

CAT-2018
Slot-2
EXPLANATORY

ANSWERS

SECTION-I

VERBAL ABILITY & READING COMPREHENSION

Q.1) Throughout the passage, the author is trying to point out the negative consequences of using performance metrics to incentivize people. Thus, option 1 can be negated as it focuses on long-term and short-term organizational goals. Option 2 is a general statement about performance metrics and its use in organizations. Negate it. Option 3 succinctly puts forth the author's point made in the passage. Retain it. Though the transaction costs of metric is mentioned in the last paragraph, it is not the main aim of the passage. So option 4 is also incorrect. Hence, [3].

Q.2) As per the question, we need to choose an option which will not add any more depth to the author's argument. An analysis of why metrics fixation is becoming popular will add another dimension to the passage. Negate option 1. Option 2 can also be negated as a comparative study will further throw light on the drawbacks of the metric-based evaluation. The author has already given two real life examples of the negative effects of performance metric evaluation i.e. the police officer and the surgeon. Giving any more examples will not make the paragraph any more meaningful. Retain option 3. Option 4 will compare the merits and demerits of judgment-based evaluation to performance-based evaluation. Thus it will make the paragraph more meaningful. Negate it. Hence, [3].

Q.3) Both the cases of the police officer and the surgeon suggest that in order to maximize their performance metrics, it encourages them to behave in a way that is at odds with the larger purpose of the organization. The duty of a police officer is to protect the law and order of his area. However, if his performance metric judges him by the amount of crime committed in his locality, he will try to downgrade major offences into minor ones. Thus he is being unethical in order to improve his performance metric. Similarly, a surgeon will not handle a case which he is not sure of since it will affect his metric score. Thus option 2 correctly states what the author intends to convey through the examples of the two professionals. Hence, [2].

Q.4) As per the third paragraph, people only tend to focus on those goals which are measured in the metrics at the cost of other more important organizational goals. The author then mentions the example of 'teaching to the test' metrics to show how goals are shifted from overall development and education to only those metrics that are measured in the performance. Thus option 1, 2 and 3 can be the possible outcomes to score better in the performance metrics. However, a teacher's subjective evaluation has not been mentioned in the passage. Hence, [4].

Q.5) Option 1 is a consequence of the metric fixation as stated in the first sentence of the penultimate paragraph. Option 2 is also mentioned when the author states that in order to maximize metrics, professionals only concentrate on maximizing them by incentivizing gaming. Option 3 is not as a consequence as nothing is mentioned about metric fixation improving cooperation among employees. Retain it. Option 4 is mentioned in the third sentence of the third paragraph and can be negated. Hence, [3].

Q.6) Option 1 is true as per the second sentence of the third paragraph. Option 2 can be inferred from the last two statements of the passage which states that since the orbits of Tethys and Dione are not tilted, they were not formed 100 million years ago. Option 3 is incorrect as one of Saturn's moon,

Enceladus is considered to be the most promising site to look for alien life. Retain it. Option 4 is true as per the last sentence of the penultimate paragraph. Hence, [3].

Q.7) The first sentence of the second paragraph states that big things in the solar system were assumed to be present since the beginning. However, Cassini's observations negated this assumption. Retain option 1. Option 2 is incorrect as the fourth paragraph talks about Saturn's old moons destroying themselves which led to the emergence of the rings and the planets' new moons. However, option 2 generalizes the statement to celestial bodies. Thus it can be negated. Though option 3 is true as per the third sentence of the third paragraph, it does not challenge any assumption. Negate it. Though option 4 is true as per the last sentence of the third paragraph, it is not challenging any assumption but putting forth a new theory. Thus it can be negated. Hence, [1].

Q.8) The main objective of the passage is to provide evidence that Saturn's rings and moons are recent creations. The beauty and celestial drama of Saturn is only mentioned in the first paragraph. Thus option 2 can be negated. The changing of orbital patterns is only mentioned in the last paragraph. So option 3 is also negated. Option 4 is incorrect as per the last line of the second paragraph which states that the rings are somewhere between 220 to 70 million years old. Hence, [1].

Q.9) The phrase 'leaving laundry hanging on a line downwind from a smokestack' means that if clean clothes are hung out to dry in the downwind direction of a smokestack, they will become dirty because of pollution. As per the third paragraph, the solar system is suffused with comet dust which is dark while Saturn's rings are still bright. If the rings were around for a long period of time, they would also become dark due to the absorption of the comet dust. Thus only option 3 correctly explains the phrase 'leaving laundry hanging on a line downwind from a smokestack'. Hence, [3].

Q.10) As per the third paragraph, comet dust will discolour the rings of Saturn. Thus comet dust is also a component of the Saturn's rings. According to the last sentence of the fourth paragraph, the rings were formed when an old set of Saturn's moons were destroyed. Thus besides water ice, Saturn's rings were also likely to have comet dust and rock particles. Hence, [2].

Q.11) Putting 'Band-Aids on a corpse' is not going to make any difference to the corpse. In a similar way, if the problem is serious, only a superficial solution will not solve the problem. Retain option 2. Option 1 is incorrect as the last sentence of the second paragraph states that medical care providers in the public sector had better skills than the private ones. Nothing is mentioned about the lack of equipment or the funding of public clinics. Thus, options 3 and 4 can be negated as they are beyond the scope of the passage. Hence, [2].

Q.12) The author doesn't intend to censure the government's involvement in any of the implementation-intensive services. Reject option 1. Though the author talks of the disadvantages of a complete dependence on technology through the example of the ANMs (option 3), his main purpose is not that. Neither is it the issue of poor service delivery in the educational sector (Option 4). Last paragraph clearly points to the author's argument— that autonomy and accountability are crucial in successful provision of services. Hence, [2].

Q.13) As the examples of the nurses in Rajasthan and the teacher in West Bengal show, services that involve face-to-face interactions need committed people to give these services. Thus, option 1 is correct. Option 2 is incorrect as only the skills of the medical care providers in the public sector were better than those in the private sector. Though monitoring systems do not improve the motivation of service

providers, nothing is mentioned about improving the skills of the service providers by using monitoring systems. Thus option 3 is also incorrect. Option 4 is not implied in the paragraph. Hence, [1].

Q.14) The author mentions the use of computers in aiding education in the first paragraph. Thus, option 1 can be negated. Recruitment of motivated teachers is mentioned in the third sentence of the penultimate paragraph. Negate option 2. Access to performance information is suggested in the last sentence of the passage. Thus, option 3 can also be negated. However, the author does not mention the elimination of government involvement in the passage. Hence, [4].

Q.15) As per the last sentence of the passage, empowerment and accountability will lead to better performance of the services providers. Thus we need a statement which weakens this argument. Option 1 is incorrect as the passage clearly states that using technology will not solve the problem of motivation in the service providers. Negate it. Option 2 states that empowerment will lead to complacency and rigged performance results. If this is the case, then empowerment will further decrease the performance of the service providers. Thus, option 2 weakens the case presented in the passage. Retain it. Nothing has been mentioned about work ethic in the passage. Thus, option 3 can be negated. Since the main argument of the passage is to increase the motivation of the service providers in the public sector, having better skills in any sector will not weaken the argument of the passage. Thus, option 4 can also be negated. Hence, [2].

Q.16) As per the penultimate sentence of the passage, decision trees in the random decision forest are trained on the hardest cases. Thus option 1 which talks about trees being trained on easy cases weakens the efficacy of the random decision forest. Retain it. Since option 2 talks about easy as well as hard cases, it will not weaken the efficacy of the random decision forest. Negate it. Options 3 and 4 cannot be inferred from the last paragraph and can be negated. Hence, [1].

Q.17) The main argument of the passage is that modern problems are complex and so a multidimensional team is needed to study or solve it as one person cannot have the knowledge of so many categories at one time. We need to find an option which undermines this argument. Option 1 does not have any effect on the argument and can be negated. If top-scorers possess multidisciplinary knowledge, then they can look at a problem with different perspectives. This weakens the argument in the passage that one person cannot have multidisciplinary knowledge. Retain option 2. Option 3 is incorrect as time and conflict factors are not discussed in the passage. Option 4 is also incorrect as it does not relate to the main argument of the passage. Hence, [2].

Q.18) In the second paragraph the author gives an example of the field of neuroscience in order to prove the point that no test can determine the depth and breadth of the various knowledge domains. Thus option 1 correctly states the purpose of the example. Option 2 is incorrect as neuroscience is an example to show the complexity of each knowledge domain. Option 3 can be eliminated as nothing has been mentioned about the 'narrow fields of knowledge'. Option 4 is beyond the scope of the passage and can be eliminated. Hence, [1].

Q.19) As per the fourth sentence of the second paragraph, choosing the best from different categories will not become the best team since no test can test the depth and breadth of each subject. Thus option 1 is incorrect and can be negated. Option 2 can be retained because as per the teams with diverse compositions and optimal hiring will lead to the formation of a better team for solving the problem of rising obesity levels. Options 3 and 4 are incorrect as there is no diversity in the teams, which consist only of nutritionists. Hence, [2].

Q.20) We need to find an option which has not been mentioned by the author as a critique of meritocracy. Option 1 is stated in the first paragraph of the passage. Negate it. Option 2 is true as per the last two sentences of the second paragraph. Thus, it can be negated. Option 3 is true as per the fourth and fifth sentences of the second paragraph and can be eliminated. Option 4 is in direct contrast to what the author says about meritocracy. Hence, [4].

Q.21) In the entire passage, the author is giving various possible explanations to prove why the white-lipped variety of grove snails is found only in Ireland and the Pyrenees. Option 1 is wrong as the second sentence of the second paragraph clearly eliminates the possibility of the white-lipped grove snails being wiped out in other places except Ireland and the Pyrenees. Option 2 is incorrect as the clearly states that evolution is not responsible for the white-lipped grove snails in both the places. Option 3 is the main aim of the author in writing the passage. Retain it. The last sentence of the second paragraph clearly states that if the snails had naturally colonized Ireland, they would have similar genetic traits across other snails in Europe. But since this is not the case, migration of snails can be negated as an explanation. Thus option 4 can be negated. Hence, [3].

Q.22) As per the first and second sentences of the third paragraph, evolution would introduce some genetic variation in the snails but the genetic similarities rule out evolution. Thus, option 1 correctly eliminates the reason for convergent evolution. Hence, [1].

Q.23) As per the last sentence of the penultimate paragraph, humans used to eat these snails as their burnt shells have been found in Stone Age trash heaps. Thus, option 2 which mentions seafarers carrying these snails from Pyrenees to Ireland as edibles can be concluded from the phrase – humans routinely ate these types of snails before the advent of agriculture. Hence, [2].

Q.24) Option 2 is mentioned in the second sentence of the penultimate paragraph. Negate it. Option 3 is mentioned in the first two sentences of the third paragraph and can be negated. Option 4 is true as per the third sentence of the same paragraph and can also be negated. Option 1 is incorrect as the second sentence of the second paragraph clearly states that the similar traits of white-lipped grove snails are not because of convergent evolution. Hence, [1].

Q.25) Option 1 talks about debating whether to have bad Samaritan laws. However, it fails to mention the fact that such rules are already established in many European countries. Thus it can be negated. Since the last three sentences of the paragraph talk about the flaws in the bad Samaritan laws, it cannot be used as a model. Also, option 2 states that bad Samaritan laws have been successfully implemented in Europe. However, this is not implied in option 2 and can be negated. Option 3 correctly paraphrases the passage. Retain it. The paragraph only mentions the drawback of the bad Samaritan laws. It does not mention if these laws are legally sound or that they have been successful. Thus option 4 can be negated. Hence, [3].

