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Mock CAT – 06 2018

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VARC

LRDI

QA

Sec 1

Directions for questions (1to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

For a start, heresy relies on the existence of an orthodoxy of generally accepted ideas. If everyone is a heretic, no one can be. The orthodoxy must also be vulnerable to doubt. The heretic's beliefs must seem to threaten the orthodox even where no direct harm can be demonstrated. So for heresy to arise, morality must be understood as a collective property and not just something that individuals practice. This understanding makes perfect sense in the light of evolutionary theory, which shows that cooperative or collective behaviour requires coercive action against cheats; and cheating is a morally loaded term. To put it another way, collective action requires collective morality. The great problem of cooperative behaviour, according to evolutionary theory, is the danger of cheats, or free riders, who get the benefits of collective action but pay none of the costs, since cheating behaviour will spread through successive generations until cooperation collapses completely and no one benefits. Therefore the detection and punishment of nonconformists, as potential cheats, is something that comes naturally to social animals.

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In heresy, moral values come to be identified with particular ideas, quite often ideas so subtle that it's possible to become a heretic by accident. But even if the ideas are valued in themselves, they become merely a means to make the conflict a decisive one, from which one side must emerge clearly victorious. This is something that very rarely happens in purely intellectual disputes. But if heresy is understood only as a conflict of ideas, it makes no sense at all, and there are many intellectual disagreements, no matter how deep, which do not lead to heresy hunts. That is because they have answers, which can emerge from inquiry. By contrast, the intellectual questions around which heresies coalesce aren't soluble. And when the questions at issue have no final answers they can only be decided by contests of political force if they are to be decided at all.

Q.1

What does the author imply by the line "If everyone is a heretic, no one can be."?

1 **Heresy may not cause a direct harm to the beliefs of the orthodox individual.**

2 **If everyone becomes a heretic, heresy turns into orthodoxy.**

3 **Heresy is something that individuals, and not all the members of a society, indulge in.**

4 **If everyone becomes a heretic, it would challenge the generally accepted ideas, which would endanger the existence of heresy itself.**

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Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Your Answer : 4
GENRE: Sociology / Social-Psychology
This is an inference based or implied idea question. It requires an understanding of the author's intention behind using a particular sentence.
These questions normally have two close options. So the trick is to understand the implication of the line in the larger context of the main idea of the passage.
The first line of the passage states that heresy relies on the existence of an orthodoxy of generally accepted ideas. This is because heresy poses a challenge to these "generally accepted ideas/orthodoxy". If everyone becomes a heretic, their ideas no longer remain heresy, but become the generally accepted ideas. Hence 2 is the correct answer.
The two options that can easily be discarded are options 1 and 4.
Option 1 – It states something that is inherently contradictory. In fact, heresy challenges the orthodoxy. Furthermore, this option is irrelevant to the question.
Option 4 – It is self-contradictory. If everyone becomes a heretic, it will strengthen, not weaken, the concept of heresy.
Now the choice is between options 2 and 3.
At first glance, 3 looks like a good option. But it is a distorted form of restating the statement given in the question. Nowhere does the author imply that some members of the society, and not all, indulge in heresy. The author is trying to define heresy. This option is a distorted generalization. So, 2 is the correct choice.

FeedBack

Directions for questions (1to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

For a start, heresy relies on the existence of an orthodoxy of generally accepted ideas. If everyone is a heretic, no one can be. The orthodoxy must also be vulnerable to doubt. The heretic's beliefs must seem to threaten the orthodox even where no direct harm can be demonstrated. So for heresy to arise, morality must be understood as a collective property and not just something that individuals practice. This understanding makes perfect sense in the light of evolutionary theory, which shows that cooperative or collective behaviour requires coercive action against cheats; and cheating is a morally loaded term. To put it another way, collective action requires collective morality. The great problem of cooperative behaviour, according to evolutionary theory, is the danger of cheats, or free riders, who get the benefits of collective action but pay none of the costs, since cheating behaviour will spread through successive generations until cooperation collapses completely and no one benefits. Therefore the detection and punishment of nonconformists, as potential cheats, is something that comes naturally to social animals.

