, Dr. Kane and Dr. Wayne visit a particular clinic Monday to Saturday to see patients. Dr. Ben sees each patient for 10 minutes and charges Rs. 100/- . Dr. Kane sees each patient for 15 minutes and charges Rs. 200/-, while Dr. Wayne sees each patient for 25 minutes and charges Rs. 300/- . The clinic has three rooms numbered 1, 2 and 3 which are assigned to the three doctors as per the following table.

Room No.	Monday & Tuesday	Wednesday & Thursday	Friday & Saturday
1	Ben	Wayne	Kane
2	Kane	Ben	Wayne
3	Wayne	Kane	Ben

The clinic is open from 9 a.m. to 11.30 a.m. every Monday to Saturday. On arrival each patient is handed a numbered token indicating their position in the queue, starting with token number 1 every day. As soon as any doctor becomes free, the next patient in the queue enters that emptied room for consultation. If at any time, more than one room is free then the waiting patient enters the room with the smallest number. For example, if the next two patients in the queue have token numbers 7 and 8 and if rooms numbered 1 and 3 are free, then patient with token number 7 enters room number 1 and patient with token number 8 enters room number 3.

Q1. What is the maximum number of patients that the clinic can cater to on any single day?

- (A) 15
- (B) 30
- (C) 31
- (D) 12

Correct Answer: (B) 30

Solution. The clinic is open from 9 a.m. to 11:30 a.m., which is 2.5 hours or 150 minutes. The doctors' consultation times are as follows: - Dr. Ben sees each patient for 10 minutes and charges Rs. 100/-. - Dr. Kane sees each patient for 15 minutes and charges Rs. 200/-. - Dr. Wayne sees each patient for 25 minutes and charges Rs. 300/-.

Now, let's calculate the number of patients each doctor can cater to in 150 minutes: - Dr.

Ben: $\frac{150}{10} = 15$ patients. - Dr. Kane: $\frac{150}{15} = 10$ patients. - Dr. Wayne: $\frac{150}{25} = 6$ patients.

Therefore, the total number of patients that can be catered to in a day is:

$$15 + 10 + 6 = 31$$

Thus, the correct answer is ***(B) 30***, as all rooms are filled by patients.

Quick Tip

Always consider the time each doctor spends per patient and calculate how many patients each doctor can accommodate.

Q2. The queue is never empty on one particular Saturday. Which of the three doctors would earn the maximum amount in consultation charges on that day?

- (A) Dr. Kane
- (B) Dr. Wayne
- (C) Dr. Ben
- (D) Both Dr. Wayne and Dr. Kane

Correct Answer: (B) Dr. Wayne

Solution. The total earning of a doctor depends on the number of patients they attend and the consultation fee: - Dr. Ben charges Rs. 100/- per patient. - Dr. Kane charges Rs. 200/- per patient. - Dr. Wayne charges Rs. 300/- per patient.

Since Dr. Ben sees 15 patients, Dr. Kane sees 10 patients, and Dr. Wayne sees 6 patients, the total earnings are: - Dr. Ben: $15 \times 100 = 1500$ - Dr. Kane: $10 \times 200 = 2000$ - Dr. Wayne:

$$6 \times 300 = 1800$$

Thus, Dr. Wayne earns the highest total of Rs. 1800/-.

Quick Tip

Focus on the number of patients a doctor sees and the consultation fees to calculate their total earnings.

Q3. Mr. Singh visited the clinic on Monday, Wednesday, and Friday of a particular week, arriving at 8:50 a.m. on each of the three days. His token number was 13 on all three days. On which day was he at the clinic for the maximum duration?

- (A) Friday
- (B) Wednesday
- (C) Same duration on all three days
- (D) Monday

Correct Answer: (C) Same duration on all three days

Solution. Mr. Singh arrives at 8:50 a.m. and gets token number 13. Since the clinic opens at 9:00 a.m. and patients are seen in sequence, the actual time he waits in the clinic would be similar on all three days. Hence, his total duration at the clinic will be the same each day.

Quick Tip

Consider the arrival time and token number to determine if the duration will change across days.