Q.26) Statement 1 is the first sentence of the paragraph as it states the recent discovery of the development of songs in birds. This should be followed by statement 4 as it states a prescribed path to the development of the final song in all species. Statement 5 describes this path – subsong, plastic song and then the species song. Statement 2 is the last statement as it talks about how different species have either a single song or a range of songs. Thus, the correct order is 1452. However, statement 3 talks about the sounds of birds as an auditory stimulus which is not in line with the rest of the paragraph as the other sentences talk about the songs of birds and not sound in general. Hence, [3].

Q.27) Statement 1 is the first sentence of the paragraph as it mentions the various apps in smartphones which keep a track of nearly everything. This should be followed by statement 4 as it mentions there is a market for 'such apps' referring to the various apps mentioned in statement 1. There is a clear 5-2 link as statement 5 mentions how sleep tracking apps are a threat to a good night's sleep and statement 2 mentions a new term coined by researchers to explain this insomnia. Thus the correct order is 1452. However, statement 3 mentions how sleep can be disturbed by worries or a guilty conscience. This is an odd statement to fit in the paragraph as the rest of the paragraph is about mobile apps and its effects on sleep. Hence, [3].

Q.28) This is an easy question. Statement 2 talks about people with progressive diseases wanting to have control over their own lives. This should be followed by statement 3 as it mentions what 'having control' means i.e. self-management activities. Statement 1 follows after that as it defines 'self-management'. Statement 4 is the last sentence of the paragraph as it mentions how self-management support can promote it. Thus the correct order is 2314.

Q.29) This is a difficult question as statements 2, 3 or 4 can equally be considered as the first sentence of the paragraph. We will try to find links between sentences and then arrange them in order. There is a 4-2 link as statement 4 mentions how new institutions emerge in order to help those workers whose jobs were taken away due to automation while statement 2 gives an example of the industrial revolution wherein trade unions helped families to cope the loss of work. This should be followed by statement 1 as it talks about the present era of smart world where Universal Basic Income is used to help workers cope with the loss of their jobs. Statement 2 also states that the Universal Basic Income will be ineffective as a large number of people would be unemployed. Statement 3 is the last statement as it states that the growing inequality will be matched by authoritarianism because of the increasing use of technology in our daily lives. Thus the correct order is 4213.

Q.30) Option 1 is incorrect as according to the paragraph, transgenic modification and genome editing are one and the same. Negate it. Option 2 is also incorrect as it mentions transgenic modification and genome editing to be two different processes. As per the second sentence of the paragraph, the editing of endogenous genes is exempted from regulations if the microbes are cultured in a contained environment. However, the penultimate paragraph states that exemption need not be made as there are unforeseen risks involved in the gene-editing. Thus option 3 is correct and can be retained. Though option 4 also states the same thing, it does not give any reason for its exception which is an important point in the paragraph. Thus it can be negated. Hence, [3].

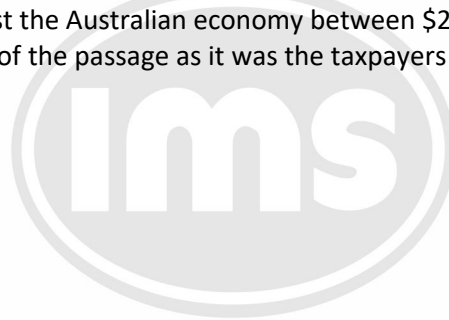
Q.31) The first sentence of the paragraph clearly states that researchers failed to find any link between sport participation and delinquency. Thus option 1 is incorrect. As per the last sentence of the paragraph, latter researchers found it difficult to choose individuals to play sports. Thus option 2 which states that latter researchers found no consistent relationship between sport participation and deviance is incorrect and can be negated. Option 3 correctly summarizes the given paragraph. Retain it. Option 4 cannot be inferred as mentioned in the last sentence of the paragraph. Hence, [3].

Q.32) The paragraph is about how the business-elite would continue to work on their projects instead of altering their own behaviour. Thus statement 3 is the first statement of the paragraph as it states that just as a dieter would do anything to lose weight but will not decrease the amount of food that he eats, business-elite would do many things to save the world but not relinquish the hold on his pet project. This should be followed by statement 2 as it states that the business-elite would fund many programs

but not alter their own behaviour which carries forth the idea mentioned in statement 3. There is a 4-1 link as statement 4 talks about the business-elite focusing on their pet-projects rather than changing their win-win mentality while statement 1 mentions about doing virtuous side projects as long as it does not reduce their profit margins. Thus the correct order is 3241.

Q.33) Both statements 3 and 4 can be used as the first sentence of the paragraph. If we start with statement 4, it talks about the change in normal weather conditions. This should be followed by statement 5 which reiterates the fact that we will be hit by nature's fury in the due course of time due to these changing conditions. There is a clear 1-2 link as statement 1 states how urban planning must take into account potential natural disasters and statement 2 wants authorities to upgrade mitigation plans irrespective of whether or not any area has been visited by any natural calamity. Thus the correct order is 4512. However, statement 3 is the odd one as it mentions only the statistics of natural calamities after a particular time. Hence, [3].

Q.34) This is again an easy question. Statements 2 and 3 are about phoenixing of companies in general while statements 1 and 4 are related particularly to Australia. Since statement 3 gives is the definition of phoenixing, it is the opening sentence of the paragraph. This should be followed by statement 2 as it states what effect phoenixing has on the economy. Statement 4 then gives the specific example of Australia wherein phoenixing cost the Australian economy between \$2.9 to \$5.1 billion last year. Statement 1 is the last sentence of the passage as it was the taxpayers who suffered due to phoenixing. Thus the correct order is 3241.



Trusted for Success

SECTION-II

Data Interpretation & Logical Reasoning

Q.1)

Suppose the base exchange rates of A, B and C w.r.t L are 100m, 120m and m respectively. Therefore we have the following:

	Base rate	Buying rate	Selling rate
A	100m	95m	110m
B	120m	114m	132m
C	m	0.95m	1.1m

Given: The outlet received 88000 units of L by selling A. Therefore the number of units of A sold = $\frac{88000}{110m} = \frac{800}{m}$

From point 3, the number of units of L received by selling B = $\frac{9}{5} \times 88000 = 158400$

Therefore the number of units of B sold = $\frac{158400}{132m} = \frac{1200}{m}$

From points 5 and 6, the number of units of A bought = $800 + \frac{800}{m}$

Therefore, the number of units of L paid to buy A = $95m \left(800 + \frac{800}{m}\right) = 76000(1 + m)$

From point 2, the number of units of L paid to buy B = $\frac{3}{5} \times 76000(1 + m) = 45600(1 + m)$

Therefore the number of units of B bought = $\frac{45600(1+m)}{114m} = 400 + \frac{400}{m}$

From points 5 and 6, $\frac{1200}{m} = 400 + \frac{400}{m}$. Solving for m, m = 2.

Therefore we have the following

	Base rate	Buying rate	Selling rate
A	200	190	220
B	240	228	264
C	2	1.9	2.2

If the number of units of C sold = x, from points 5 and 6, the number of units of C bought = x + 3000.

Therefore, we get, $1.9(x + 3000) = 2.2x$ or solving for x , $x = 19000$.

Using the value of m , we get the following table for the number of units of A, B and C bought and sold.

	Bought	Sold
A	1200	400
B	600	600
C	22000	19000

Now all the questions can be answered.

Therefore the required answer is 1200.

Q.2)

Suppose the base exchange rates of A, B and C w.r.t L are 100m, 120m and m respectively.

Therefore we have the following:

	Base rate	Buying rate	Selling rate
A	100m	95m	110m
B	120m	114m	132m
C	m	0.95m	1.1m

Given: The outlet received 88000 units of L by selling A. Therefore the number of units of A sold =

$$\frac{88000}{110m} = \frac{800}{m}$$

From point 3, the number of units of L received by selling B = $\frac{9}{5} \times 88000 = 158400$

Therefore the number of units of B sold = $\frac{158400}{132m} = \frac{1200}{m}$

From points 5 and 6, the number of units of A bought = $800 + \frac{800}{m}$

Therefore, the number of units of L paid to buy A = $95m \left(800 + \frac{800}{m} \right) = 76000(1 + m)$

From point 2, the number of units of L paid to buy B = $\frac{3}{5} \times 76000(1 + m) = 45600(1 + m)$

Therefore the number of units of B bought = $\frac{45600(1+m)}{114m} = 400 + \frac{400}{m}$

From points 5 and 6, $\frac{1200}{m} = 400 + \frac{400}{m}$. Solving for m, m = 2.

Therefore we have the following

	Base rate	Buying rate	Selling rate
A	200	190	220
B	240	228	264
C	2	1.9	2.2

If the number of units of C sold = x, from points 5 and 6, the number of units of C bought = x + 3000.

Therefore, we get, $1.9(x + 3000) = 2.2x$ or solving for x, x = 19000.

Using the value of m, we get the following table for the number of units of A, B and C bought and sold.

	Bought	Sold
A	1200	400
B	600	600
C	22000	19000

Now all the questions can be answered.

Hence [3]

Q.3)

Suppose the base exchange rates of A, B and C w.r.t L are 100m, 120m and m respectively.

Therefore we have the following:

	Base rate	Buying rate	Selling rate
A	100m	95m	110m
B	120m	114m	132m
C	m	0.95m	1.1m

Given: The outlet received 88000 units of L by selling A. Therefore the number of units of A sold =

$$\frac{88000}{110m} = \frac{800}{m}$$

From point 3, the number of units of L received by selling B = $\frac{9}{5} \times 88000 = 158400$

Therefore the number of units of B sold = $\frac{158400}{132m} = \frac{1200}{m}$

From points 5 and 6, the number of units of A bought = $800 + \frac{800}{m}$

Therefore, the number of units of L paid to buy A = $95m \left(800 + \frac{800}{m}\right) = 76000(1 + m)$

From point 2, the number of units of L paid to buy B = $\frac{3}{5} \times 76000(1 + m) = 45600(1 + m)$

Therefore the number of units of B bought = $\frac{45600(1+m)}{114m} = 400 + \frac{400}{m}$

From points 5 and 6, $\frac{1200}{m} = 400 + \frac{400}{m}$. Solving for m, m = 2.

Therefore we have the following

	Base rate	Buying rate	Selling rate
A	200	190	220
B	240	228	264
C	2	1.9	2.2

If the number of units of C sold = x, from points 5 and 6, the number of units of C bought = x + 3000.

Therefore, we get, $1.9(x + 3000) = 2.2x$ or solving for x, x = 19000.

Using the value of m, we get the following table for the number of units of A, B and C bought and sold.

	Bought	Sold
A	1200	400
B	600	600
C	22000	19000

Now all the questions can be answered.

Therefore the required answer is 240.

Q.4)

Suppose the base exchange rates of A, B and C w.r.t L are 100m, 120m and m respectively. Therefore we have the following:

	Base rate	Buying rate	Selling rate
A	100m	95m	110m
B	120m	114m	132m
C	m	0.95m	1.1m

Given: The outlet received 88000 units of L by selling A. Therefore the number of units of A sold = $\frac{88000}{110m} = \frac{800}{m}$

From point 3, the number of units of L received by selling B = $\frac{9}{5} \times 88000 = 158400$

Therefore the number of units of B sold = $\frac{158400}{132m} = \frac{1200}{m}$

From points 5 and 6, the number of units of A bought = $800 + \frac{800}{m}$

Therefore, the number of units of L paid to buy A = $95m \left(800 + \frac{800}{m} \right) = 76000(1 + m)$

From point 2, the number of units of L paid to buy B = $\frac{3}{5} \times 76000(1 + m) = 45600(1 + m)$

Therefore the number of units of B bought = $\frac{45600(1+m)}{114m} = 400 + \frac{400}{m}$

From points 5 and 6, $\frac{1200}{m} = 400 + \frac{400}{m}$. Solving for m, m = 2.

