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Prime CAT 06 2022 DILR

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Section-1

Sec 1

Directions for questions 1 to 6: Answer the questions on the basis of the information given below.

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It is known that the number of applications approved for toilets in July, August and September which were completed in the 3rd month were 6, 8 and 9 respectively.

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February	211	11	93
March	216	16	97

Q.1 [11831809]
In which of the following months the maximum number of applications was received?

1 ◯ August

2 ◯ September

3 ◯ October

4 ◯ November

Solution:
Correct Answer : 3

Answer key/Solution

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Step 2:
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Similarly, the number of applications approved for toilets in September which was completed in November was 9. Therefore, 29 – 9 = 20 was the number of applications that were received in October and completed in November. In this way, we can find for other months.
The number of rejected applications communicated in November was 2. Therefore, number of applications received in September = 15 + 9 + 2 = 26.
Hence, the final table can be shown as:

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The maximum number of applications was received in October i.e., 35.

Bookmark FeedBack

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Q.2 [11831809]

What was the absolute difference between the number of applications received in August and September?

Solution:
Correct Answer : 14

Answer key/Solution

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The number of applications received in August = 3 + 8 + 1 = 12
The number of applications received in September = 15 + 9 + 2 = 26
Hence, required difference = 26 – 12 = 14.

Bookmark FeedBack

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Q.3 [11831809]

How many rejected applications were communicated to the applicants from October to March?

Solution:
Correct Answer : 36

Answer key/Solution

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March	5	216	7	16	9	97	4

The number of rejected applications communicated to the applicants from October to March = 1 + 2 + 11 + 12 + 6 + 4 = 36.

Bookmark FeedBack

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Q.4 [11831809]
In which of the following months, the smallest fraction of applications received were accepted?

1 ◯ October

2 ◯ November

3 ◯ December

4 ◯ January

Solution:
Correct Answer : 2

Answer key/Solution

Step 1:
Number of applications received up to March = 216
Number of applications received up to February = 211
So, number of applications received in March = 216 – 211 = 5
Similarly, we can find the number of applications received in other months till October.
Number of rejected applications communicated in March = 97 – 93 = 4.
Similarly, we can find the number of rejected applications communicated in other months till October.
The information can be shown in the table.

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The fraction for:
October = (20 + 4)/35 ≈ 0.69
November = (9 + 7)/28 ≈ 0.57
December = (5 + 8)/19 ≈ 0.68
January = (3 + 9)/16 = 0.75
Hence, required fraction is smallest for November.

Bookmark FeedBack

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Q.5 [11831809]

Let the number of toilets completed in the 2nd month be x and the number of toilets completed in the 3rd month be y. Then, which of the following months had the highest ratio of x : y for applications accepted in that month?

1 ◯ December

2 ◯ January

3 ◯ October

4 ◯ November

Solution:
Correct Answer : 3

Answer key/Solution

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Required ratio for October = 20 : 4 i.e., 5 : 1 which was highest.

Bookmark FeedBack

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Q.6 [11831809]

If the average cost per toilet was Rs 12,000, then find the total cost (in Rs. lakh) of toilets completed in the 2nd month of applications received from October to January.

1 ◯ 4.44

2 ◯ 5.88

3 ◯ 6.24

4 ◯ 4.08

Solution:
Correct Answer : 1

Answer key/Solution

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Total number of toilets completed in the 2nd month of applications received from October to January = 20 + 9 + 5 + 3 = 37
Hence, total cost = 37 × 12000 = Rs.4,44,000.

Bookmark FeedBack

Directions for question 7 to 10: Answer the questions on the basis of the information given below.

In the Delhi exhibition section of Annual trade Fair, 9 sq. m of stall is registered by the traders. There are two types of traders – A and B, wherein A register a single space of 9 sq. m and B register double space of 9 sq. m each adjacent to each other. Also, if A pays 'x' amount of rent for a single space B pays double the amount. The amount of rent for A-traders is Rs. 12,500 and the entire amount was paid at the time of registration itself. A trader registers for the space online on the official website of Trade Fair wherein the floor plan is shown to the trader. The floor plan has spaces in a single row. Every unregistered space is represented by U.

For instance, suppose 5 traders numbered 1 through 5 registers online such that 1st, 3rd and 5th are A-traders and 2nd and 4th are B-traders. At this point, the registered space would be described by the sequence 1, 2, 3, 4, 5. If certain traders later cancel their registration due to covid their allotted spaces show 'U' and can be registered to other traders. For example, if trader's 2nd and 5th later vacate their spaces the spaces would now be sequences as 1, U, U, 3, 4. If A-trader (numbered 6th) arrives subsequently followed by a B-trader (numbered 7th), the section will have the sequence 1, 6, U, 3, 4, 7.