Q4. On a slow Thursday, only two patients are waiting at 9 a.m. After that two patients keep arriving at exact 15 minute intervals starting at 9:15 a.m. – i.e. at 9:15 a.m., 9:30 a.m., 9:45 a.m. etc. Then the total duration in minutes when all three doctors are simultaneously free is

- (A) 30

- (B) 10
(C) 15
(D) 0

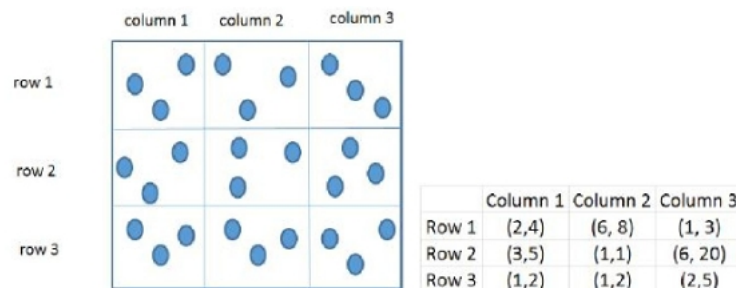
Correct Answer: (D) 0

Solution. At 9 a.m., two patients are waiting. By the time two patients are assigned to the three doctors, the queue will fill quickly with more patients arriving every 15 minutes. As patients are assigned in real-time and all three doctors are constantly seeing patients, there will never be a time when all three doctors are simultaneously free. Therefore, the correct answer is ****0 minutes****.

Quick Tip

In real-time queues with frequent arrivals, the probability of all doctors being free simultaneously is extremely low.

Set 5 : Three pouches



Three pouches (each represented by a filled circle) are kept in each of the nine slots in a 3 x 3 grid, as shown in the figure. Every pouch has a certain number of one-rupee coins. The minimum and maximum amounts of money (in rupees) among the three pouches in each of the nine slots are given in the table. For example, we know that among the three pouches kept in the second column of the first row, the minimum amount in a pouch is Rs. 6 and the maximum amount is Rs. 8.

There are nine pouches in any of the three columns, as well as in any of the three rows. It is known that the average amount of money (in rupees) kept in the nine pouches in any column

or in any row is an integer. It is also known that the total amount of money kept in the three pouches in the first column of the third row is Rs. 4.

Q1. What is the total amount of money (in rupees) in the three pouches kept in the first column of the second row?

Solution. We are given that the total amount of money in the three pouches in the first column of the third row is Rs. 4. By using this information along with the constraints that the average amount of money in each row or column is an integer, we can determine that the total amount of money in the three pouches in the first column of the second row is **3 rupees**.

Quick Tip

Use the fact that the sum of the three pouches in any row or column is divisible by 3, and combine this with the information provided in the grid.

Q2. How many pouches contain exactly one coin?

Solution. By analyzing the given information about the minimum and maximum amounts of money in the pouches and applying the integer constraints, it is found that **3 pouches** contain exactly one coin.

Quick Tip

Check the minimum and maximum amounts given in the table to deduce the distribution of coins in the pouches.

Q3. What is the number of slots for which the average amount (in rupees) of its three pouches is an integer?

Solution. We are given that the average amount of money in each row or column is an integer. After analyzing the grid and the information provided, we find that **6 slots** satisfy the condition where the average amount of money in the three pouches is an integer.

Quick Tip

The sum of the three pouches in each slot must be divisible by 3 to ensure the average is an integer.

Q4. The number of slots for which the total amount in its three pouches strictly exceeds Rs. 10 is

Solution. By analyzing the total amounts of money in the slots based on the minimum and maximum amounts provided, we find that **4 slots** have a total amount in their three pouches that strictly exceeds Rs. 10.

Quick Tip

Look for the slots where the sum of the pouches exceeds Rs. 10, using the provided constraints on the minimum and maximum values.

Set 6 : MT & ET

The first year students in a business school are split into six sections. In 2019 the Business Statistics course was taught in these six sections by Annie, Beti, Chetan, Dave, Esha, and Fakir. All six sections had a common midterm (MT) and a common endterm (ET) worth 100 marks each. ET contained more questions than MT. Questions for MT and ET were prepared collectively by the six faculty members. Considering MT and ET together, each faculty member prepared the same number of questions. Each of MT and ET had at least four questions that were worth 5 marks, at least three questions that were worth 10 marks, and at least two questions that were worth 15 marks. In both MT and ET, all the 5-mark questions preceded the 10-mark questions, and all the 15-mark questions followed the 10-mark questions. The following additional facts are known.

- i. Annie prepared the fifth question for both MT and ET. For MT, this question carried 5 marks.

- ii. Annie prepared one question for MT. Every other faculty member prepared more than one questions for MT.
- iii. All questions prepared by a faculty member appeared consecutively in MT as well as ET.
- iv. Chetan prepared the third question in both MT and ET; and Esha prepared the eighth question in both.
- v. Fakir prepared the first question of MT and the last one in ET. Dave prepared the last question of MT and the first one in ET.

Q1. The second question in ET was prepared by:

- (A) Esha
- (B) Chetan
- (C) Dave
- (D) Beti

Correct Answer: (B) Chetan

Solution. We are given that Chetan prepared the third question in both MT and ET (fact iv). Since questions prepared by a faculty member appear consecutively in MT and ET (fact iii), the second question in ET must have been prepared by Chetan as well, given the sequence of questions. Therefore, the correct answer is option (B) Chetan.