Therefore we have the following

	Base rate	Buying rate	Selling rate
A	200	190	220
B	240	228	264
C	2	1.9	2.2

If the number of units of C sold = x, from points 5 and 6, the number of units of C bought = x + 3000.

Therefore, we get, $1.9(x + 3000) = 2.2x$ or solving for x , $x = 19000$.

Using the value of m , we get the following table for the number of units of A, B and C bought and sold.

	Bought	Sold
A	1200	400
B	600	600
C	22000	19000

Now all the questions can be answered.

Hence [3]

Q.5)

Using the information given in the diagram, we get the following:

	Promising	Blockbuster	No-hope	Doubtful
Alfa		3 + 6	2 + 4 +	1 + 4
Bravo		6 +	4	2 + 6
Charlie		2 + 6		
Unknown	2 + 9 + 3	4 + 9	1 + 1 + 3	1 + 6 + 9

Note: The numbers in the table represent the area of the boxes in square units.

From statement 1, Alfa and Bravo have two products each in Blockbuster category.

From statement 6, Charlie had higher revenue than Bravo from products in Blockbuster category.

Therefore the product with revenue 9 belongs to Charlie and the product with revenue 4 belongs to Bravo.

From statement 2, Alfa, Charlie and Bravo had 3, 2 and 1 products respectively in No-hope category.

From statement 7, Bravo and Charlie had same revenue from products in No-hope category. Therefore Charlie had revenue $(1 + 3 = 4)$ and the other product with revenue 1 belongs to Alfa.

From statement 4, there were 4 products of Alfa and 3 products of Bravo in the Doubtful category.

From statement 5, the product with revenue 9 belonged to Bravo and the products with revenue 1 and 6 belonged to Alfa in the Doubtful category.

So far we have the following:

	Promising	Blockbuster	No-hope	Doubtful
Alfa		3 + 6	2 + 4 + 1	1 + 4 + 1 + 6
Bravo		6 + 4	4	2 + 6 + 9
Charlie		2 + 6 + 9	1 + 3	
Unknown	2 + 9 + 3			

From statement 3, each company had one product each in the Promising category.

From statement 8, the product with revenue 2 belonged to Alfa, the product with revenue 9 belonged to Charlie and hence the product with revenue 3 belonged to Bravo.

Now we have the following:

	Promising	Blockbuster	No-hope	Doubtful	Total
Alpha	2	3 + 6	2 + 4 + 1	1 + 4 + 1 + 6	30
Bravo	3	6 + 4	4	2 + 6 + 9	34
Charlie	9	2 + 6 + 9	1 + 3		30
Total	14	36	15	29	

Now all the questions can be answered.

Hence [4]

Q.6)

Using the information given in the diagram, we get the following:

	Promising	Blockbuster	No-hope	Doubtful
Alfa		3 + 6	2 + 4 +	1 + 4
Bravo		6 +	4	2 + 6
Charlie		2 + 6		
Unknown	2 + 9 + 3	4 + 9	1 + 1 + 3	1 + 6 + 9

Note: The numbers in the table represent the area of the boxes in square units.

From statement 1, Alfa and Bravo have two products each in Blockbuster category.
 From statement 6, Charlie had higher revenue than Bravo from products in Blockbuster category.
 Therefore the product with revenue 9 belongs to Charlie and the product with revenue 4 belongs to Bravo.

From statement 2, Alfa, Charlie and Bravo had 3, 2 and 1 products respectively in No-hope category.
 From statement 7, Bravo and Charlie had same revenue from products in No-hope category. Therefore Charlie had revenue $(1 + 3 = 4)$ and the other product with revenue 1 belongs to Alfa.

From statement 4, there were 4 products of Alfa and 3 products of Bravo in the Doubtful category.
 From statement 5, the product with revenue 9 belonged to Bravo and the products with revenue 1 and 6 belonged to Alfa in the Doubtful category.

So far we have the following:

	Promising	Blockbuster	No-hope	Doubtful
Alfa		$3 + 6$	$2 + 4 + 1$	$1 + 4 + 1 + 6$
Bravo		$6 + 4$	4	$2 + 6 + 9$
Charlie		$2 + 6 + 9$	$1 + 3$	
Unknown	$2 + 9 + 3$			

From statement 3, each company had one product each in the Promising category.
 From statement 8, the product with revenue 2 belonged to Alfa, the product with revenue 9 belonged to Charlie and hence the product with revenue 3 belonged to Bravo.

Now we have the following:

	Promising	Blockbuster	No-hope	Doubtful	Total
Alpha	2	$3 + 6$	$2 + 4 + 1$	$1 + 4 + 1 + 6$	30
Bravo	3	$6 + 4$	4	$2 + 6 + 9$	34
Charlie	9	$2 + 6 + 9$	$1 + 3$		30
Total	14	36	15	29	

Now all the questions can be answered.

Hence [3]

Q.7)

Using the information given in the diagram, we get the following:

	Promising	Blockbuster	No-hope	Doubtful
Alfa		3 + 6	2 + 4 +	1 + 4
Bravo		6 +	4	2 + 6
Charlie		2 + 6		
Unknown	2 + 9 + 3	4 + 9	1 + 1 + 3	1 + 6 + 9

Note: The numbers in the table represent the area of the boxes in square units.

From statement 1, Alfa and Bravo have two products each in Blockbuster category.

From statement 6, Charlie had higher revenue than Bravo from products in Blockbuster category.

Therefore the product with revenue 9 belongs to Charlie and the product with revenue 4 belongs to Bravo.

From statement 2, Alfa, Charlie and Bravo had 3, 2 and 1 products respectively in No-hope category.

From statement 7, Bravo and Charlie had same revenue from products in No-hope category. Therefore Charlie had revenue (1 + 3 = 4) and the other product with revenue 1 belongs to Alfa.

From statement 4, there were 4 products of Alfa and 3 products of Bravo in the Doubtful category.

From statement 5, the product with revenue 9 belonged to Bravo and the products with revenue 1 and 6 belonged to Alfa in the Doubtful category.

So far we have the following:

	Promising	Blockbuster	No-hope	Doubtful
Alfa		3 + 6	2 + 4 + 1	1 + 4 + 1 + 6
Bravo		6 + 4	4	2 + 6 + 9
Charlie		2 + 6 + 9	1 + 3	
Unknown	2 + 9 + 3			

From statement 3, each company had one product each in the Promising category.

From statement 8, the product with revenue 2 belonged to Alfa, the product with revenue 9 belonged to Charlie and hence the product with revenue 3 belonged to Bravo.

Now we have the following:

	Promising	Blockbuster	No-hope	Doubtful	Total
Alpha	2	3 + 6	2 + 4 + 1	1 + 4 + 1 + 6	30
Bravo	3	6 + 4	4	2 + 6 + 9	34
Charlie	9	2 + 6 + 9	1 + 3		30
Total	14	36	15	29	

Now all the questions can be answered.

Hence [1]

Q.8)

Using the information given in the diagram, we get the following:

	Promising	Blockbuster	No-hope	Doubtful
Alfa		3 + 6	2 + 4 +	1 + 4
Bravo		6 +	4	2 + 6
Charlie		2 + 6		
Unknown	2 + 9 + 3	4 + 9	1 + 1 + 3	1 + 6 + 9

Note: The numbers in the table represent the area of the boxes in square units.

From statement 1, Alfa and Bravo have two products each in Blockbuster category.

From statement 6, Charlie had higher revenue than Bravo from products in Blockbuster category.

Therefore the product with revenue 9 belongs to Charlie and the product with revenue 4 belongs to Bravo.

From statement 2, Alfa, Charlie and Bravo had 3, 2 and 1 products respectively in No-hope category.

From statement 7, Bravo and Charlie had same revenue from products in No-hope category. Therefore Charlie had revenue (1 + 3 = 4) and the other product with revenue 1 belongs to Alfa.

From statement 4, there were 4 products of Alfa and 3 products of Bravo in the Doubtful category.

From statement 5, the product with revenue 9 belonged to Bravo and the products with revenue 1 and 6 belonged to Alfa in the Doubtful category.

So far we have the following:

	Promising	Blockbuster	No-hope	Doubtful
Alfa		3 + 6	2 + 4 + 1	1 + 4 + 1 + 6
Bravo		6 + 4	4	2 + 6 + 9
Charlie		2 + 6 + 9	1 + 3	
Unknown	2 + 9 + 3			

From statement 3, each company had one product each in the Promising category.

From statement 8, the product with revenue 2 belonged to Alfa, the product with revenue 9 belonged to Charlie and hence the product with revenue 3 belonged to Bravo.

Now we have the following:

	Promising	Blockbuster	No-hope	Doubtful	Total
Alpha	2	3 + 6	2 + 4 + 1	1 + 4 + 1 + 6	30
Bravo	3	6 + 4	4	2 + 6 + 9	34
Charlie	9	2 + 6 + 9	1 + 3		30
Total	14	36	15	29	

Now all the questions can be answered.

Hence [3]

Q.9)

We have the following

	F	R	P	I
A-one	50	50	50	40
Best Ed	40	30	20	20
Cosmopolitan	40	20	20	30
Dominance	20	20	40	30
Education Aid	50	50	40	50
Fancy	50	50	40	40
Global	30	0	20	20
High Q	30	20	20	40

From point 2, Best Ed is better than Cosmopolitan. The grades of the two colleges on F and P are the same. If Best Ed is better than Cosmopolitan, the weightage assigned to R must be higher than that assigned for I.

From point 3, Education Aid is better than A-one. The grades of the two colleges on F and R are the same. If Education Aid is better than A-one, the weightage assigned to I must be higher than that assigned for P.

Therefore we have, $R > I > P$.

From point 1, High Q is better than Best Ed. High Q has worse grades than Best Ed on F and R and has same grade on P and a better grade only on I. We have already figured out that $R > I > P$. If a better grade only on I reverses the effect of worse grades on F and R, I must be assigned higher weightage than that assigned for F.

Therefore, we have the following two possibilities:

$R > I > P > F$ or $R > I > F > P$.

That means $R = 0.4, I = 0.3, P = 0.2$ and $F = 0.1$ or $R = 0.4, I = 0.3, F = 0.2$ and $P = 0.1$ are the two possibilities.

Using the two possibilities, let us calculate the scores of High Q and Best Ed.

Possibility 1: $R = 0.4, I = 0.3, P = 0.2, F = 0.1$

	F	R	P	I	Score
Best Ed	40	30	20	20	26
High Q	30	20	20	40	27

Possibility 2: $R = 0.4, I = 0.3, F = 0.2, P = 0.1$

	F	R	P	I	Score
Best Ed	40	30	20	20	28
High Q	30	20	20	40	28

Since High Q is better than Best Ed, possibility 1 is valid and possibility 2 is ruled out. Therefore, we have $R = 0.4, I = 0.3, P = 0.2$ and $F = 0.1$

Now all the questions can be answered.
Hence [4]

Q.10)

We have the following

	F	R	P	I
A-one	50	50	50	40
Best Ed	40	30	20	20
Cosmopolitan	40	20	20	30
Dominance	20	20	40	30
Education Aid	50	50	40	50
Fancy	50	50	40	40
Global	30	0	20	20
High Q	30	20	20	40

From point 2, Best Ed is better than Cosmopolitan. The grades of the two colleges on F and P are the same. If Best Ed is better than Cosmopolitan, the weightage assigned to R must be higher than that assigned for I.