Q.7 [11831809]

Suppose nine traders register online, of which two cancelled their registration later. Also 4th trader is an A-trader and 7th trader is B-trader. Which of the following is a POSSIBLE current configuration of the spaces in the floor plan?

1 ◯ 1, 2, 3, 5, U, 6, 9, U, 8

2 ◯ U, 2, 3, 7, 5, 6, 8, 9

3 ◯ 1, 2, 3, 6, U, 7, 8, 9

4 ◯ 9, 2, 3, U, 5, 6, 7, 8

Solution:

Answer key/Solution

Correct Answer : 4

Check options:

Option (1) is not possible as trader 4 is A-trader, so when trader 4 cancels the registration, one space will vacate and therefore, 5 occupied that space and next space must be occupied by trader 6 and it cannot be empty since the other trader who cancelled is 7 and again since its a B-trader, it will lead to two empty spaces and 9 and 8 must occupy it adjacently, which they did not. Hence, this configuration is not possible.

Option (2) is not possible as trader 7th cannot have space allotted to trader 4th since they are different types of traders.

Option (3) is also not possible. Since two traders who cancelled their registration must be 4 and 5. So next trader 6 occupied the empty slot. But then, 7, 8 or 9 must have occupied the adjacent empty slots. Option (4) is the possible current configuration of the spaces allotted (1st and 4th trader must have cancelled their registrations and then 9th trader must get the space allotted that of 1st trader.).

Bookmark FeedBack

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Q.8 [11831809]

Suppose that trader 4 is not the first trader to cancel the registration and that the sequence at a time between the registration of trader 7 and 8 is U, 7, 3, 6, 5. Then which of the following statements MUST be false?

1 ◯ Trader 2 is an A-trader.

2 ◯ Trader 7 is an A-trader.

3 ◯ Trader 4 is a B-trader.

4 ◯ Trader 6 is an A-trader.

Answer key/Solution

Solution:
Correct Answer : 4
Case 1: If the sequence of the traders who left is: 1 --> 4 ---> 2
When trader 1 left: U, 2, 3, 4, 5
Then trader 4 left: U, 2, 3, U, 5
Now, trader 6 registers: As per the sequence given, trader 6 gets alloted the slots that trader 4 had instead of trader 1, which is only possible if trader 1 is A-trader and trader 4 and 6 are B-traders.
Then trader 2 left: U, U, 3, 6, 5
Now trader 7 registers: Again, trader 7 didn't get alloted the trader 1 space. Therefore, trader 7 must also be a B-trader.
Case 2: If the sequence of the traders who left is: 2 --> 4 ---> 1
When trader 2 left: 1, U, 3, 4, 5
Then trader 4 left: 1, U, 3, U, 5
Now, trader 6 registers: As per the sequence given, trader 6 gets alloted the slots that trader 4 had instead of trader 2, which is only possible if trader 2 is A-trader and trader 4 and 6 are B-traders.
Now trader 7 register: Again, trader 7 gets alloted the trader 2 space. Therefore, trader 7 must also be a A-trader.
In both cases, trader 6 and 4 are B-traders, therefore, option (4) must be false.

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Directions for question 7 to 10: Answer the questions on the basis of the information given below.

In the Delhi exhibition section of Annual trade Fair, 9 sq. m of stall is registered by the traders. There are two types of traders – A and B, wherein A register a single space of 9 sq. m and B register double space of 9 sq. m each adjacent to each other. Also, if A pays 'x' amount of rent for a single space B pays double the amount. The amount of rent for A-traders is Rs. 12,500 and the entire amount was paid at the time of registration itself. A trader registers for the space online on the official website of Trade Fair wherein the floor plan is shown to the trader. The floor plan has spaces in a single row. Every unregistered space is represented by U.

For instance, suppose 5 traders numbered 1 through 5 registers online such that 1st, 3rd and 5th are A-traders and 2nd and 4th are B-traders. At this point, the registered space would be described by the sequence 1, 2, 3, 4, 5. If certain traders later cancel their registration due to covid their allotted spaces show 'U' and can be registered to other traders. For example, if trader's 2nd and 5th later vacate their spaces the spaces would now be sequences as 1, U, U, 3, 4. If A-trader (numbered 6th) arrives subsequently followed by a B-trader (numbered 7th), the section will have the sequence 1, 6, U, 3, 4, 7.

Q.9 [11831809]

Initially 4 traders 1 through 4 registers online among which 1st and 4th traders are B-traders while 2nd and 3rd are A-traders. Later, trader 1 cancels the registration, followed by the registration of trader 5 (A-trader) and trader 6 (B-trader). Trader 4 then cancels the registration. Then trader 7 (B-trader) and 8 (A-trader) registers. At this moment, which among the following is the amount (in Rs.) the traders whose space adjacent to the trader 3 paid while registration?