This is why blind loyalty and unconditional commitment can be more desirable and valuable than rational calculations of relative advantage. Covenants (which can't be broken) are worth more than contracts because they are more expensive. It is also one reason why so many societies have painful and dangerous initiation rites, or, in more elaborate forms of religion, inconvenient taboos against harmless foods. These are costly signals of a willingness to serve the community. Heresy threatens this collective trust. But it is more than merely nonconformism. It has an inescapable intellectual component. The heretic is someone whose moral badness, lack of trustworthiness and deficient loyalty to the collective is revealed not so much by their behaviour as by their ideas. That's what makes the phenomenon remarkable.

In heresy, moral values come to be identified with particular ideas, quite often ideas so subtle that it's possible to become a heretic by accident. But even if the ideas are valued in themselves, they become merely a means to make the conflict a decisive one, from which one side must emerge clearly victorious. This is something that very rarely happens in purely intellectual disputes. But if heresy is understood only as a conflict of ideas, it makes no sense at all, and there are many intellectual disagreements, no matter how deep, which do not lead to heresy hunts. That is because they have answers, which can emerge from inquiry. By contrast, the intellectual questions around which heresies coalesce aren't soluble. And when the questions at issue have no final answers they can only be decided by contests of political force if they are to be decided at all.

Q.2

As per the passage, which of the following could be an example of a free rider?

1 **A family, which is boycotting the residential block's dinner, does not contribute to the latter.**

2 **A family raising its voice against the accepted practice of dowry in the family's caste.**

3 **A family not paying for the watchman who is appointed for the protection of their residential lane.**

4 **A family using Uber pool and always applying promotional coupons to their rides.**

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Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
Your Answer : 3
GENRE: Sociology / Social-Psychology
This is an analogy or further application question. To answer this, we need to understand the logic of the author behind defining who is a “free rider”.
Refer to the lines “The great problem of cooperative behaviour...free riders, who get the benefits of collective action but pay none of the costs...” The passage defines free riders as those “who get the benefits of collective action but pay none of the costs”. Such questions can be tricky. However, this is an easy question.
Option 1 – The family pays no cost and enjoys no benefits.
Option 2 - It is nowhere indicated that the family has benefitted from dowry or is raising its voice because it personally does not want to pay the cost.
Option 4 – In this question, it is not about collective action. Secondly, the family doesn’t ride Uber for free. So, it is irrelevant.
Option 3 – It is the correct choice. The watchman will protect the whole lane which includes the family’s house. Still, the family doesn’t pay for it.

FeedBack

Directions for questions (1to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Q.3

As per the passage, all of the following, in some way, demonstrate blind loyalty or unconditional commitment EXCEPT:

1 **Taboos regarding certain foods**

2 **Difficult initiation ceremonies**

3 **Covenants which cannot be broken**

4 **Dangerous coming-of-age rites**

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Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
Your Answer : 4
GENRE: Sociology / Social-Psychology
This is an easy fact based question.
The answer is located in the penultimate paragraph. Refer to the lines, "...one reason why so many societies have painful and dangerous initiation rites, or, in more elaborate forms of religion, inconvenient taboos against harmless foods."
So, options 1, 2, and 3 are directly mentioned.
Option 4 is not mentioned. Hence, it is the correct answer.

FeedBack

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For a start, heresy relies on the existence of an orthodoxy of generally accepted ideas. If everyone is a heretic, no one can be. The orthodoxy must also be vulnerable to doubt. The heretic's beliefs must seem to threaten the orthodox even where no direct harm can be demonstrated. So for heresy to arise, morality must be understood as a collective property and not just something that individuals practice. This understanding makes perfect sense in the light of evolutionary theory, which shows that cooperative or collective behaviour requires coercive action against cheats; and cheating is a morally loaded term. To put it another way, collective action requires collective morality. The great problem of cooperative behaviour, according to evolutionary theory, is the danger of cheats, or free riders, who get the benefits of collective action but pay none of the costs, since cheating behaviour will spread through successive generations until cooperation collapses completely and no one benefits. Therefore the detection and punishment of nonconformists, as potential cheats, is something that comes naturally to social animals.