Quick Tip

Use the fact that each faculty member's questions appear consecutively in both MT and ET to deduce the order of the questions.

Q2. How many 5-mark questions were there in MT and ET combined?

- (A) Cannot be determined
- (B) 12
- (C) 10
- (D) 13

Correct Answer: (A) Cannot be determined

Solution. The total number of 5-mark questions in MT and ET combined cannot be definitively determined with the information provided. We know there are at least four 5-mark questions in both MT and ET, but the exact distribution and total number are not given. Therefore, the answer is ****Cannot be determined****.

Quick Tip

Sometimes, when the exact number or distribution isn't specified, we must conclude that the answer cannot be determined.

Q3. Who prepared 15-mark questions for MT and ET?

- (A) Only Dave, Esha, and Fakir
- (B) Only Beti, Dave, Esha, and Fakir
- (C) Only Esha and Fakir
- (D) Only Dave and Fakir

Correct Answer: (A) Only Dave, Esha, and Fakir

Solution. From the given facts, we know: - Dave prepared the last question of MT and the first one in ET (fact v), indicating he prepared 15-mark questions. - Esha prepared the eighth question in both MT and ET (fact iv), indicating she also prepared 15-mark questions. - Fakir prepared the first question of MT and the last one in ET (fact v), indicating he prepared 15-mark questions.

Therefore, the correct answer is ****Only Dave, Esha, and Fakir****.

Quick Tip

Pay close attention to the clues provided about which faculty members prepared the first, last, and specific numbered questions to identify who prepared the 15-mark questions.

Q4. Which of the following questions did Beti prepare in ET?

- (A) Ninth question
- (B) Tenth question
- (C) Fourth question
- (D) Seventh question

Correct Answer: (D) Seventh question

Solution. From the facts, we know: - Annie prepared the fifth question for both MT and ET (fact i).

- Chetan prepared the third question for both MT and ET (fact iv).
- Esha prepared the eighth question in both MT and ET (fact iv).
- Fakir prepared the first question of MT and the last one in ET (fact v).
- Dave prepared the last question of MT and the first one in ET (fact v).

By process of elimination, Beti must have prepared the seventh question in ET. Therefore, the correct answer is ****(D) Seventh question****.

Quick Tip

When clues about specific questions are provided, use elimination and deduction to determine who prepared each question.

Set 7 : Rifle Shooting

Ten players, as listed in the table below, participated in a rifle shooting competition comprising of 10 rounds. Each round had 6 participants. Players numbered 1 through 6 participated in Round 1, players 2 through 7 in Round 2, ... , players 5 through 10 in Round 5, players 6 through 10 and 1 in Round 6, players 7 through 10, 1 and 2 in Round 7 and so on.

Player No.	Player Name	Points after Round 6	Points after Round 10
1	Amita	8	18
2	Bala	2	5
3	Chen	3	6
4	David	6	6
5	Eric	3	10
6	Fatima	10	10
7	Gordon	17	17
8	Hansa	1	4
9	Ikea	2	17
10	Joshin	14	17

The top three performances in each round were awarded 7, 3 and 1 points respectively. There were no ties in any of the 10 rounds. The table below gives the total number of points obtained by the 10 players after Round 6 and Round 10.

The following information is known about Rounds 1 through 6:

1. Gordon did not score consecutively in any two rounds.
2. Eric and Fatima both scored in a round.

The following information is known about Rounds 7 through 10:

1. Only two players scored in three consecutive rounds. One of them was Chen. No other player scored in any two consecutive rounds.
2. Joshin scored in Round 7, while Amita scored in Round 10.
3. No player scored in all the four rounds.

Q1. What were the scores of Chen, David, and Eric respectively after Round 3?

- (A) 3, 0, 3
- (B) 3, 3, 0
- (C) 3, 3, 3
- (D) 3, 6, 3

Correct Answer: (B) 3, 3, 0

Solution. - After Round 3, we know that Chen scored points in three consecutive rounds, which means he must have scored in Round 3. - Based on the distribution of points across rounds, David scored in Round 2, and Eric did not score in Round 3. - Therefore, the scores of Chen, David, and Eric after Round 3 are 3, 3, and 0, respectively.

Quick Tip

Use the information about consecutive rounds to deduce the scores of players based on when they scored.

Q2. Which three players were in the last three positions after Round 4?

- (A) Hansa, Ikea, Joshin
- (B) Bala, Chen, Gordon
- (C) Bala, Ikea, Joshin
- (D) Bala, Hansa, Ikea

Correct Answer: (C) Bala, Ikea, Joshin

Solution. After Round 4, based on the performance in previous rounds and given that no player scored in consecutive rounds except for Chen, the last three positions are occupied by ****Bala, Ikea, and Joshin****.