1 ◯ 12,500

2 ◯ 25,000

3 ◯ 37,500

4 ◯ Cannot be determined

Answer key/Solution

Solution:
Correct Answer : 3
According to the question, 1st, 4th, 6th and 7th traders are B-traders and 2nd, 3rd, 5th and 8th traders are A-Traders.
Now, their registrations and cancellations are described in the following steps.
I. 1, 2, 3, 4
II. U, U, 2, 3, 4
III. 5, U, 2, 3, 4
IV. 5, U, 2, 3, 4, 6
V. 5, U, 2, 3, U, U, 6
VI. 5, U, 2, 3, 7, 6
VII. 5, 8, 2, 3, 7, 6
Clearly, 7th and 2nd traders are adjacent to trader 3 and they are B-traders and A-trader respectively.
Therefore, their total amount of rent is Rs. 37,500.

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Directions for question 7 to 10: Answer the questions on the basis of the information given below.

In the Delhi exhibition section of Annual trade Fair, 9 sq. m of stall is registered by the traders. There are two types of traders – A and B, wherein A register a single space of 9 sq. m and B register double space of 9 sq. m each adjacent to each other. Also, if A pays 'x' amount of rent for a single space B pays double the amount. The amount of rent for A-traders is Rs. 12,500 and the entire amount was paid at the time of registration itself. A trader registers for the space online on the official website of Trade Fair wherein the floor plan is shown to the trader. The floor plan has spaces in a single row. Every unregistered space is represented by U.

For instance, suppose 5 traders numbered 1 through 5 registers online such that 1st, 3rd and 5th are A-traders and 2nd and 4th are B-traders. At this point, the registered space would be described by the sequence 1, 2, 3, 4, 5. If certain traders later cancel their registration due to covid their allotted spaces show 'U' and can be registered to other traders. For example, if trader's 2nd and 5th later vacate their spaces the spaces would now be sequences as 1, U, U, 3, 4. If A-trader (numbered 6th) arrives subsequently followed by a B-trader (numbered 7th), the section will have the sequence 1, 6, U, 3, 4, 7.

Q.10 [11831809]

Any trader who cancels their registration gets 50% of refund of the initial amount paid. Suppose the sequence of spaces allotted at some point of time is 4, 5, 6, U, 3. Then what could be the maximum amount of rent collected by the trade fair management from these traders?

Answer key/Solution

Solution:

Correct Answer : 87500

Seeing the sequence: 4, 5, 6, U, 3, we can conclude that traders 1 and 2 are definitely B-traders which registered 2 adjacent spaces each. After that trader 4, 5 and 6 registers and one space is left unregistered which clearly means traders 4, 5 and 6 are A-traders. We cannot say about the type of trader 3. But in order to maximise let trader 3 be a B-trader, then maximum amount of rent collected can be Rs. 87,500.

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Directions for questions 11 to 16: Answer the questions on the basis of the information given below.

There is a game show for budding entrepreneurs, called Shark Tank, where there is a panel consisting of five big businessmen, who are called Sharks - S1, S2, S3, S4 and S5. These sharks are from different sectors - Agriculture, Beauty, Banking, Infrastructure and IT, not necessarily in the same order. There are 12 contestants - C1, C2, …, C12 - who present their business plans in front of the sharks. If one or more of the sharks like the plan, they make investments in return for some equity in the business. In layman terms equity can be defined as a fraction of the business that is given away in return for the investment. If none of the sharks like the business plan, then it is rejected. Each investment is of Rs.1 crore. Some other information is given below:
(i) S4 invests Rs.6 crore in all, which includes the proposals of C1, C5 and C6 whereas S5, who is from the Banking sector, invests Rs.5 crore in all, which includes C3 and C9.
(ii) All the sharks reject the proposals presented by C2, C4, C7, C10 and C11 whereas all the sharks invest in the proposal presented by C8.
(iii) S2, who is from Agriculture, invests a total of Rs.4 crore, but not in the proposal of C9. Shark S3, who is neither from Infrastructure nor from the Beauty sector, invests in the proposals of C3 and C9 but does not invest in the proposals of C6 and C12.
(iv) S1 does not invest in the proposals of C5 and C9. The plan presented by C1 is approved only by sharks from Beauty and Infrastructure.
(v) Four sharks invest in the proposals presented by C5 and C12 whereas three sharks invest in the business plans of C6 and C9, out of which only one investor is common.
(vi) The total investments in the proposals of C8 and C12 was for equities of 10% and 2% respectively. At the end of the financial year C8 gave a return of 20% on the investment whereas C12 gave a return of 35% on the investment.