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Q.4
According to the passage, why is blind loyalty more desirable than rational calculations of relative advantage?

1 It ensures that people do not get to know that they are being cheated.

2 It ensures the smooth continuation of cooperative behaviour.

3 It ensures that cooperation does not collapse when cheating behaviour spreads through it.

4 It ensures that cooperation, despite accommodating free riders, continues unhindered.

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Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Your Answer : 2
GENRE: Sociology / Social-Psychology
This question looks like a fact based question. However, it is a moderate level inference based question as the answer can be located in the second half of the first paragraph and the first sentence of the second paragraph. Refer to the lines "The great problem… relative advantage."
From these, one can infer that blind loyalty is more desirable because it acts as a preventive measure against the creation of cheats. This translates into cooperative behaviour not breaking down. Hence, option 2 is the answer.
Option 1 – It is not mentioned in the passage.
Option 3 – It is a distorted option. Blind loyalty is thought to be 'prevent' the creation of cheats, not 'remedy' their effects. Hence, it creates a distorted cause-effect scenario.
Option 4 – It talks about accommodating free riders, which goes against the intention of the author.

FeedBack

Directions for questions (1to 6): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

For a start, heresy relies on the existence of an orthodoxy of generally accepted ideas. If everyone is a heretic, no one can be. The orthodoxy must also be vulnerable to doubt. The heretic's beliefs must seem to threaten the orthodox even where no direct harm can be demonstrated. So for heresy to arise, morality must be understood as a collective property and not just something that individuals practice. This understanding makes perfect sense in the light of evolutionary theory, which shows that cooperative or collective behaviour requires coercive action against cheats; and cheating is a morally loaded term. To put it another way, collective action requires collective morality. The great problem of cooperative behaviour, according to evolutionary theory, is the danger of cheats, or free riders, who get the benefits of collective action but pay none of the costs, since cheating behaviour will spread through successive generations until cooperation collapses completely and no one benefits. Therefore the detection and punishment of nonconformists, as potential cheats, is something that comes naturally to social animals.

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Q.5

According to the passage, how is heresy different from intellectual disputes?

1 **Unlike intellectual disagreements, heresy demands clear losers and winners to insoluble matters.**

2 **Unlike intellectual disagreements, heresy resorts to only political force to decide clear winners and losers.**

3 **While intellectual disagreements find answers through inquiry, heresy finds them in political force.**

4 **One can become a heretic by accident, but one cannot enter an intellectual dispute by accident.**

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Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
Your Answer : 4
GENRE: Sociology / Social-Psychology
It is technically an easy question. However, it is a difficult to read passage.
And this question is requires a combination of fact based and inference based approach. So, it is a moderate level question.
The two major differences the author has drawn between intellectual disputes and heresy are its character of a decisive conflict and the fact that involves matters that do not have a final answer. This is captured by option 1. Hence, 1 is the correct answer.
Option 2 – It is true according to the passage. But the word “only” makes it a distorted option.
Option 3 – It is factually incorrect as it talks about ‘finding answers’ whereas the paragraph states that heresy deals with matters that have no final answers.
Option 4 - It is an irrelevant option as it doesn’t the answer the question.

FeedBack

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Q.6

What is the primary purpose of the passage?

1 **To discuss how heresy arises and condemn it as an extreme form of non-intellectual disagreement**

2 **To present heresy as a disruptive phenomenon that challenges orthodoxy**

3 **To discuss how heresy arises, its threat to collective trust, and its differences from intellectual disputes**

4 **To trace the origins of heresy, its threat to collective trust, and its proximity to matters of intellect**

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Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
Your Answer : 3
GENRE: Sociology / Social-Psychology
Main idea questions are traditionally scoring. One just needs to understand the author's intention behind writing the passage. This requires the ability to skim through seemingly specious lines and superfluous statements. One also needs to pay attention to the tone of the author.
Option 1 - The author does not use a condemning tone towards heresy in the last paragraph. In fact, throughout the passage, the author uses an objective tone.
Option 2 – It is incorrect as it does not capture the passage in its entirety. Also, it presents heresy in a positive light which has not been the intention of the author. It can be eliminated as a narrow option.
Option 3 – It captures the essence of the entire passage.
Option 4 – It can be eliminated as the passage does not delve into history of heresy.