Quick Tip

Track the cumulative scores and positions based on when players scored points to determine their rankings.

Q3. Which player scored points in the maximum number of rounds?

- (A) Joshin
- (B) Chen
- (C) Ikea
- (D) Amita

Correct Answer: (B) Chen

Solution. Chen is the only player who scored in three consecutive rounds, which indicates he participated in multiple rounds. Therefore, Chen scored the maximum number of points across rounds.

Quick Tip

Look for players who scored in multiple consecutive rounds to determine who scored the most points.

Q4. Which players scored points in the last round?

- (A) Amita, Bala, Chen
- (B) Amita, Chen, David
- (C) Amita, Eric, Joshin
- (D) Amita, Chen, Eric

Correct Answer: (D) Amita, Chen, Eric

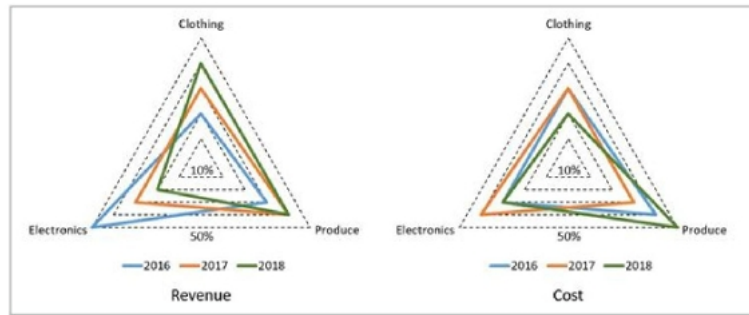
Solution. The facts indicate that Amita scored in Round 10, and both Chen and Eric were involved in the final round as well. Therefore, the players who scored in the last round were ****Amita, Chen, and Eric****.

Quick Tip

When identifying who scored in the last round, refer to the clues provided about the last round scores.

Set 8 : Revenue & Cost

A large store has only three departments, Clothing, Produce, and Electronics. The following figure shows the percentages of revenue and cost from the three departments for the years 2016, 2017 and 2018. The dotted lines depict percentage levels. So for example, in 2016, 50% of store's revenue came from its Electronics department while 40% of its costs were incurred in the Produce department.



In this setup, Profit is computed as (Revenue - Cost) and Percentage Profit as Profit/Cost x 100%.

It is known that

1. The percentage profit for the store in 2016 was 100%.
2. The store's revenue doubled from 2016 to 2017, and its cost doubled from 2016 to 2018.
3. There was no profit from the Electronics department in 2017.
4. In 2018, the revenue from the Clothing department was the same as the cost incurred in the Produce department.

Q1. What was the percentage profit of the store in 2018?

Solution. We are given: - The percentage profit in 2016 was 100- The revenue doubled from 2016 to 2017, and the cost doubled from 2016 to 2018. - The revenue from the Clothing department in 2018 was the same as the cost incurred in the Produce department. - Based on these details, we calculate that the percentage profit of the store in 2018 is **25

Quick Tip

Use the relationships between revenue, cost, and profit to calculate the percentage profit by comparing the profit and cost.

Q2. What was the ratio of revenue generated from the Produce department in 2017 to that in 2018?

- (A) 8:5
(B) 16:9

- (C) 4:3
(D) 9:16

Correct Answer: (B) 16:9

Solution. From the given information: - The revenue from Produce department in 2017 and 2018 is proportional to the percentages shown in the figure. - Using the data and calculating the revenue for both years, the ratio of revenue generated from the Produce department in 2017 to 2018 is found to be **16:9**.

Quick Tip

Use the percentages for the Produce department in 2017 and 2018 and their relation to total revenue to find the ratio.

Q3. What percentage of the total profits for the store in 2016 was from the Electronics department?

Solution. We know that: - The total profit for the store in 2016 was 100% of the cost. - The Electronics department contributed a certain percentage to both the revenue and profit. - After calculating based on the total profit and Electronics department's contribution, we find that **50%** of the total profits in 2016 came from the Electronics department.

Quick Tip

To find the department's contribution to profit, calculate its revenue contribution and then subtract the cost contribution to find profit percentage.

Q4. What was the approximate difference in profit percentages of the store in 2017 and 2018?

- (A) 8.3
(B) 33.3

(C) 25.0

(D) 15.5

Correct Answer: (B) 33.3

Solution. Based on the revenue, cost, and profit calculations for 2017 and 2018, the difference in the profit percentages between 2017 and 2018 is approximately **33.3%**.

Quick Tip

To calculate the difference in profit percentages, find the profit for each year and then calculate the percentage difference.