Direction for questions 1 to 4: Answer the questions on the basis of the information given below.

Rita, is creating a C++ program for a project. The program has to be designed in a way that it categorizes numbers in a cell of a square layout of 5 × 5 grid as - right, left, up and down - visible cells. The cells which are not categorised as either right, left, up or down visible cells are called dud cells. Rows are numbered 1 to 5 from top to bottom and columns 1 to 5 from left to right. A 5 × 5 grid is as shown below:

1	7	6	9	3
3	9	5	2	1
7	8	4	5	6
9	5	3	8	2
6	1	2	3	4

Further, it is also known that:
(i) A cell with number, a, in a row is right visible if all the numbers in the cell to the right of number a, in the same row are strictly smaller than a. A cell with number, b, is left-visible if all the numbers in the cells to the left of the number b, in the same row is strictly smaller than b.
(ii) A cell with number, c, in a column is up-visible if all the numbers in the cells to the upper side of number c in the same column are strictly smaller than c. A cell with number, d, is down-visible if all the numbers in the cell to the lower side of the number in the same column is strictly smaller than d.

Q 1. How many cells in the grid can be categorized as only one type of visible cell?

Q 2. Which of the following is true for any cell with number 9 in this grid?

1) The cell is categorized as right, left, up and down – visible cell.

2) The cell can be categorized as atleast 3 types of visible cell.

3) The cell can be categorized as atmost 3 types of visible cell.

4) The cell can be categorized as exactly 3 types of visible cell.

Q 3. We can find two dud cells in

1) the 5th column

2) the 3rd row

3) the 4th column

4) the 5th row

Q 4. Which of the following statements is true about this grid?

1) Each row has a cell which can be categorised as atleast two types of visible cell.

2) Each column has at least two cells which can be categorised as equal number of types of visible cells.

3) Each row has at least one dud cell.

4) All cells with number 3 can be categorised as atleast one type of visible cell.

Directions for questions 5 to 10: Answer the questions on the basis of the information given below.

A report by a consulting firm gave details of resources used by the top four OTT platforms for their shows. The resource categories are Actors, Writers, and Production units. All resource costs are calculated in terms of the *cost per episode*.

It is known that the spending/costs on each of these three categories can be sub-categorized into two grades, Grade I and Grade II. Grade I spending represents the spending on more expensive resources whereas Grade II spending includes resources that cost less. The total cost is a sum of the costs spent on all resources combined.

It is known that an actor that falls under Grade I charges Rs. 20,000 per episode (on average) whereas the one that falls under Grade II charges Rs. 8,000 per episode on average. A Writer from Grade I charges Rs. 6,000 per episode whereas one from Grade II charges Rs.3,000 per episode. Production units cost Rs. 50,000 and Rs. 36,000 for Grade I and II respectively.

It is known that every OTT platforms hires at least 2 writers, 2 actors, and 1 Production unit each per episode from the two grades combined. It is also known that no platform hires more than 5 resources in total from any category.

Table 1 gives the data on how many actors, writers and production teams are required by each OTT platform although some data could not be compiled and is missing from the table. **Table 2** gives the revenue earned per episode by these platforms. Earning Per Episode **(EPP)** is defined as the difference between the Revenue and the total cost. All four platforms have an EPP that is not less than Rs. 20,000 and not more than Rs. 40,000.

Table 1

	NUMBER OF RESOURCES NEEDED PER EPISODE					
	Actors		Writers		Production team	
	Grade I	Grade II	Grade I	Grade II	Grade I	Grade II
Family Prime	-	2	-	2	1	1
Crass Flix	3	-	1	-	-	-
Toney Liv	2	-	1	3	-	-
Zeendabad	1	-	0	-	-	2

Table 2

OTT PLATFORM	REVENUE PER EPISODE
Family Prime	Rs. 1.8 lakh
Crass Flix	Rs. 2.2 lakh
Toney Liv	Rs. 1.8 lakh
Zeendabad	Rs. 1.5 lakh

Q 5. If Family Prime hired 3 Grade I writers, how many Grade I actor(s) was/were hired by Family Prime?

Q 6. What was the maximum number of Grade I production units that Crass Flix could hire?

1) 1

2) 2

3) 3

4) More than 3

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Toney Liv	Rs. 1.8 lakh
Zeendabad	Rs. 1.5 lakh

Q 7. The maximum number of Grade I production units that can be hired by Tony Liv is

1) 0

2) 1

3) 3

4) 2

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Q 8. If Family Prime has to restrict its total cost at most Rs. 1.6 lakh per episode, then in how many combinations can it hire actors and writers?

1) 3

2) 4

3) 6

4) 5

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Q 9. If Zeendabad decides not to use any Grade I resources for writing or Production, what is the maximum number of Grade II actors it can hire and still ensure that it's Earning per episode exceeds 20% of the total cost?

Directions for questions 5 to 10: Answer the questions on the basis of the information given below.

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Family Prime	Rs. 1.8 lakh
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Q 10. The sum of the maximum possible EPP and the minimum possible EPP for Crass Flix must be

1) More than Rs. 56,000

2) Between Rs. 56,000 and Rs. 47,000

3) Between Rs. 47,000 and Rs. 42,000

4) Less than Rs. 42,000

Direction for questions 11 to 14: Answer the questions on the basis of the information given below.