FeedBack

Directions for questions (7 to12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

The world's nights are getting alarmingly brighter – bad news for all sorts of creatures, humans included – as light pollution encroaches on darkness almost everywhere. Satellite observations made by researchers during five consecutive Octobers show Earth's artificially lit outdoor area grew by 2% a year from 2012 to 2016. So did night-time brightness.

Light pollution was even worse than that, according to the German-led team, because the sensor used cannot detect some of the LED lighting that is becoming more widespread, specifically blue light. The observations indicate stable levels of night light in the US, the Netherlands, Spain and Italy. But light pollution is almost certainly on the rise in those countries given this elusive blue light, according to Christopher Kyba of the GFZ German research centre for geosciences and the lead author of the study published in Science Advances. Also on the rise is the spread of light into the hinterlands and overall increased use. The findings shatter the long-held notion that more energy-efficient lighting would decrease usage on the global – or at least a national – scale.

"Honestly, I had thought and assumed and hoped that with LEDs we were turning the corner. There's also a lot more awareness of light pollution," Kyba told reporters by phone from Potsdam. "It is quite disappointing."

The biological impact from surging artificial light is also significant, according to the researchers. People's sleep can be marred, which in turn can affect their health. The migration and reproduction of birds, fish, amphibians, insects and bats can be disrupted. Plants can have abnormally extended growing periods. And forget about seeing stars or the Milky Way if the trend continues.

About the only places with dramatic declines in night light were in areas of conflict such as Syria and Yemen, the researchers found. Australia also reported a noticeable drop, but that was because wildfires were raging early in the study. Researchers were unable to filter out the bright burning light. Asia, Africa and South America, for the most part, saw a surge in artificial night lighting.

More and more places are installing outdoor lighting, given its low cost and the overall growth in communities' wealth, the scientists noted. Urban sprawl is also moving towns farther out. The outskirts of major cities in developing nations were brightening quite rapidly, Kyba said.

Other especially bright hot spots included sprawling greenhouses in the Netherlands and areas of intensive agriculture. One of the co-authors, Franz Holker of the Leibniz institute of freshwater ecology and inland fisheries in Berlin, said things were at the critical point. "Many people are using light at night without really thinking about the cost," Holker said. Not just the economic cost, "but also the cost that you have to pay from an ecological, environmental perspective".

Kyba and his colleagues recommend avoiding glaring lamps whenever possible – choosing amber over so-called white LEDs – and using more efficient ways to illuminate places such as parking lots or city streets. For example, dim, closely spaced lights tend to provide better visibility than bright lights that are more spread out.

Q.7
Why was Kyba disappointed with the observation?

1 **Because the LEDs increased the awareness of the masses towards light pollution.**

2 **Because the LEDs didn't stand up to his expectation on light pollution.**

3 **Because the LEDs didn't turn out to be energy efficient.**

4 **Because the LEDs shattered his assumption regarding the potential of energy usage.**

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Solution:
Correct Answer : 2
Your Answer : 1
GENRE: Environmental Studies
It is an easy fact based question. The answer can be located in the lines ""Honestly, I had thought and assumed and hoped that with LEDs we were turning the corner. There's also a lot more awareness of light pollution," Kyba told reporters by phone from Potsdam. "It is quite disappointing." However, one needs to read the two lines that precede these lines. Then, one needs to eliminate the incorrect options.
Option 1 – This is not a cause of his disappointment. In fact, Kyba says that despite the increased awareness, the pollution level has gone up. So, option 1 is a distorted option.
Option 2 – It is the correct answer.
Option 3 – It is contradicted by the passage. These lights are mentioned to be energy efficient but not effective enough in curbing light pollution.
Option 4 – It is an extreme interpretation of Kyba's statement. No assumption has been mentioned. And clearly, his belief has not been 'shattered'. Such extreme inferences are generally wrong.