From point 3, Education Aid is better than A-one. The grades of the two colleges on F and R are the same. If Education Aid is better than A-one, the weightage assigned to I must be higher than that assigned for P.

Therefore we have, $R > I > P$.

From point 1, High Q is better than Best Ed. High Q has worse grades than Best Ed on F and R and has same grade on P and a better grade only on I. We have already figured out that $R > I > P$. If a better grade only on I reverses the effect of worse grades on F and R, I must be assigned higher weightage than that assigned for F.

Therefore, we have the following two possibilities:

$R > I > P > F$ or $R > I > F > P$.

That means $R = 0.4, I = 0.3, P = 0.2$ and $F = 0.1$ or $R = 0.4, I = 0.3, F = 0.2$ and $P = 0.1$ are the two possibilities.

Using the two possibilities, let us calculate the scores of High Q and Best Ed.

Possibility 1: $R = 0.4, I = 0.3, P = 0.2, F = 0.1$

	F	R	P	I	Score
Best Ed	40	30	20	20	26
High Q	30	20	20	40	27

Possibility 2: $R = 0.4, I = 0.3, F = 0.2, P = 0.1$

	F	R	P	I	Score
Best Ed	40	30	20	20	28
High Q	30	20	20	40	28

Since High Q is better than Best Ed, possibility 1 is valid and possibility 2 is ruled out.

Therefore, we have $R = 0.4, I = 0.3, P = 0.2$ and $F = 0.1$

Now all the questions can be answered.

The weight assigned to parameter R is highest and is at 0.4. A college that receives 50 points on all the four parameters scores 50 out of 50. A college that receives 40 on parameter R loses 4 points on R and can score maximum 46. Further, a college that receives 30 or below on parameter R cannot score 45. Therefore we need to consider only three colleges, namely A-one, Education Aid and Fancy.

	F (0.1)	R (0.4)	P (0.2)	I (0.3)
A-one	50	50	50	40
Education Aid	50	50	40	50
Fancy	50	50	40	40

A-one lost $10 \times 0.3 = 3$ points on I.

Education Aid lost $10 \times 0.2 = 2$ points on P.

Fancy lost $10 \times 0.2 + 10 \times 0.3 = 5$ points on P and I.

Therefore, these three colleges receive the accreditation AAA.

Therefore the required answer is 3.

Q.11)

We have the following

	F	R	P	I
A-one	50	50	50	40
Best Ed	40	30	20	20
Cosmopolitan	40	20	20	30
Dominance	20	20	40	30
Education Aid	50	50	40	50
Fancy	50	50	40	40
Global	30	0	20	20
High Q	30	20	20	40

From point 2, Best Ed is better than Cosmopolitan. The grades of the two colleges on F and P are the same. If Best Ed is better than Cosmopolitan, the weightage assigned to R must be higher than that assigned for I.

From point 3, Education Aid is better than A-one. The grades of the two colleges on F and R are the same. If Education Aid is better than A-one, the weightage assigned to I must be higher than that assigned for P.

Therefore we have, $R > I > P$.

From point 1, High Q is better than Best Ed. High Q has worse grades than Best Ed on F and R and has same grade on P and a better grade only on I. We have already figured out that $R > I > P$. If a better grade only on I reverses the effect of worse grades on F and R, I must be assigned higher weightage than that assigned for F.

Therefore, we have the following two possibilities:

$R > I > P > F$ or $R > I > F > P$.

That means $R = 0.4, I = 0.3, P = 0.2$ and $F = 0.1$ or $R = 0.4, I = 0.3, F = 0.2$ and $P = 0.1$ are the two possibilities.

Using the two possibilities, let us calculate the scores of High Q and Best Ed.

Possibility 1: $R = 0.4, I = 0.3, P = 0.2, F = 0.1$

	F	R	P	I	Score
Best Ed	40	30	20	20	26
High Q	30	20	20	40	27

Possibility 2: $R = 0.4, I = 0.3, F = 0.2, P = 0.1$

	F	R	P	I	Score
Best Ed	40	30	20	20	28
High Q	30	20	20	40	28

Since High Q is better than Best Ed, possibility 1 is valid and possibility 2 is ruled out.

Therefore, we have $R = 0.4, I = 0.3, P = 0.2$ and $F = 0.1$

Now all the questions can be answered.

From the answer to the previous question, it can be seen that the highest overall score among the eight colleges is $50 - 2 = 48$.

Therefore the required answer is 48.

Q.12)

We have the following

	F	R	P	I
A-one	50	50	50	40
Best Ed	40	30	20	20
Cosmopolitan	40	20	20	30
Dominance	20	20	40	30
Education Aid	50	50	40	50
Fancy	50	50	40	40
Global	30	0	20	20
High Q	30	20	20	40

From point 2, Best Ed is better than Cosmopolitan. The grades of the two colleges on F and P are the same. If Best Ed is better than Cosmopolitan, the weightage assigned to R must be higher than that assigned for I.

From point 3, Education Aid is better than A-one. The grades of the two colleges on F and R are the same. If Education Aid is better than A-one, the weightage assigned to I must be higher than that assigned for P.

Therefore we have, $R > I > P$.

From point 1, High Q is better than Best Ed. High Q has worse grades than Best Ed on F and R and has same grade on P and a better grade only on I. We have already figured out that $R > I > P$. If a better grade only on I reverses the effect of worse grades on F and R, I must be assigned higher weightage than that assigned for F.

Therefore, we have the following two possibilities:

$R > I > P > F$ or $R > I > F > P$.

That means $R = 0.4, I = 0.3, P = 0.2$ and $F = 0.1$ or $R = 0.4, I = 0.3, F = 0.2$ and $P = 0.1$ are the two possibilities.

Using the two possibilities, let us calculate the scores of High Q and Best Ed.

Possibility 1: R= 0.4, I = 0.3, P =0.2, F = 0.1

	F	R	P	I	Score
Best Ed	40	30	20	20	26
High Q	30	20	20	40	27

Possibility 2: R= 0.4, I = 0.3, F =0.2, P = 0.1

	F	R	P	I	Score
Best Ed	40	30	20	20	28
High Q	30	20	20	40	28

Since High Q is better than Best Ed, possibility 1 is valid and possibility 2 is ruled out. Therefore, we have R = 0.4, I = 0.3, P = 0.2 and F = 0.1

Now all the questions can be answered.

We have already figured out that three colleges have overall score of 45 or above. Therefore we need to check for only the remaining five colleges.

The college that earned 0 on R (Global) lost $50 \times 0.4 = 20$ points on R. Therefore it can score maximum 30 points. We need not calculate the overall score of that college further.

There are three colleges that scored 20 on R (Cosmopolitan, Dominance and High Q). They lost $30 \times 0.4 = 12$ points on R.

However, Cosmopolitan and Dominance colleges lost $30 \times 0.3 = 9$ more points on I. Therefore those colleges cannot score more than 30 points.

We have already figured out that High Q and Best Ed had an overall scores of 27 and 26 respectively.

Therefore no college scored between 31 and 40 points.

Hence [1]

Q.13)

$is \equiv 35$ and $as \equiv 56 \Rightarrow s \equiv 5$

$\therefore a \equiv 6$ and $i \equiv 3$

Letters 'i' and 'd' are common in words 'bird' and 'india'. Numbers '1' and '3' are common in there codes. We know that $i \equiv 3$. Therefore, $d \equiv 1$. Also, $br = 34$

India $\equiv 13366$, $d \equiv 1$, $a \equiv 6$ and $i \equiv 3 \Rightarrow n = 6$

of \equiv 79 means $o = 7$ or 9

As peacock \equiv 5688999, code for 'o' must be '9'. Therefore, 'f \equiv 7'.

national \equiv 13666689, $a \equiv 6$, $i \equiv 3$, $o \equiv 9$ and $n = 6 \Rightarrow tl \equiv 19$

the \equiv 458 and $tl \equiv 18 \Rightarrow t \equiv 8$ and hence, $l \equiv 1$

Consider designated \equiv 1135556678.

As $d \equiv 1$, $a \equiv 6$, $i \equiv 3$, $n \equiv 6$, $s \equiv 5$, $t \equiv 8$; eeg \equiv 557. Therefore, $e \equiv 5$ and $g \equiv 7$

Now in peacock \equiv 5688999 we know codes for letters e, a, and o.

Therefore, pcck \equiv 8899 i.e., $c = 8$ or 9

If $c \equiv 8, 9$ codes both 'p' and 'k'. As '9' codes two letters and one of them in 'o', it can not be code for both 'p' and 'k'. Hence, 'c' must be coded as 9. And 8 must be the code for both 'p' and 'k'.

Thus, we have

br = 34 and

1 \equiv d, l

3 \equiv i

5 \equiv s, e

6 \equiv a, n

7 \equiv f, g

8 \equiv t, p, k

9 \equiv o, c

Now both the questions can be answered

The code for the letter L = 1. Hence, [2].

Q.14)

is \equiv 35 and as \equiv 56 $\Rightarrow s \equiv 5$

$\therefore a \equiv 6$ and $i \equiv 3$

Letters 'i' and 'd' are common in words 'bird' and 'india'. Numbers '1' and '3' are common in there codes. We know that $i \equiv 3$. Therefore, $d \equiv 1$. Also, br = 34

India \equiv 13366, $d \equiv 1$, $a \equiv 6$ and $i \equiv 3 \Rightarrow n = 6$

of \equiv 79 means $o = 7$ or 9

As peacock \equiv 5688999, code for 'o' must be '9'. Therefore, 'f \equiv 7'.

national \equiv 13666689, $a \equiv 6$, $i \equiv 3$, $o \equiv 9$ and $n = 6 \Rightarrow tl \equiv 19$

the \equiv 458 and $tl \equiv 18 \Rightarrow t \equiv 8$ and hence, $l \equiv 1$

Consider designated \equiv 1135556678.

As $d \equiv 1$, $a \equiv 6$, $i \equiv 3$, $n \equiv 6$, $s \equiv 5$, $t \equiv 8$; eeg \equiv 557. Therefore, $e \equiv 5$ and $g \equiv 7$

Now in peacock \equiv 5688999 we know codes for letters e, a, and o.

Therefore, pcck \equiv 8899 i.e., $c = 8$ or 9

If $c \equiv 8, 9$ codes both 'p' and 'k'. As '9' codes two letters and one of them in 'o', it can not be code for both 'p' and 'k'. Hence, 'c' must be coded as 9. And 8 must be the code for both 'p' and 'k'.



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Thus, we have

$br = 34$ and

$1 \equiv d, l$

$3 \equiv i$

$5 \equiv s, e$

$6 \equiv a, n$

$7 \equiv f, g$

$8 \equiv t, p, k$

$9 \equiv o, c$

Now both the questions can be answered

The code for the letter B = 3 or 4. Hence, [4].