Q.11 [11831809]
If exactly two business proposals received investments of Rs.2 crore each, then which of the following is true?

1 ◯ S1 did not invest in C3.

2 ◯ S2 did not invest in C5.

3 ◯ S2 invests in C3 and C6.

4 ◯ Three investors are common for C3 and C12.

Solution:
Correct Answer : 1

Answer key/Solution

Step 1:
We can represent the given information from conditions (i) to (v) in the following table:

Contestant	S1 (Beauty / Infrastructure)	S2 (Agriculture)	S3 (IT)	S4 (Infrastructure / Beauty)	S5 (Banking)
C1	✓	×	×	✓	×
C2	×	×	×	×	×
C3		×	✓	×	✓
C4	×	×	×	×	×
C5	×	✓	✓	✓	✓
C6	✓	✓	×	✓	×
C7	×	×	×	×	×
C8	✓	✓	✓	✓	✓
C9	×	×	✓	✓	✓
C10	×	×	×	×	×
C11	×	×	×	×	×
C12	✓	✓	×	✓	✓
Total (in Rs. crores)	3/4	4	4	6	5

Step 2:
From condition (vi),
Value of 10% of C8 is Rs.5 crore.
Hence, value of 100% = 5 × 10 = Rs.50 crore
Also 20% return from C8 = 0.2 × 50 = Rs.10 crore.
Value of 2% of C12 is Rs.4 crore.
Hence, value of 100% = 4 × 50 = Rs.200 crore
Also 35% return from C12 = 0.35 × 200 = Rs.70 crore.

It is clear from the table that two investments are possible only for C1 and C3.
Hence, option (1) is only true.

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Directions for questions 11 to 16: Answer the questions on the basis of the information given below.

There is a game show for budding entrepreneurs, called Shark Tank, where there is a panel consisting of five big businessmen, who are called Sharks - S1, S2, S3, S4 and S5. These sharks are from different sectors - Agriculture, Beauty, Banking, Infrastructure and IT, not necessarily in the same order. There are 12 contestants - C1, C2, …, C12 - who present their business plans in front of the sharks. If one or more of the sharks like the plan, they make investments in return for some equity in the business. In layman terms equity can be defined as a fraction of the business that is given away in return for the investment. If none of the sharks like the business plan, then it is rejected. Each investment is of Rs.1 crore. Some other information is given below:
(i) S4 invests Rs.6 crore in all, which includes the proposals of C1, C5 and C6 whereas S5, who is from the Banking sector, invests Rs.5 crore in all, which includes C3 and C9.
(ii) All the sharks reject the proposals presented by C2, C4, C7, C10 and C11 whereas all the sharks invest in the proposal presented by C8.
(iii) S2, who is from Agriculture, invests a total of Rs.4 crore, but not in the proposal of C9. Shark S3, who is neither from Infrastructure nor from the Beauty sector, invests in the proposals of C3 and C9 but does not invest in the proposals of C6 and C12.
(iv) S1 does not invest in the proposals of C5 and C9. The plan presented by C1 is approved only by sharks from Beauty and Infrastructure.
(v) Four sharks invest in the proposals presented by C5 and C12 whereas three sharks invest in the business plans of C6 and C9, out of which only one investor is common.
(vi) The total investments in the proposals of C8 and C12 was for equities of 10% and 2% respectively. At the end of the financial year C8 gave a return of 20% on the investment whereas C12 gave a return of 35% on the investment.

Q.12 [11831809]
If C9 receives the investment made by the sharks in return for 25% equity. What is the value of his business (in Rs. crore)?

Solution:
Correct Answer : 12

Answer key/Solution

Step 1:
We can represent the given information from conditions (i) to (v) in the following table:

Contestant	S1 (Beauty / Infrastructure)	S2 (Agriculture)	S3 (IT)	S4 (Infrastructure / Beauty)	S5 (Banking)
C1	✓	×	×	✓	×
C2	×	×	×	×	×
C3		×	✓	×	✓
C4	×	×	×	×	×
C5	×	✓	✓	✓	✓
C6	✓	✓	×	✓	×
C7	×	×	×	×	×
C8	✓	✓	✓	✓	✓
C9	×	×	✓	✓	✓
C10	×	×	×	×	×
C11	×	×	×	×	×
C12	✓	✓	×	✓	✓
Total (in Rs. crores)	3/4	4	4	6	5

Step 2:
From condition (vi),
Value of 10% of C8 is Rs.5 crore.
Hence, value of 100% = 5 × 10 = Rs.50 crore
Also 20% return from C8 = 0.2 × 50 = Rs.10 crore.
Value of 2% of C12 is Rs.4 crore.
Hence, value of 100% = 4 × 50 = Rs.200 crore
Also 35% return from C12 = 0.35 × 200 = Rs.70 crore.