FeedBack

Bookmark

Answer key/Solution

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About the only places with dramatic declines in night light were in areas of conflict such as Syria and Yemen, the researchers found. Australia also reported a noticeable drop, but that was because wildfires were raging early in the study. Researchers were unable to filter out the bright burning light. Asia, Africa and South America, for the most part, saw a surge in artificial night lighting.

More and more places are installing outdoor lighting, given its low cost and the overall growth in communities' wealth, the scientists noted. Urban sprawl is also moving towns farther out. The outskirts of major cities in developing nations were brightening quite rapidly, Kyba said.

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Kyba and his colleagues recommend avoiding glaring lamps whenever possible – choosing amber over so-called white LEDs – and using more efficient ways to illuminate places such as parking lots or city streets. For example, dim, closely spaced lights tend to provide better visibility than bright lights that are more spread out.

Q.8

According to the passage, all of the following contributed to Australia's reporting of a noticeable drop in light pollution EXCEPT:

1 ○ **The raging wildfires in Australia affected the study.**

2 **The researchers could not filter out the bright burning light of the wildfire.**

3 **The researchers faced difficulty in interpreting the light caused by the wildfire.**

4 **The raging wildfires affected not only the study but also the ability of the researchers.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
GENRE: Environmental Studies
This is a very easy factual question. Refer to the lines "Australia also reported a noticeable drop, but that was because wildfires were raging early in the study. Researchers were unable to filter out the bright burning light."
So, options 1, 2, and 3 have been mentioned in the passage.
Option 4 – It is a misleading option. The wildfires didn't affect "the ability of the researchers" in general. They just couldn't interpret the data. That can't be generalized to such an extent. Hence, option 4 is the correct answer.

FeedBack

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Light pollution was even worse than that, according to the German-led team, because the sensor used cannot detect some of the LED lighting that is becoming more widespread, specifically blue light. The observations indicate stable levels of night light in the US, the Netherlands, Spain and Italy. But light pollution is almost certainly on the rise in those countries given this elusive blue light, according to Christopher Kyba of the GFZ German research centre for geosciences and the lead author of the study published in Science Advances. Also on the rise is the spread of light into the hinterlands and overall increased use. The findings shatter the long-held notion that more energy-efficient lighting would decrease usage on the global – or at least a national – scale.

"Honestly, I had thought and assumed and hoped that with LEDs we were turning the corner. There's also a lot more awareness of light pollution," Kyba told reporters by phone from Potsdam. "It is quite disappointing."

The biological impact from surging artificial light is also significant, according to the researchers. People's sleep can be marred, which in turn can affect their health. The migration and reproduction of birds, fish, amphibians, insects and bats can be disrupted. Plants can have abnormally extended growing periods. And forget about seeing stars or the Milky Way if the trend continues.

About the only places with dramatic declines in night light were in areas of conflict such as Syria and Yemen, the researchers found. Australia also reported a noticeable drop, but that was because wildfires were raging early in the study. Researchers were unable to filter out the bright burning light. Asia, Africa and South America, for the most part, saw a surge in artificial night lighting.

More and more places are installing outdoor lighting, given its low cost and the overall growth in communities' wealth, the scientists noted. Urban sprawl is also moving towns farther out. The outskirts of major cities in developing nations were brightening quite rapidly, Kyba said.

Other especially bright hot spots included sprawling greenhouses in the Netherlands and areas of intensive agriculture. One of the co-authors, Franz Holker of the Leibniz institute of freshwater ecology and inland fisheries in Berlin, said things were at the critical point. "Many people are using light at night without really thinking about the cost," Holker said. Not just the economic cost, "but also the cost that you have to pay from an ecological, environmental perspective".

Kyba and his colleagues recommend avoiding glaring lamps whenever possible – choosing amber over so-called white LEDs – and using more efficient ways to illuminate places such as parking lots or city streets. For example, dim, closely spaced lights tend to provide better visibility than bright lights that are more spread out.

Q.9

Which of the following is true according to the passage?