Q.15)

$is \equiv 35$ and $as \equiv 56 \Rightarrow s \equiv 5$

$\therefore a \equiv 6$ and $i \equiv 3$

Letters 'i' and 'd' are common in words 'bird' and 'india'. Numbers '1' and '3' are common in there codes. We know that $i \equiv 3$. Therefore, $d \equiv 1$. Also, $br = 34$

$India \equiv 13366$, $d \equiv 1$ $a \equiv 6$ and $i \equiv 3 \Rightarrow n = 6$

$of \equiv 79$ means $o = 7$ or 9

As $peacock \equiv 5688999$, code for 'o' must be '9'. Therefore, 'f' $\equiv 7$.

$national \equiv 13666689$, $a \equiv 6$, $i \equiv 3$, $o \equiv 9$ and $n = 6 \Rightarrow tl \equiv 19$

$the \equiv 458$ and $tl \equiv 18 \Rightarrow t \equiv 8$ and hence, $l \equiv 1$

Consider $designated \equiv 1135556678$.

As $d \equiv 1$ $a \equiv 6$, $i \equiv 3$, $n \equiv 6$, $s \equiv 5$, $t \equiv 8$; $eeg \equiv 557$. Therefore, $e \equiv 5$ and $g \equiv 7$

Now in $peacock \equiv 5688999$ we know codes for letters e, a, and o.

Therefore, $pcck \equiv 8899$ i.e., $c = 8$ or 9

If $c \equiv 8, 9$ codes both 'p' and 'k'. As '9' codes two letters and one of them in 'o', it can not be code for both 'p' and 'k'. Hence, 'c' must be coded as 9. And 8 must be the code for both 'p' and 'k'.

Thus, we have

$br = 34$ and

$1 \equiv d, l$

$3 \equiv i$

$5 \equiv s, e$

$6 \equiv a, n$

$7 \equiv f, g$

$8 \equiv t, p, k$

$9 \equiv o, c$

Now both the questions can be answered

Only for 8 and 9, the complete list of letters associated is identified. Hence, [1].

Q.16)

is \equiv 35 and as \equiv 56 \Rightarrow s \equiv 5

\therefore a \equiv 6 and i \equiv 3

Letters 'i' and 'd' are common in words 'bird' and 'india'. Numbers '1' and '3' are common in there codes. We know that i \equiv 3. Therefore, d \equiv 1. Also, br = 34

India \equiv 13366, d \equiv 1 a \equiv 6 and i \equiv 3 \Rightarrow n = 6

of \equiv 79 means o = 7 or 9

As peacock \equiv 5688999, code for 'o' must be '9'. Therefore, 'f \equiv 7'.

national \equiv 13666689, a \equiv 6, i \equiv 3, o \equiv 9 and n = 6 \Rightarrow tl \equiv 19

the \equiv 458 and tl \equiv 18 \Rightarrow t \equiv 8 and hence, l \equiv 1

Consider designated \equiv 1135556678.

As d \equiv 1 a \equiv 6, i \equiv 3, n \equiv 6, s \equiv 5, t \equiv 8; eeg \equiv 557. Therefore, e \equiv 5 and g \equiv 7

Now in peacock \equiv 5688999 we know codes for letters e, a, and o.

Therefore, pcck \equiv 8899 i.e., c = 8 or 9

If c \equiv 8, 9 codes both 'p' and 'k'. As '9' codes two letters and one of them in 'o', it can not be code for both 'p' and 'k'. Hence, 'c' must be coded as 9. And 8 must be the code for both 'p' and 'k'.

Thus, we have

br = 34 and

1 \equiv d, l

3 \equiv i

5 \equiv s, e

6 \equiv a, n

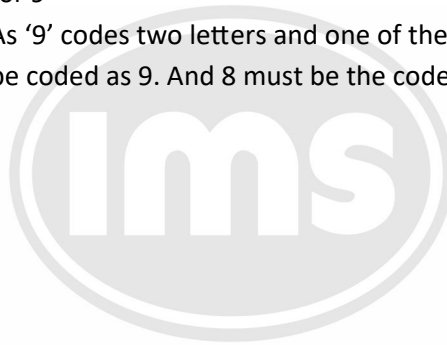
7 \equiv f, g

8 \equiv t, p, k

9 \equiv o, c

Now both the questions can be answered

(X, Y, Z) can be coded with the same digit. (l, B, M) can have code as '3'. (S, E, Z) can be coded with number '5'. As 'S' and 'E' are coded 5, only one more letter has code 5. Thus, (S, U, V) cannot be coded with the same digit. Hence, [2].



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Q.17)

From points 1 and 2, the number of tickets bought by Young people = 80, the number of tickets bought by the middle aged people = 40 and the number of tickets bought by the old people = 20.

Using points 3 & 4, we get the following

	Platinum	Gold	Economy	Total
Old	$20 - 2y$	y	y	20
Middle-aged	$x + 2y - 20$	$43 - x - y$	$17 - y$	40
Young	x	$42 - x$	38	80
Total	$2x$	$85 - 2x$	55	140

Now all the questions can be answered.

We have, $20 - 2y = x + 2y - 20$. Therefore, $x + 4y = 40$. Therefore, $x = 40 - 4y = 4(10 - y)$ or $2x = 8(10 - y)$. Therefore, x is a multiple of 8. Out of the given options, 32 is a possible answer.

Hence [1]

Q.18)

From points 1 and 2, the number of tickets bought by Young people = 80, the number of tickets bought by the middle aged people = 40 and the number of tickets bought by the old people = 20.

Using points 3 & 4, we get the following

	Platinum	Gold	Economy	Total
Old	$20 - 2y$	y	y	20
Middle-aged	$x + 2y - 20$	$43 - x - y$	$17 - y$	40
Young	x	$42 - x$	38	80
Total	$2x$	$85 - 2x$	55	140

Now all the questions can be answered.

We have, $20 - 2y = 17 - y$ or $y = 3$. Therefore the number of old visitors buying Gold tickets = 3. Therefore the required answer is 3.

Q.19)

From points 1 and 2, the number of tickets bought by Young people = 80, the number of tickets bought by the middle aged people = 40 and the number of tickets bought by the old people = 20.

Using points 3 & 4, we get the following

	Platinum	Gold	Economy	Total
Old	$20 - 2y$	y	y	20
Middle-aged	$x+2y-20$	$43-x-y$	$17-y$	40
Young	x	$42-x$	38	80
Total	$2x$	$85-2x$	55	140

Now all the questions can be answered.

We have, $y > 42 - x$ or $x + y > 42$. Now, the number of middle-aged visitors buying Gold tickets = $43 - (x + y)$. Since $x + y > 42$, the number of middle-aged visitors buying Gold tickets = 0. Therefore the required answer is 0.

Q.20)

From points 1 and 2, the number of tickets bought by Young people = 80, the number of tickets bought by the middle aged people = 40 and the number of tickets bought by the old people = 20.

Using points 3 & 4, we get the following

	Platinum	Gold	Economy	Total
Old	$20 - 2y$	y	y	20
Middle-aged	$x+2y-20$	$43-x-y$	$17-y$	40
Young	x	$42-x$	38	80
Total	$2x$	$85-2x$	55	140

Now all the questions can be answered.

Option 1: The numbers of Middle-aged and Young visitors buying Gold tickets were equal i.e. $43 - x - y = 42 - x$ or $y = 1$. No condition precludes the possibility of y having a value of 1.

Option 2: The numbers of Old and Middle-aged visitors buying Platinum tickets were equal i.e. $20 - 2y = x + 2y - 20$ or $x + 4y = 40$. This is possible.

Option 3: The numbers of Gold and Platinum tickets bought by Young visitors were equal i.e. $x = 42 - x$ i.e. $x = 21$. This is possible.

Option 4: The numbers of Old and Middle-aged visitors buying Economy tickets were equal i.e. $y = 17 - y$. This is not possible because in that case y will not be a natural number.

Hence [4]

Q.21)

Suppose the total sales of the four models was 100 in 2016. Accordingly, we can fill the following table:

	Sales	Price	Profitability %	Profit (in thousand rupees)	Sales	Price	Profitability %	Profit (in thousand rupees)
Azra	40	15,000	10%	60	49	15,000	10%	$49 \times 1.5 = 73.5$
Bysi	25	20,000	30%	150	28	20,000	30%	168
cxqi	15	30,000	40%	180	42	18,000	20%	$42 \times 3.6 = 151.2$
Dipq	20	25,000	30%	150	21	25,000	30%	$21 \times 7.5 = 157.5$
Total	100				140			

Now all the questions can be answered.

Hence [2]

Q.22)

Suppose the total sales of the four models was 100 in 2016. Accordingly, we can fill the following table:

	Sales	Price	Profitability %	Profit (in thousand rupees)	Sales	Price	Profitability %	Profit (in thousand rupees)
Azra	40	15,000	10%	60	49	15,000	10%	$49 \times 1.5 = 73.5$
Bysi	25	20,000	30%	150	28	20,000	30%	168
cxqi	15	30,000	40%	180	42	18,000	20%	$42 \times 3.6 = 151.2$
Dipq	20	25,000	30%	150	21	25,000	30%	$21 \times 7.5 = 157.5$
Total	100				140			

Now all the questions can be answered.

Hence [1]

Q.23)

Suppose the total sales of the four models was 100 in 2016. Accordingly, we can fill the following table:

	Sales	Price	Profitability %	Profit (in thousand rupees)	Sales	Price	Profitability %	Profit (in thousand rupees)
Azra	40	15,000	10%	60	49	15,000	10%	$49 \times 1.5 = 73.5$
Bysi	25	20,000	30%	150	28	20,000	30%	168
cxqi	15	30,000	40%	180	42	18,000	20%	$42 \times 3.6 = 151.2$
Dipq	20	25,000	30%	150	21	25,000	30%	$21 \times 7.5 = 157.5$
Total	100				140			

Now all the questions can be answered.

Hence [2]

Q.24)

Suppose the total sales of the four models was 100 in 2016. Accordingly, we can fill the following table:

	Sales	Price	Profitability %	Profit (in thousand rupees)	Sales	Price	Profitability %	Profit (in thousand rupees)
Azra	40	15,000	10%	60	49	15,000	10%	$49 \times 1.5 = 73.5$
Bysi	25	20,000	30%	150	28	20,000	30%	168
cxqi	15	30,000	40%	180	42	18,000	20%	$42 \times 3.6 = 151.2$
Dipq	20	25,000	30%	150	21	25,000	30%	$21 \times 7.5 = 157.5$
Total	100				140			

Now all the questions can be answered.

Hence [2]

Q.25)

From Ganeshan's statement, there were two candidates in room 102. From Erina's statement, she was the only candidate in her room. However, from Balram's statement, there were at least three candidates in the room 101. Therefore, there were 4 candidates in room 101, 2 candidates in room 102 and 1 candidate in room 103.

Using the given statements, we can generate the following:

Room 101	Room 102	Room 103
Akil (7.10)	Ganeshan	Erina (7.45)
Divya	Chitra (7.30)	
Balaram		
Fatima (7.40)		

Now all the questions can be answered.

Hence [2]

Q.26)

From Ganeshan's statement, there were two candidates in room 102. From Erina's statement, she was the only candidate in her room. However, from Balram's statement, there were at least three candidates in the room 101. Therefore, there were 4 candidates in room 101, 2 candidates in room 102 and 1 candidate in room 103.

Using the given statements, we can generate the following:

Room 101	Room 102	Room 103
Akil (7.10)	Ganeshan	Erina (7.45)
Divya	Chitra (7.30)	
Balaram		
Fatima (7.40)		

Now all the questions can be answered.