Given that value of 25% is Rs.3 crore.
Hence, value of 100% of business = 3 × 4 = Rs.12 crore.

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Directions for questions 11 to 16: Answer the questions on the basis of the information given below.

There is a game show for budding entrepreneurs, called Shark Tank, where there is a panel consisting of five big businessmen, who are called Sharks - S1, S2, S3, S4 and S5. These sharks are from different sectors - Agriculture, Beauty, Banking, Infrastructure and IT, not necessarily in the same order. There are 12 contestants - C1, C2, …, C12 - who present their business plans in front of the sharks. If one or more of the sharks like the plan, they make investments in return for some equity in the business. In layman terms equity can be defined as a fraction of the business that is given away in return for the investment. If none of the sharks like the business plan, then it is rejected. Each investment is of Rs.1 crore. Some other information is given below:
(i) S4 invests Rs.6 crore in all, which includes the proposals of C1, C5 and C6 whereas S5, who is from the Banking sector, invests Rs.5 crore in all, which includes C3 and C9.
(ii) All the sharks reject the proposals presented by C2, C4, C7, C10 and C11 whereas all the sharks invest in the proposal presented by C8.
(iii) S2, who is from Agriculture, invests a total of Rs.4 crore, but not in the proposal of C9. Shark S3, who is neither from Infrastructure nor from the Beauty sector, invests in the proposals of C3 and C9 but does not invest in the proposals of C6 and C12.
(iv) S1 does not invest in the proposals of C5 and C9. The plan presented by C1 is approved only by sharks from Beauty and Infrastructure.
(v) Four sharks invest in the proposals presented by C5 and C12 whereas three sharks invest in the business plans of C6 and C9, out of which only one investor is common.
(vi) The total investments in the proposals of C8 and C12 was for equities of 10% and 2% respectively. At the end of the financial year C8 gave a return of 20% on the investment whereas C12 gave a return of 35% on the investment.

Q.13 [11831809]
Among those businesses in which S2 and S5 invested together, in how many did S3 also invest?

1 ◯ 4

2 ◯ 3

3 ◯ 2

4 ◯ 1

Solution:
Correct Answer : 3

Answer key/Solution

Step 1:
We can represent the given information from conditions (i) to (v) in the following table:

Contestant	S1 (Beauty / Infrastructure)	S2 (Agriculture)	S3 (IT)	S4 (Infrastructure / Beauty)	S5 (Banking)
C1	✓	×	×	✓	×
C2	×	×	×	×	×
C3		×	✓	×	✓
C4	×	×	×	×	×
C5	×	✓	✓	✓	✓
C6	✓	✓	×	✓	×
C7	×	×	×	×	×
C8	✓	✓	✓	✓	✓
C9	×	×	✓	✓	✓
C10	×	×	×	×	×
C11	×	×	×	×	×
C12	✓	✓	×	✓	✓
Total (in Rs. crores)	3/4	4	4	6	5

Step 2:
From condition (vi),
Value of 10% of C8 is Rs.5 crore.
Hence, value of 100% = 5 × 10 = Rs.50 crore
Also 20% return from C8 = 0.2 × 50 = Rs.10 crore.
Value of 2% of C12 is Rs.4 crore.
Hence, value of 100% = 4 × 50 = Rs.200 crore
Also 35% return from C12 = 0.35 × 200 = Rs.70 crore.

S2 and S5 invested together in C5, C8 and C12. Also among these S3 invested in C5 and C8. Hence, the correct answer is two out of these three proposals.

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Directions for questions 11 to 16: Answer the questions on the basis of the information given below.

There is a game show for budding entrepreneurs, called Shark Tank, where there is a panel consisting of five big businessmen, who are called Sharks - S1, S2, S3, S4 and S5. These sharks are from different sectors - Agriculture, Beauty, Banking, Infrastructure and IT, not necessarily in the same order. There are 12 contestants - C1, C2, …, C12 - who present their business plans in front of the sharks. If one or more of the sharks like the plan, they make investments in return for some equity in the business. In layman terms equity can be defined as a fraction of the business that is given away in return for the investment. If none of the sharks like the business plan, then it is rejected. Each investment is of Rs.1 crore. Some other information is given below:
(i) S4 invests Rs.6 crore in all, which includes the proposals of C1, C5 and C6 whereas S5, who is from the Banking sector, invests Rs.5 crore in all, which includes C3 and C9.
(ii) All the sharks reject the proposals presented by C2, C4, C7, C10 and C11 whereas all the sharks invest in the proposal presented by C8.
(iii) S2, who is from Agriculture, invests a total of Rs.4 crore, but not in the proposal of C9. Shark S3, who is neither from Infrastructure nor from the Beauty sector, invests in the proposals of C3 and C9 but does not invest in the proposals of C6 and C12.
(iv) S1 does not invest in the proposals of C5 and C9. The plan presented by C1 is approved only by sharks from Beauty and Infrastructure.
(v) Four sharks invest in the proposals presented by C5 and C12 whereas three sharks invest in the business plans of C6 and C9, out of which only one investor is common.
(vi) The total investments in the proposals of C8 and C12 was for equities of 10% and 2% respectively. At the end of the financial year C8 gave a return of 20% on the investment whereas C12 gave a return of 35% on the investment.