1 ○ **Light pollution does not have only biological side effects.**

2 **Greenhouses and areas of intensive agriculture always contribute to light pollution.**

3 **LED's lighting cannot be detected by the sensors.**

4 **Spain and Italy witnessed a drop in their light pollution levels.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
GENRE: Environmental Studies
Again, it is an easy fact based question. Only two options are tricky.
Option 1 – This is correct. Though the word 'only' appears to confuse the readers, it has been balanced by 'not'. The passage clearly mentions that light pollution also has ecological and environmental effects.
Option 2 – It is incorrect because of the word 'always'. The passage mentions the example of Netherlands. From one example, we can't justify such a generic statement.
Option 3 – It is wrong as only the blue light can't be detected by sensors, and not LED's lighting in general.
Option 4 – As per the passage, Spain and Italy had stable levels. So, it is an incorrect option.

FeedBack

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Q.10
The thematic highlight of the passage is to:

1 ○ **highlight the role of light pollution in increasing the usage of global consumption of light.**

2 showcase the multi-faceted side effects of environmental degradation.

3 highlight the abject failure of LEDs in curbing light pollution.

4 showcase the side effects of light pollution and suggest some remedies.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
GENRE: Environmental Studies
It is a main idea question. It is of a moderate level of difficulty. The correct answer can be found via the method of elimination.
Option 1 – It is wrong on two counts. Firstly, it is a very narrow option. It simply reiterates a sentence from the passage. Secondly, the author doesn't blame light pollution behind the increase in the usage of light. It is the reverse. The higher usage has led to increased levels of light pollution. So, option 1 can be eliminated.
Option 2 – It is a broad option. "Environmental degradation" is a vast area. This passage focuses only on light pollution.
Option 3 – It is a distorted option. "Abject failure" is too extreme. Secondly, the author doesn't use such a harsh tone towards LEDs. Moreover, the focus of the author is light pollution, not LEDs.
Option 4 – It best captures the essence of the passage.

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Q.11

Which of the following has not been mentioned as a biological side effect of light pollution?

1 ○ **Alteration of people's sleep pattern damaging their health**

2 **Disruptions of the migration and reproduction of different species**

3 **The disappearance of stars and the Milky Way**

4 **Abnormal growing periods of plants**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
GENRE: Environmental Studies
This is an easy fact based question. The correct answer is a cleverly distorted option.
Refer to these lines “People’s sleep can be marred, which in turn can affect their health. The migration and reproduction of birds, fish, amphibians, insects and bats can be disrupted. Plants can have abnormally extended growing periods. And forget about seeing stars or the Milky Way if the trend continues”.
So, options 1, 2, and 4 are directly mentioned.
Option 3 – This is a distorted option. As per the passage, we won’t be able to see the stars. That doesn’t mean that they will disappear. So, 3 is the correct answer.

FeedBack

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Q.12

Which of the following cannot be inferred from the passage?

1 **More conflict prone regions across the globe would help curb the menace of light pollution.**

2 The increased usage of night lights costs more than what is obvious.

3 Alternatives to bright night lights are available

4 The efficacy of energy-efficient lighting in curbing the usage on a global scale is underwhelming.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
GENRE: Environmental Studies
This is a difficult question as it is inferential in nature. We need to use the method of elimination. When we read the options, the easiest to eliminate option is option 4.
Option 4 – It is, in fact, the main idea of the author. So, it can definitely be inferred from the passage.
Option 3 – Refer to the last paragraph. The author mentions using dimmed lights as an alternative to bright lights. So, option 3 can be inferred, too.
Option 2 – Refer to the lines ""Many people are using light at night without really thinking about the cost," Holker said. Not just the economic cost, "but also the cost that you have to pay from an ecological, environmental perspective". So, option 2 is an obvious inference.
Option 1 – This is a distorted inference. The author mentions the example of Syria and Yemen just to iterate a fact regarding the use of night lights. It can't be used as a premise to conclude that conflicts will surely help in reducing light pollution. May be the other countries will not be like Syria or Yemen. It is a logically fallacious deduction. Hence, it is the answer.

FeedBack

Directions for questions (13 to18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

There is no sign that taking probiotics can help dampen feelings of anxiety in humans, according to new research, despite evidence that it works for rodents. A wide range of conditions, from obesity to asthma, have been linked to the microbes living in our guts, with a number of studies suggesting a link and effect to mind, mood and behavior. As a result, there is a burgeoning interest in psychobiotics.