Hence [3]

Q.27)

From Ganeshan's statement, there were two candidates in room 102. From Erina's statement, she was the only candidate in her room. However, from Balram's statement, there were at least three candidates in the room 101. Therefore, there were 4 candidates in room 101, 2 candidates in room 102 and 1 candidate in room 103.

Using the given statements, we can generate the following:

Room 101	Room 102	Room 103
Akil (7.10)	Ganeshan	Erina (7.45)
Divya	Chitra (7.30)	
Balaram		
Fatima (7.40)		

Now all the questions can be answered.

Hence [3]

Q.28)

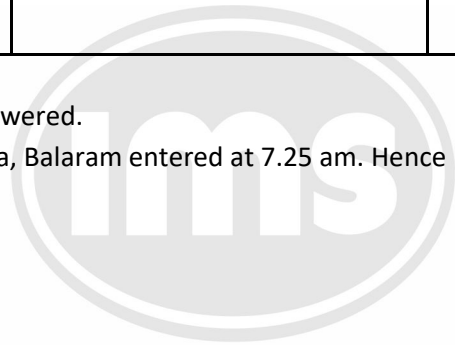
From Ganeshan's statement, there were two candidates in room 102. From Erina's statement, she was the only candidate in her room. However, from Balram's statement, there were at least three candidates in the room 101. Therefore, there were 4 candidates in room 101, 2 candidates in room 102 and 1 candidate in room 103.

Using the given statements, we can generate the following:

Room 101	Room 102	Room 103
Akil (7.10)	Ganeshan	Erina (7.45)
Divya	Chitra (7.30)	
Balaram		
Fatima (7.40)		

Now all the questions can be answered.

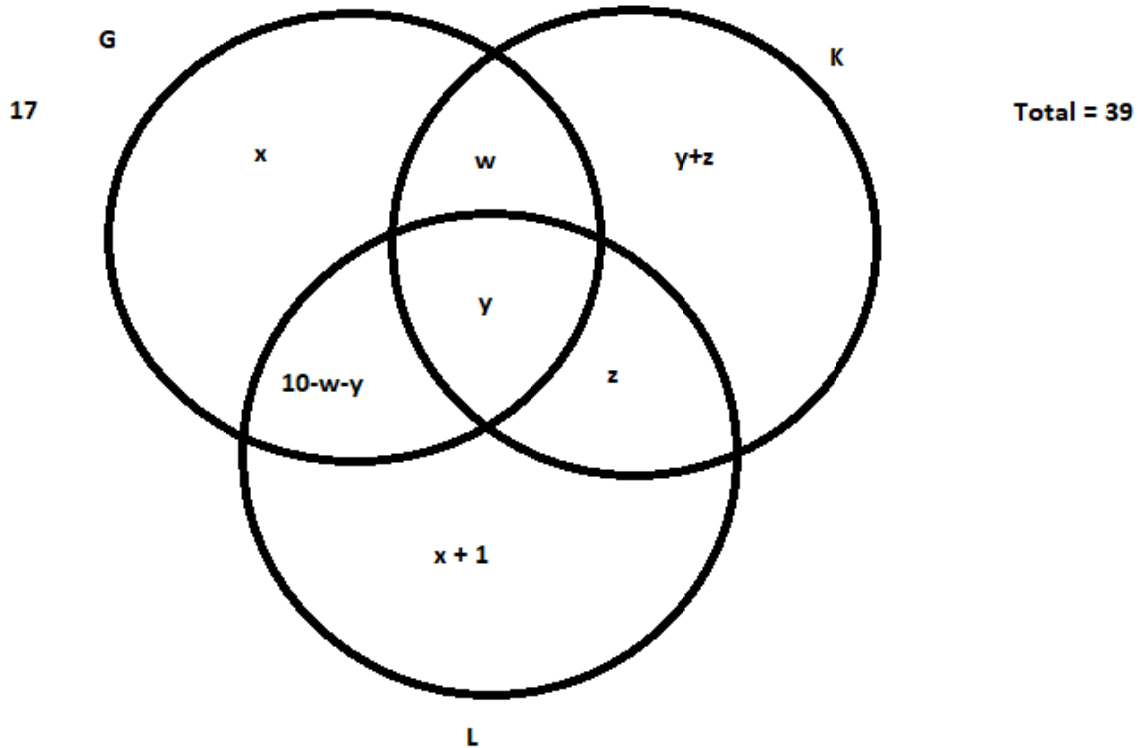
If Ganeshan entered before Divya, Balaram entered at 7.25 am. Hence [4]



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Q.29)

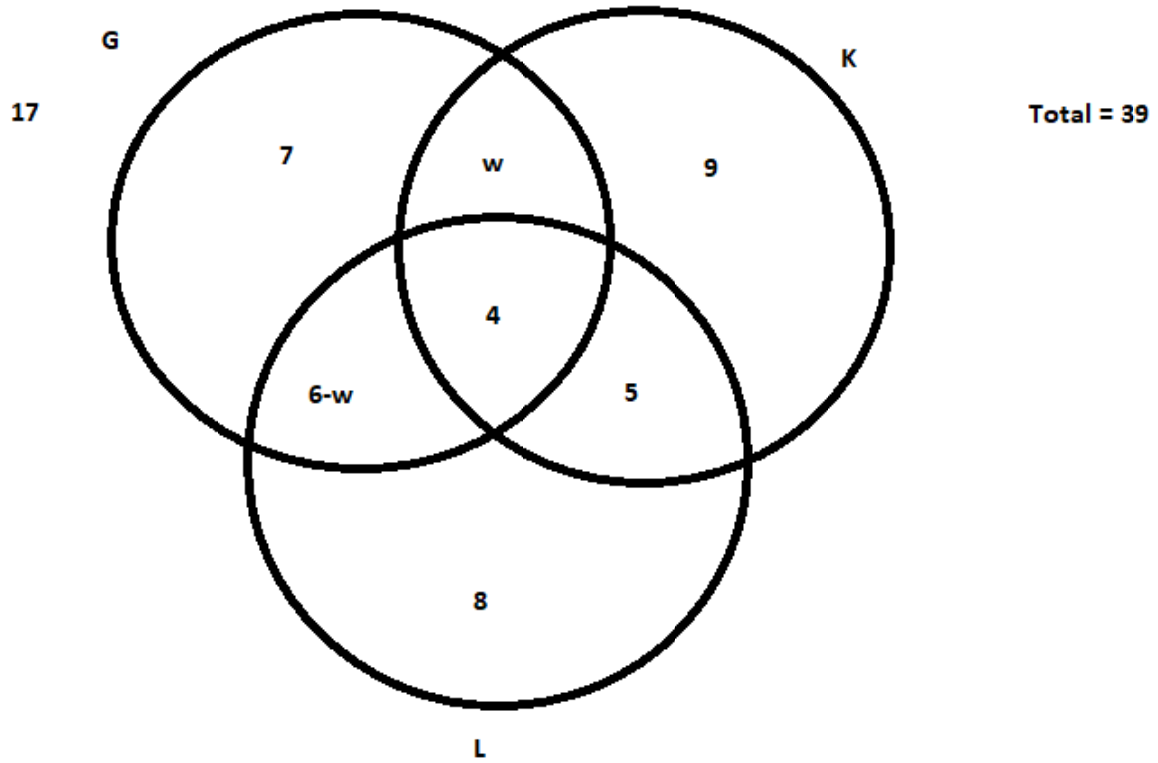
Using the information given in the set, we can construct the following venn diagram:



Since 10 students who play G enrolled in at least one other sport, the number of students who enrolled only in G = $17 - 10 = 7$. Therefore $x = 7$. Also from statement 1, the number of students who enrolled in all the three sports = $\frac{7+7}{2} = 4$.

As 17 students enrolled in G, the number of students who did not enrol in G = $39 - 17 = 22$.

Therefore, $x + 1 + z + y + z = 22$. We know that $x = 7$ and $y = 4$. Therefore we have the following:
 $8 + 4 + 2z = 22$ or $z = 5$.



From statement 5, $6 - w > w$ or $w = 0$ or 1 or 2 .

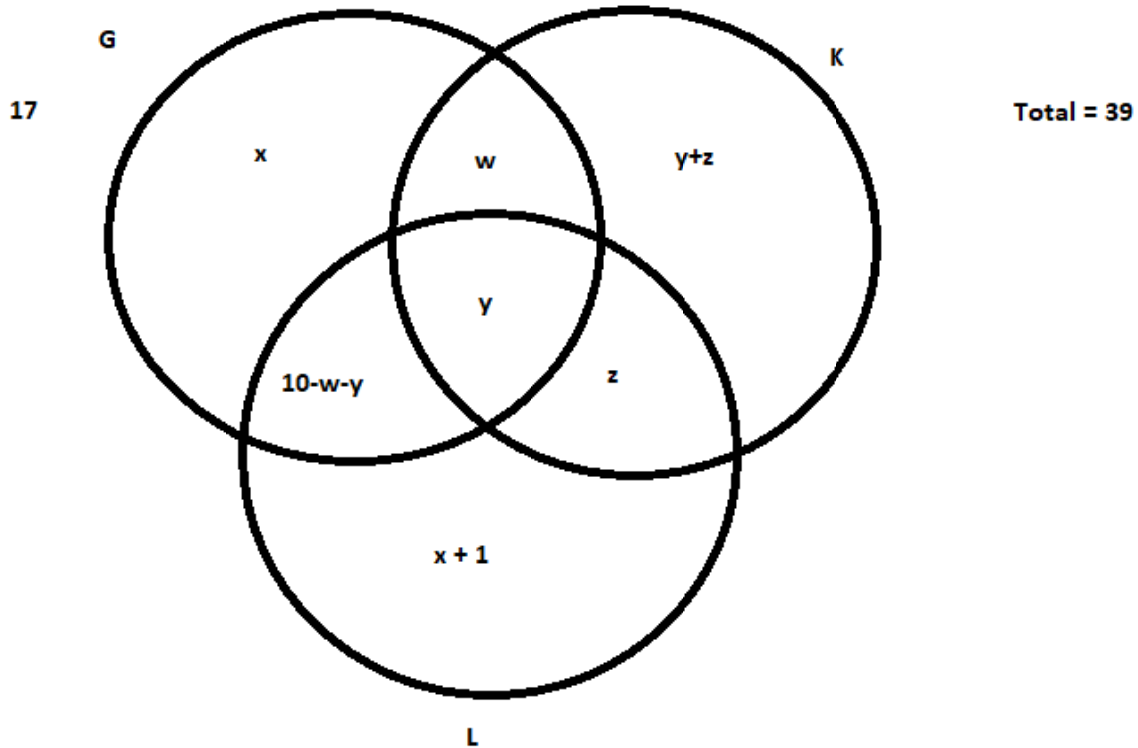
Now first two questions can be answered.

The required answer is $6 - 2 = 4$.