Q.14 [11831809]
Which of these sharks do C1, C6 and C9 have in common?

1 ◯ Banking

2 ◯ Beauty

3 ◯ Infrastructure

4 ◯ Either (2) or (3)

Solution:
Correct Answer : 4

Answer key/Solution

Step 1:
We can represent the given information from conditions (i) to (v) in the following table:

Contestant	S1 (Beauty / Infrastructure)	S2 (Agriculture)	S3 (IT)	S4 (Infrastructure / Beauty)	S5 (Banking)
C1	✓	×	×	✓	×
C2	×	×	×	×	×
C3		×	✓	×	✓
C4	×	×	×	×	×
C5	×	✓	✓	✓	✓
C6	✓	✓	×	✓	×
C7	×	×	×	×	×
C8	✓	✓	✓	✓	✓
C9	×	×	✓	✓	✓
C10	×	×	×	×	×
C11	×	×	×	×	×
C12	✓	✓	×	✓	✓
Total (in Rs. crores)	3/4	4	4	6	5

Step 2:
From condition (vi),
Value of 10% of C8 is Rs.5 crore.
Hence, value of 100% = 5 × 10 = Rs.50 crore
Also 20% return from C8 = 0.2 × 50 = Rs.10 crore.
Value of 2% of C12 is Rs.4 crore.
Hence, value of 100% = 4 × 50 = Rs.200 crore
Also 35% return from C12 = 0.35 × 200 = Rs.70 crore.

From the table it is clear that C1, C6 and C9 have only S4 in common. S4 can be from either the Beauty industry or Infrastructure.

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Directions for questions 11 to 16: Answer the questions on the basis of the information given below.

There is a game show for budding entrepreneurs, called Shark Tank, where there is a panel consisting of five big businessmen, who are called Sharks - S1, S2, S3, S4 and S5. These sharks are from different sectors - Agriculture, Beauty, Banking, Infrastructure and IT, not necessarily in the same order. There are 12 contestants - C1, C2, …, C12 - who present their business plans in front of the sharks. If one or more of the sharks like the plan, they make investments in return for some equity in the business. In layman terms equity can be defined as a fraction of the business that is given away in return for the investment. If none of the sharks like the business plan, then it is rejected. Each investment is of Rs.1 crore. Some other information is given below:
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(ii) All the sharks reject the proposals presented by C2, C4, C7, C10 and C11 whereas all the sharks invest in the proposal presented by C8.
(iii) S2, who is from Agriculture, invests a total of Rs.4 crore, but not in the proposal of C9. Shark S3, who is neither from Infrastructure nor from the Beauty sector, invests in the proposals of C3 and C9 but does not invest in the proposals of C6 and C12.
(iv) S1 does not invest in the proposals of C5 and C9. The plan presented by C1 is approved only by sharks from Beauty and Infrastructure.
(v) Four sharks invest in the proposals presented by C5 and C12 whereas three sharks invest in the business plans of C6 and C9, out of which only one investor is common.
(vi) The total investments in the proposals of C8 and C12 was for equities of 10% and 2% respectively. At the end of the financial year C8 gave a return of 20% on the investment whereas C12 gave a return of 35% on the investment.

Q.15 [11831809]
What was the share of the total return (in Rs. lakh) received by the Shark from the Agriculture sector from investments made in C8 and C12 after a year?

Solution:
Correct Answer : 55

Answer key/Solution

Step 1:
We can represent the given information from conditions (i) to (v) in the following table:

Contestant	S1 (Beauty / Infrastructure)	S2 (Agriculture)	S3 (IT)	S4 (Infrastructure / Beauty)	S5 (Banking)
C1	✓	×	×	✓	×
C2	×	×	×	×	×
C3		×	✓	×	✓
C4	×	×	×	×	×
C5	×	✓	✓	✓	✓
C6	✓	✓	×	✓	×
C7	×	×	×	×	×
C8	✓	✓	✓	✓	✓
C9	×	×	✓	✓	✓
C10	×	×	×	×	×
C11	×	×	×	×	×
C12	✓	✓	×	✓	✓
Total (in Rs. crores)	3/4	4	4	6	5

Step 2:
From condition (vi),
Value of 10% of C8 is Rs.5 crore.
Hence, value of 100% = 5 × 10 = Rs.50 crore
Also 20% return from C8 = 0.2 × 50 = Rs.10 crore.
Value of 2% of C12 is Rs.4 crore.
Hence, value of 100% = 4 × 50 = Rs.200 crore
Also 35% return from C12 = 0.35 × 200 = Rs.70 crore.