Only four different types of food crops – Millets, Pulses, Rice and Wheat – were produced in a state of the country. The table given below shows the production of a crop as a percentage of the total production of four crops in the state during the period 2018-19 to 2021-22.

Crop	2018-19	2019-20	2020-21	2021-22
Millets		20	25	15
Pulses	20		20	15
Rice	25	30		40
Wheat	40	35	25	

Q 11. If production of Rice as compared to the previous year increased by 25%, 20% and 33.33% in 2019-20, 2020-21 and 2021-22 respectively, then what was the percentage change in the production of Millets from 2018-19 to 2021-22?

1) 20%

2) 25%

3) 30%

4) 35%

Q 12. If the production of wheat was same in the four years, then in which year(s) the percentage change in the total production of crops in the state was highest as compared to the previous year?

1) 2019-2020

2) 2021-22

3) 2020-21

4) Both (2) & (3)

Q 13. If the ratio of the total production of all the four crops in the years 2018-19, 2019-20, 2020-21 and 2021-22 was 4 : 2 : 2 : 3 respectively, then the total production of which of the following crops in the state was the least during the period 2018-19 to 2021-22?

1) Millets

2) Pulses

3) Rice

4) Both (1) & (2)

Q 14. The selling price of pulses increased by 20% and the cost price of pulses by 65% from 2019-20 to 2020-21. The net profit (in Rs.) from the sale of pulses was the same in 2019-20 and 2020-21. If the total production of all the four crops (in kg) in the state in 2019-20 and 2020-21 was the same, then the ratio of the selling price to the cost price of pulses in 2019-20 was

1) 2 : 1

2) 3 : 2

3) 3 : 1

4) 4 : 3

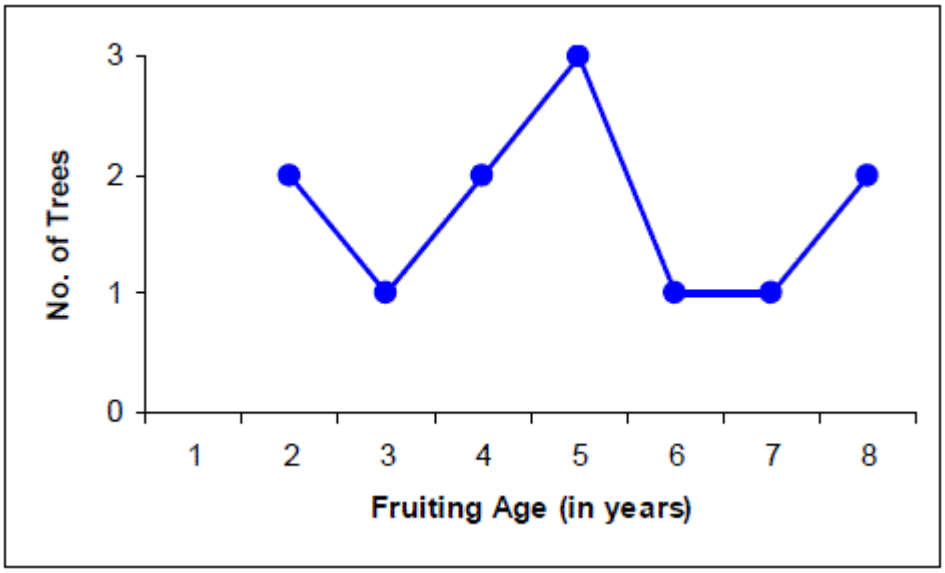
Directions for questions 15 to 20: Answer the questions on the basis of the information given below.

Hariram, a farmer planted 12 trees, numbered 1 to 12, in his field. After taking good care of them, Hariram noticed that within a few years they started bearing fruits. The line graph given below shows the fruiting age (in years) of 12 trees. For any tree, the fruiting age (in years) is an integer. The fruiting age is 2 or 3 or 4 years for a guava tree, 5 or 6 years for a mango tree and 7 or 8 years for an apple tree. Further, the following are known.

(i) Odd-numbered trees are not guava trees; Even-numbered trees are not mango trees and trees, whose numbers are divisible by 4 are not apple trees.

(ii) The fruiting age of all the trees, numbered 5 to 11, is different, with tree 9 requiring a maximum fruiting age and tree 10 requiring a minimum fruiting age.

(iii) No three consecutive odd numbered trees are mango trees. The fruiting age of tree 11 is an even number.



Q 15. Which of the following tree numbers is NOT a guava tree?

1) 4

2) 12

3) 6

4) 2

Q 16. What can be the maximum difference (in years) between the fruiting ages of tree 3 and tree 12?

Q 17. What is the sum total of the fruiting ages (in years) of odd numbered trees?

Q 18. Which of the following statements MUST be CORRECT?

1) Tree 2 is a mango tree.

2) Tree 7 is an apple tree.

3) The fruiting age of tree 1 is 5 years.

4) The fruiting age of tree 4 is 4 years.

Q 19. Which of the following statements MUST be FALSE?
I. Tree 8 is a guava tree and its fruiting age is 3 years.
II. Tree 7 is a mango tree and its fruiting age is 6 years.
III. The fruiting age of tree 6 is 4 years.

1) I only

2) II only

3) III only

4) Both II & III

Q 20. The sum of fruiting ages of 4 out of 12 trees is 28 years. If exactly one tree from tree 8 to tree 12 belongs to this group, then which of the following trees must be in this group?

1) Tree 9

2) Tree 11

3) Tree 4

4) Tree 6