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Q.30)

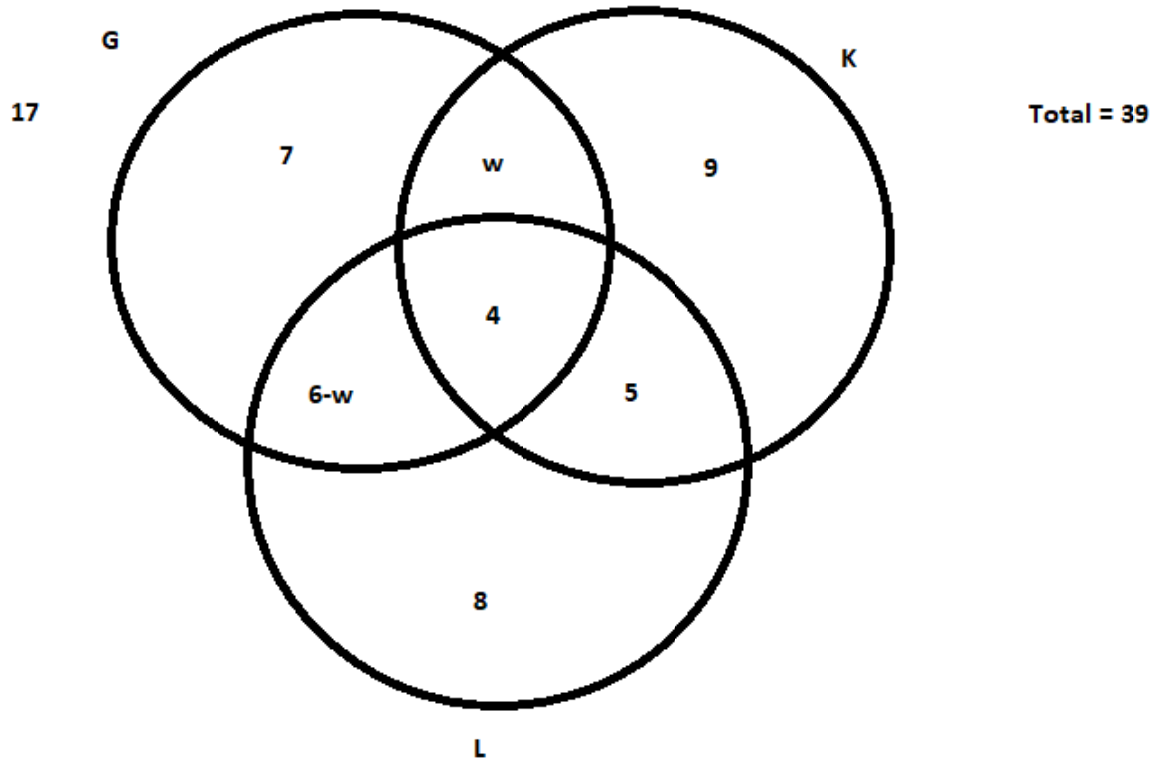
Using the information given in the set, we can construct the following venn diagram:



Since 10 students who play G enrolled in at least one other sport, the number of students who enrolled only in G = $17 - 10 = 7$. Therefore $x = 7$. Also from statement 1, the number of students who enrolled in all the three sports = $\frac{7+7}{2} = 4$.

As 17 students enrolled in G, the number of students who did not enrol in G = $39 - 17 = 22$.

Therefore, $x + 1 + z + y + z = 22$. We know that $x = 7$ and $y = 4$. Therefore we have the following:
 $8 + 4 + 2z = 22$ or $z = 5$.



From statement 5, $6 - w > w$ or $w = 0$ or 1 or 2 .

Now first two questions can be answered.

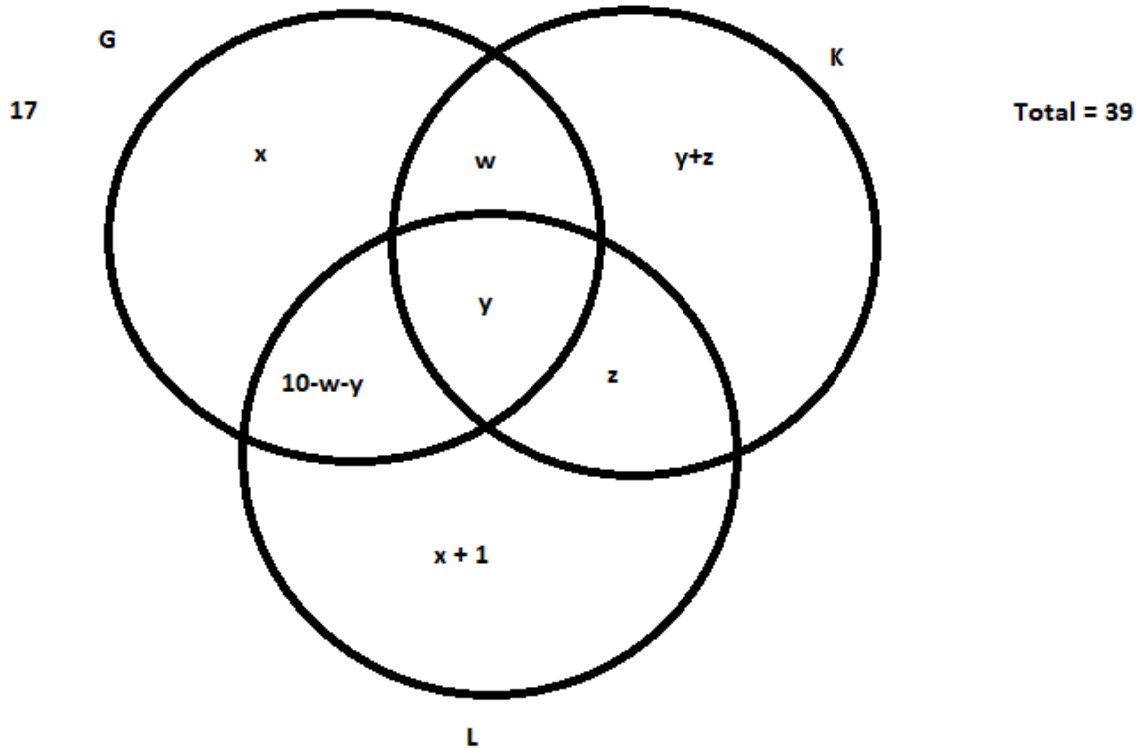
If the ratio of the numbers of students enrolled in K and L are in the ratio 19:22, $\frac{18+w}{23-w} = \frac{19}{22}$. Therefore $w = 1$. Therefore total enrollment in L = $23 - 1 = 22$.

Hence [3]

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Q.31)

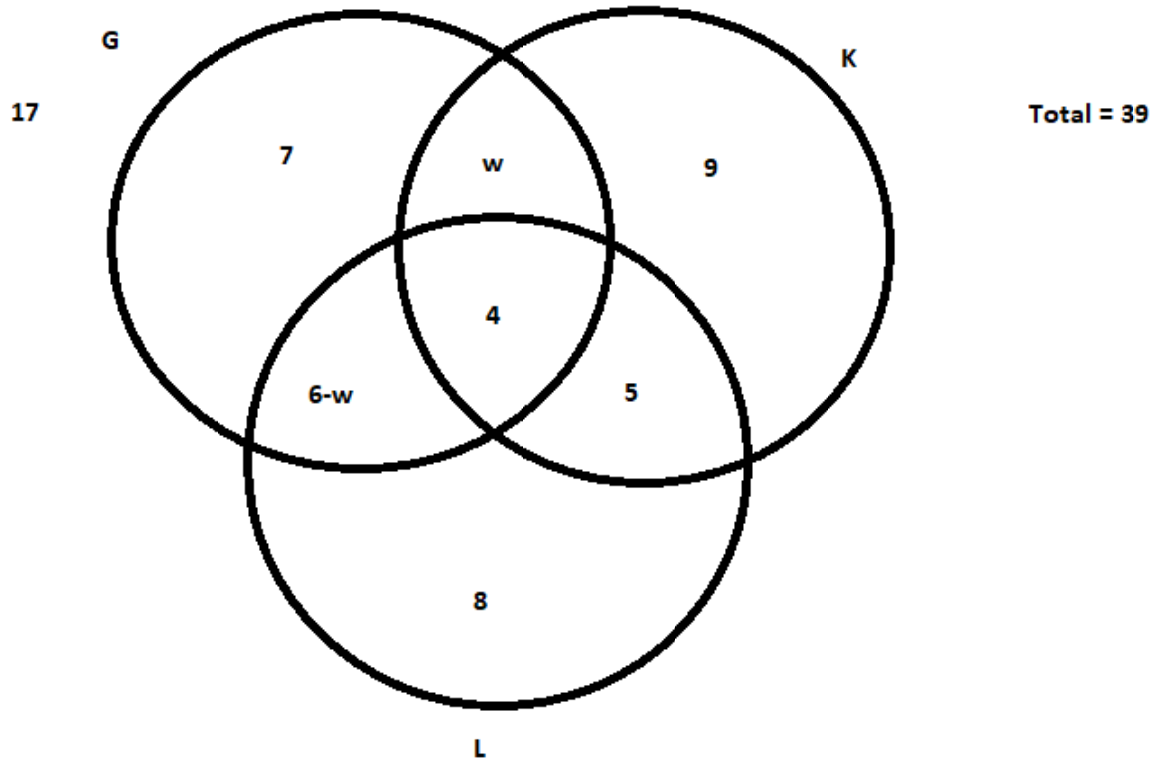
Using the information given in the set, we can construct the following venn diagram:



Since 10 students who play G enrolled in at least one other sport, the number of students who enrolled only in G = $17 - 10 = 7$. Therefore $x = 7$. Also from statement 1, the number of students who enrolled in all the three sports = $\frac{7+7}{2} = 4$.

As 17 students enrolled in G, the number of students who did not enrol in G = $39 - 17 = 22$.

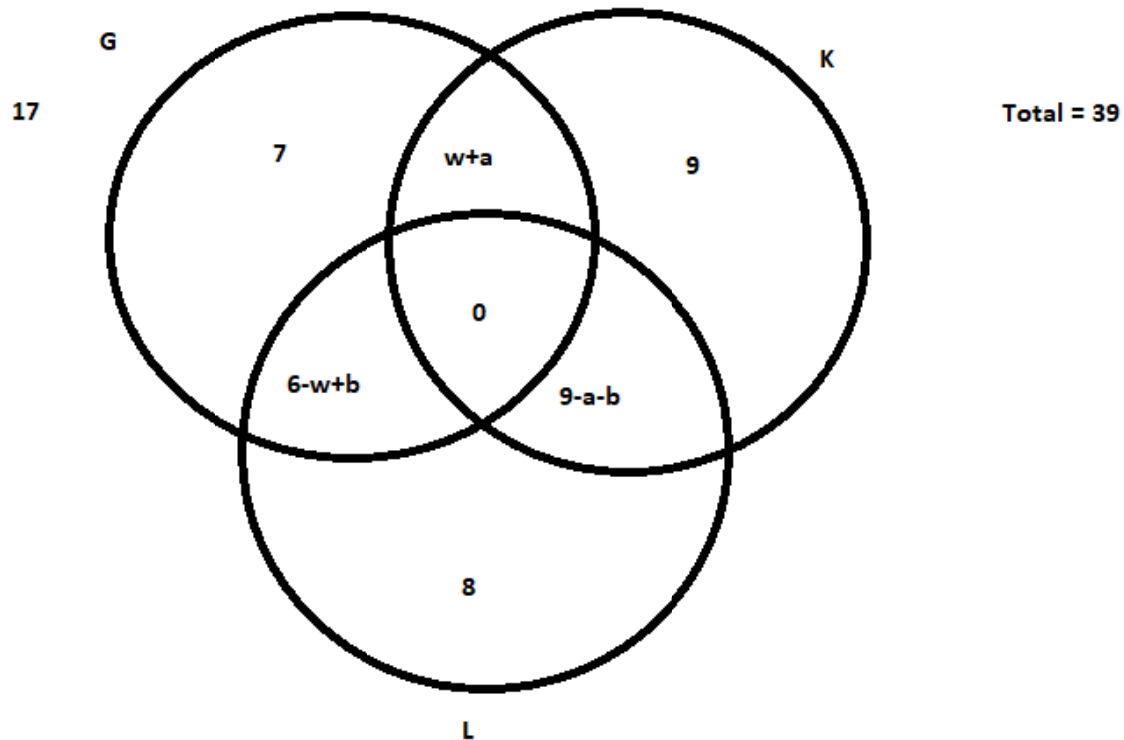
Therefore, $x + 1 + z + y + z = 22$. We know that $x = 7$ and $y = 4$. Therefore we have the following:
 $8 + 4 + 2z = 22$ or $z = 5$.