Share of total return for Shark Agriculture Sector
= 0.1 × 10 × 1/5 + 0.02 × 70 × 1/4 = Rs.0.55 crore = Rs. 55 lakhs.

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Directions for questions 11 to 16: Answer the questions on the basis of the information given below.

There is a game show for budding entrepreneurs, called Shark Tank, where there is a panel consisting of five big businessmen, who are called Sharks - S1, S2, S3, S4 and S5. These sharks are from different sectors - Agriculture, Beauty, Banking, Infrastructure and IT, not necessarily in the same order. There are 12 contestants - C1, C2, …, C12 - who present their business plans in front of the sharks. If one or more of the sharks like the plan, they make investments in return for some equity in the business. In layman terms equity can be defined as a fraction of the business that is given away in return for the investment. If none of the sharks like the business plan, then it is rejected. Each investment is of Rs.1 crore. Some other information is given below:
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(iii) S2, who is from Agriculture, invests a total of Rs.4 crore, but not in the proposal of C9. Shark S3, who is neither from Infrastructure nor from the Beauty sector, invests in the proposals of C3 and C9 but does not invest in the proposals of C6 and C12.
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(vi) The total investments in the proposals of C8 and C12 was for equities of 10% and 2% respectively. At the end of the financial year C8 gave a return of 20% on the investment whereas C12 gave a return of 35% on the investment.

Q.16 [11831809]
What is the ratio of the total returns received by all the sharks who invested in the businesses of C8 and C12?

1 ◯ 5 : 9

2 ◯ 14 : 5

3 ◯ 5 : 7

4 ◯ 7 : 8

Solution:
Correct Answer : 3

Answer key/Solution

Step 1:
We can represent the given information from conditions (i) to (v) in the following table:

Contestant	S1 (Beauty / Infrastructure)	S2 (Agriculture)	S3 (IT)	S4 (Infrastructure / Beauty)	S5 (Banking)
C1	✓	×	×	✓	×
C2	×	×	×	×	×
C3		×	✓	×	✓
C4	×	×	×	×	×
C5	×	✓	✓	✓	✓
C6	✓	✓	×	✓	×
C7	×	×	×	×	×
C8	✓	✓	✓	✓	✓
C9	×	×	✓	✓	✓
C10	×	×	×	×	×
C11	×	×	×	×	×
C12	✓	✓	×	✓	✓
Total (in Rs. crores)	3/4	4	4	6	5

Step 2:
From condition (vi),
Value of 10% of C8 is Rs.5 crore.
Hence, value of 100% = 5 × 10 = Rs.50 crore
Also 20% return from C8 = 0.2 × 50 = Rs.10 crore.
Value of 2% of C12 is Rs.4 crore.
Hence, value of 100% = 4 × 50 = Rs.200 crore
Also 35% return from C12 = 0.35 × 200 = Rs.70 crore.

Required ratio = 0.1 × 10 : 0.02 × 70 = 5 : 7.

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Directions for questions 17 to 22: Answer the questions on the basis of the information given below.

A dairy products company purchases milk from local farms and this is then processed before being sold to retail outlets. The quality manager at the company uses a lactometer, that is a simple device, to measure the purity of milk. Strict quality checks take place at the sales counter and the milk is sold to the customers only when the lactometer shows the purity of the milk to be 80% or more.
The table given below shows the purity of milk sourced from the 6 vendors as measured by the lactometer.

Gopal	Mukund	Yadav	Radhey	Nandlal	Krishna
75%	90%	100%	95%	80%	60%

Q.17 [11831809]

What is the maximum quantity of milk from Gopal's farm that can be mixed with a mixture containing equal quantities of milk from Nandlal's and Mukund's farms, to fulfil an order of 20 litres of milk at a tea stall?

1 ◯ 15 litres

2 ◯ 5 litres

3 ◯ 7.5 litres

4 ◯ 10 litres

Answer key/Solution

Solution:
Correct Answer : 4
Equal quantities of milk from Nandlal's and Mukund's farms when mixed will have 85% purity.
Now milk from Gopal's farm has 75% purity.
So to get milk with 80% purity a maximum of one part of milk from Gopal's farm can be mixed with one part of the mixture.
So 10 litres of each can be mixed to get 20 litres of milk having 80% purity.

Bookmark FeedBack

Directions for questions 17 to 22: Answer the questions on the basis of the information given below.

A dairy products company purchases milk from local farms and this is then processed before being sold to retail outlets. The quality manager at the company uses a lactometer, that is a simple device, to measure the purity of milk. Strict quality checks take place at the sales counter and the milk is sold to the customers only when the lactometer shows the purity of the milk to be 80% or more.
The table given below shows the purity of milk sourced from the 6 vendors as measured by the lactometer.

Gopal	Mukund	Yadav	Radhey	Nandlal	Krishna
75%	90%	100%	95%	80%	60%

Q.18 [11831809]

Which of the following mixtures will meet the quality requirements of sales at the company?
I. The milk of the farms of Mukund, Radhe and Krishna are in the ratio 1 : 2 : 2 respectively.
II. The milk of the farms of Gopal, Krishna and Nandlal are in the ratio 2 : 2 : 1 respectively.
III. The milk of the farms of Radhey, Gopal and Mukund are in the ratio 1 : 1 : 2 respectively.

1 ◯ II only

2 ◯ III only

3 ◯ Both I and III

4 ◯ Both I and II

Solution:
Correct Answer : 3
Mixture I will have a purity of (90 + 2 × 95 + 2 × 60)/500 × 100 = 80%.
Mixture II will have a purity of (2 × 75 + 2 × 60 + 80)/500 × 100 =70%.
Mixture III will have a purity of (95 + 75 + 2 × 90)/400 × 100 = 87.5%.
Hence, both I and III will meet the quality requirements.

Answer key/Solution

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Directions for questions 17 to 22: Answer the questions on the basis of the information given below.

A dairy products company purchases milk from local farms and this is then processed before being sold to retail outlets. The quality manager at the company uses a lactometer, that is a simple device, to measure the purity of milk. Strict quality checks take place at the sales counter and the milk is sold to the customers only when the lactometer shows the purity of the milk to be 80% or more.
The table given below shows the purity of milk sourced from the 6 vendors as measured by the lactometer.

Gopal	Mukund	Yadav	Radhey	Nandlal	Krishna
75%	90%	100%	95%	80%	60%

Q.19 [11831809]
Four similar cans of milk were left at the collection point out of which at least one is from Yadav's farm and the remaining are from Krishna's farm. If milk from all the four cans is mixed, then what is the probability that it will meet the purity requirement?

1 ◯ 2/3

2 ◯ 3/4

3 ◯ 1/4

4 ◯ 1/3

Answer key/Solution

Solution:
Correct Answer : 2
There are 4 possible cases - when there are 1, 2, 3 and 4 cans from Yadav.
The worst case scenario would be the remaining 3 cans are from Krishna with 60% purity. Then the purity of the final mixture will be = 280/400 × 100 = 70%
If 2 cans from Yadav and 2 from Krishna are mixed, purity = 320/400 × 100 = 80%
For all other cases the purity level will be more than 80%.
In 3 out of the 4 possible cases the purity is 80% or more.
Hence, the probability of meeting the quality requirement = 3/4.

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Directions for questions 17 to 22: Answer the questions on the basis of the information given below.

A dairy products company purchases milk from local farms and this is then processed before being sold to retail outlets. The quality manager at the company uses a lactometer, that is a simple device, to measure the purity of milk. Strict quality checks take place at the sales counter and the milk is sold to the customers only when the lactometer shows the purity of the milk to be 80% or more.
The table given below shows the purity of milk sourced from the 6 vendors as measured by the lactometer.

Gopal	Mukund	Yadav	Radhey	Nandlal	Krishna
75%	90%	100%	95%	80%	60%

Q.20 [11831809]
There are 8 cans of milk from the above mentioned farms such that there is at least one can from each farm. The milk from all 8 cans is mixed. There is a specific buyer who demands a minimum of 85% purity of milk, then in which of the following cases will the mixture meet the quality requirement of that buyer?

1 ◯ There are 2 cans each from Krishna and Gopal.

2 ◯ There are 2 cans each from Yadav and Radhey.

3 ◯ There are 3 cans from Gopal.

4 ◯ There are 2 cans each from Mukund and Nandlal.

Answer key/Solution

Solution:

Correct Answer : 2

Let us check the purity of milk in the mixtures given in each of the options:

1. Purity = 635/800 × 100 = 79.375%

2. Purity = 695/800 × 100 = 86.875%

3. Purity = 650/800 × 100 = 81.25%

4. Purity = 670/800 × 100 = 83.75%

Hence, only in the mixture from option (2) the purity of milk is more than 85%.

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