From statement 5, $6 - w > w$ or $w = 0$ or 1 or 2 .

Now first two questions can be answered.

Out of 4 students who are enrolled in all the three, suppose 'a' students dropped out of L and 'b' students dropped out of K. Therefore the number of students who dropped out of G = $4 - a - b$. Therefore we have the following:



If the number of students enrolled in K reduced by 1 that means out of the 4 students who had enrolled in all the three, one student dropped out of K i.e. $b = 1$.

Now, if the number of students enrolled in G was 6 less than the number of students enrolled in L, we have the following:

$$(7 + w + a + 6 - w + b) + 6 = 6 - w + b + 9 - a - b + 8$$

$$\therefore 19 + a + b = 23 - w - a$$

$$\therefore 2a + b + w = 4$$

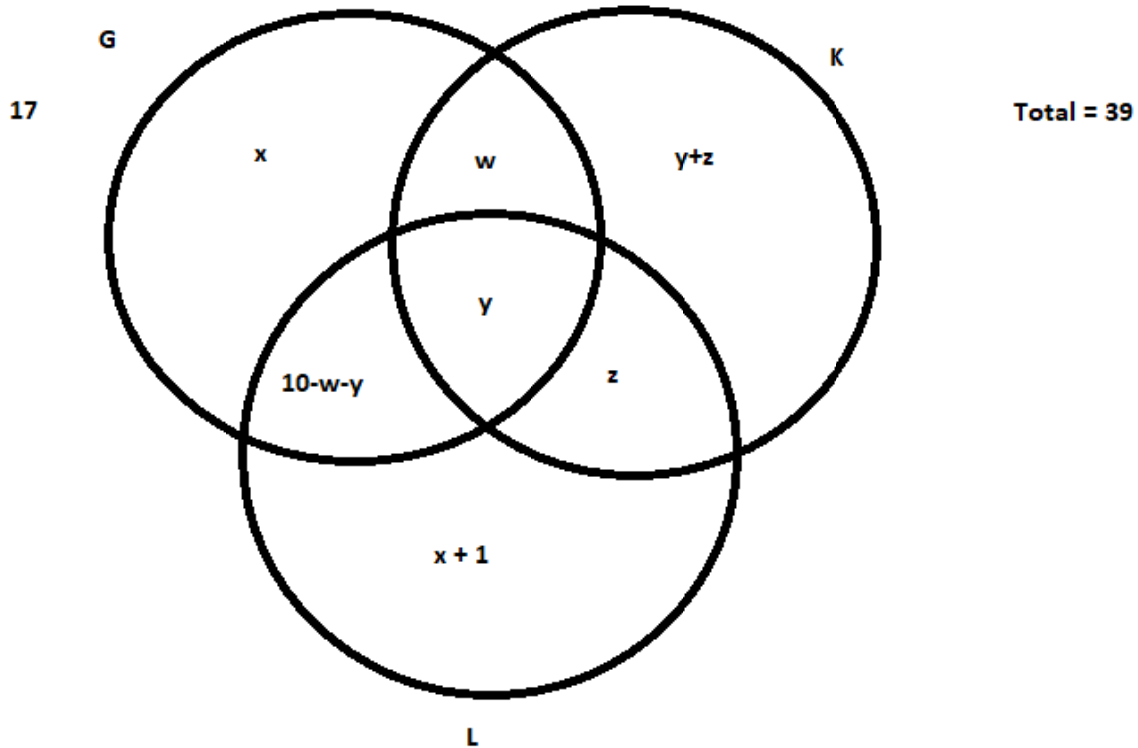
Since $b = 1$, the only solution for the equation $2a + b + w = 4$ is $a = 1$, $b = 1$ and $w = 1$.

Now both the questions can be answered.

The required number of students = $w + a = 2$. Therefore the required answer is 2.

Q.32)

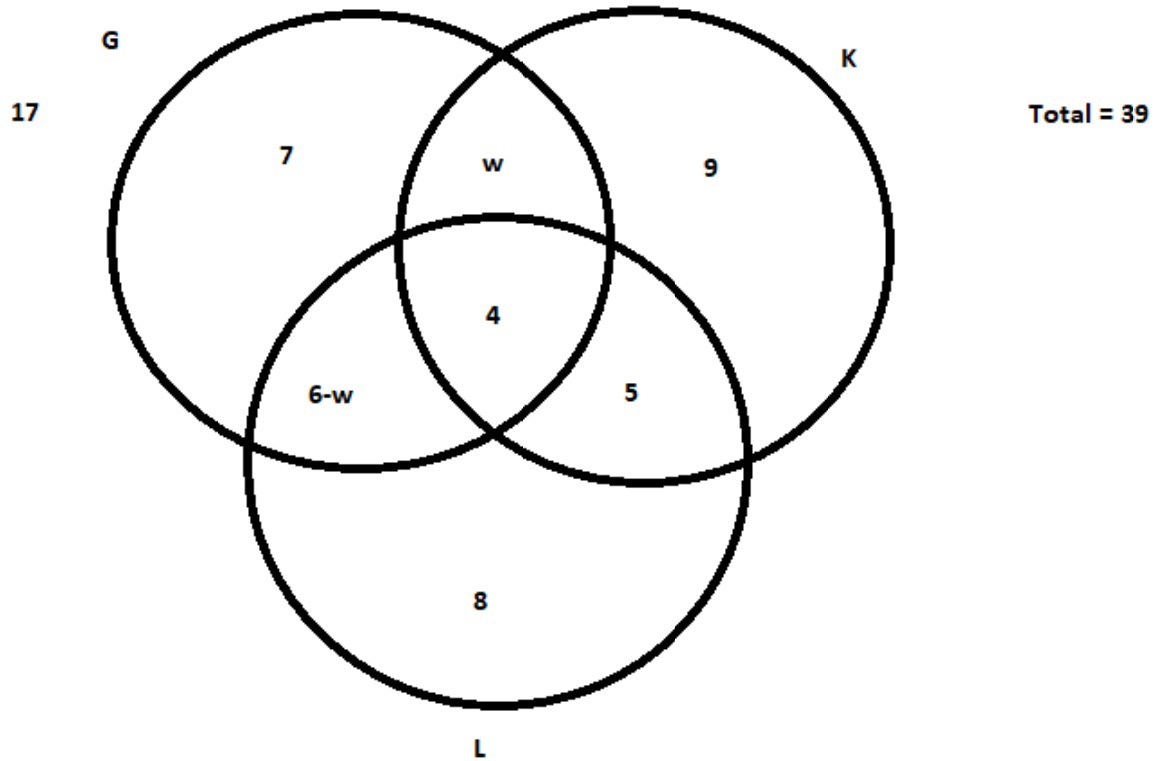
Using the information given in the set, we can construct the following venn diagram:



Since 10 students who play G enrolled in at least one other sport, the number of students who enrolled only in G = $17 - 10 = 7$. Therefore $x = 7$. Also from statement 1, the number of students who enrolled in all the three sports = $\frac{7+7}{2} = 4$.

As 17 students enrolled in G, the number of students who did not enrol in G = $39 - 17 = 22$.

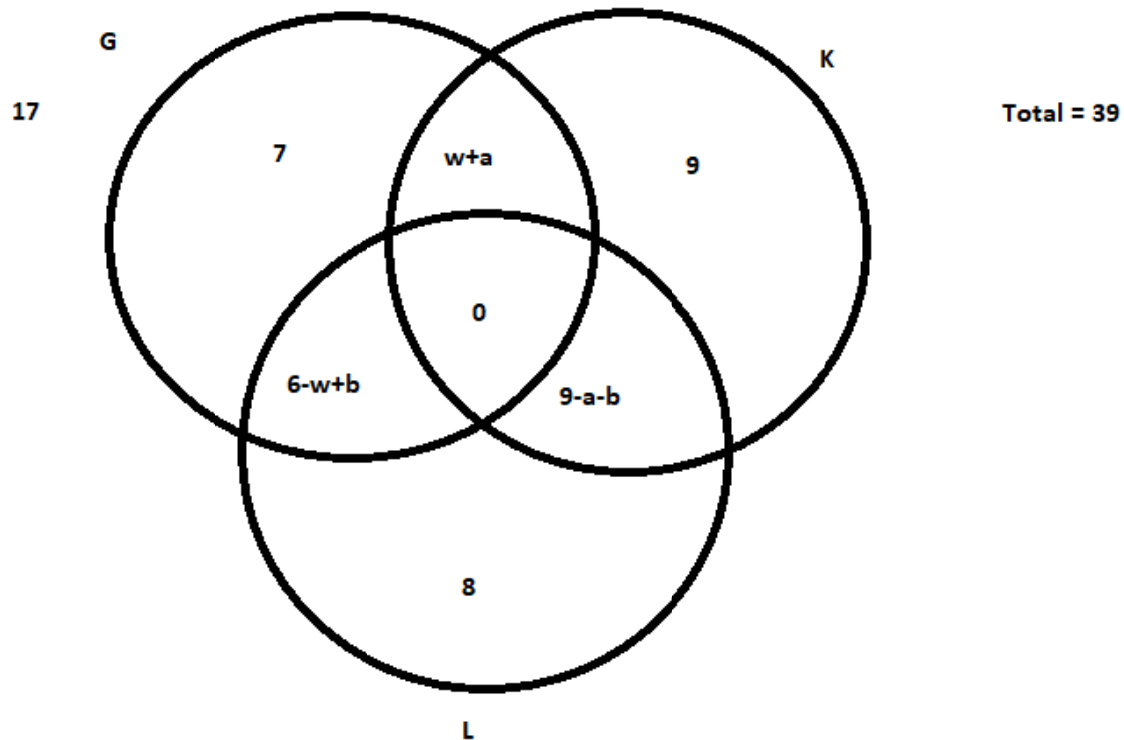
Therefore, $x + 1 + z + y + z = 22$. We know that $x = 7$ and $y = 4$. Therefore we have the following:
 $8 + 4 + 2z = 22$ or $z = 5$.



From statement 5, $6 - w > w$ or $w = 0$ or 1 or 2 .

Now first two questions can be answered.

Out of 4 students who are enrolled in all the three, suppose 'a' students dropped out of L and 'b' students dropped out of K. Therefore the number of students who dropped out of G = $4 - a - b$. Therefore we have the following:



If the number of students enrolled in K reduced by 1 that means out of the 4 students who had enrolled in all the three, one student dropped out of K i.e. $b = 1$.

Now, if the number of students enrolled in G was 6 less than the number of students enrolled in L, we have the following:

$$(7 + w + a + 6 - w + b) + 6 = 6 - w + b + 9 - a - b + 8$$

$$\therefore 19 + a + b = 23 - w - a$$

$$\therefore 2a + b + w = 4$$

Since $b = 1$, the only solution for the equation $2a + b + w = 4$ is $a = 1$, $b = 1$ and $w = 1$.

Now both the questions can be answered.

The required number of students = $6 - w + b = 6 - 1 + 1 = 6$. Hence [2]