But researchers who have examined evidence from previous studies say that while probiotics appear to reduce anxiety in rodents with various problems, there is little to show that they offer similar benefits to humans, whether healthy or not.

"If people are suffering from anxiety ... probiotics should not be the solution they look for. They should definitely seek professional treatment," said Daniel Reis, first author of the research from the University of Kansas, noting that both therapy and medication are available.

Reis and colleagues looked at 22 studies involving a total of 743 rats and mice, and 14 involving a total of 1,527 humans, and analysed the data to see if, overall, probiotics reduce anxiety.

The results, published in the journal Plos One, show that while such a link was seen among "diseased" rodents – where researchers had exposed the animals to early life stress, infection or other induced conditions – it was not seen overall in healthy animals. Beneficial effects in animals were consistently linked to one type of bacteria – Lactobacillus rhamnosus – although individual studies suggested a number of other species and strains might have an anxiety-reducing effect.

By contrast, when the studies were taken together, no beneficial effect was seen for humans, whether healthy or with conditions such as cancer, irritable bowel syndrome or mood disturbance.

That said, the team noted that none of the studies involved individuals diagnosed with an anxiety disorder, adding that it might be that probiotics only help once certain levels of anxiety have been reached. They also noted that for humans, anxiety was based on self-report – which can be unreliable – and that follow-up might not have lasted long enough for effects to be seen.

"Before we make any firm conclusions, we really do need to see these probiotics being tested in people who had clinically significant anxiety," said Reis. The team adds that the doses of probiotics given to rodents were up to 100 times larger than those given to humans, once body weight was taken into account, suggesting that researchers should explore whether the lack of effect seen in humans might at least in part be down to probiotics not being given in high enough doses.

What's more, one of the few human studies that did show some evidence of an effect involved Lactobacillus rhamnosus – a finding the team says should be further explored.

Prof John Cryan, a neuropharmacologist and microbiome expert from University College Cork who was not involved in the research, disagreed with the study's conclusion, saying there was some evidence that probiotics might help tackle anxiety in humans.

"What this study highlights is the importance of bacterial strain selection in mediating such effects. Researchers have long known that only specific strains will have beneficial effects and that most don't," he said, adding that clinical trials are needed to explore whether particular microbes offer a health benefit and can hence be termed "probiotics".

Cryan noted that while his team has previously found that one type of Bifidobacteria longum reduces anxiety in humans and animals, other types of Bifidobacteria do nothing. "By 'lumping' all strains together in the one analysis, any potential effect is completely masked," he said.

Q.13

According to the passage, probiotics are:

1 **used for achieving benefits for the body.**

2 **used for achieving superior brain power.**

3 **used to make the human body more active.**

4 **used to compare the anxiety levels in different human bodies.**

✖

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
Your Answer : 4
GENRE: Science / Biology/ Neuropsychology
This is a difficult fact based questions as the options are pretty confusing.
The passage mentions the following details about probiotics- whether particular microbes offer a health benefit and can hence be termed "probiotics"- and- There is no sign that taking probiotics can help dampen feelings of anxiety in humans.
Based on this, 1 can be verified as the purpose of taking in probiotics is to achieve health benefits, but whether these are achieved or not, is not sure.
Option 2 is incorrect as 'superior brain power' is farfetched.
Option 3 is incorrect as "making the body more active" is not mentioned in the passage.
Option 4 is incorrect as this usage of probiotics has not been mentioned in the passage.
So, the correct option is 1. The other three can be eliminated.

FeedBack

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“Before we make any firm conclusions, we really do need to see these probiotics being tested in people who had clinically significant anxiety,” said Reis. The team adds that the doses of probiotics given to rodents were up to 100 times larger than those given to humans, once body weight was taken into account, suggesting that researchers should explore whether the lack of effect seen in humans might at least in part be down to probiotics not being given in high enough doses.

What’s more, one of the few human studies that did show some evidence of an effect involved Lactobacillus rhamnosus – a finding the team says should be further explored.

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Q.14

According to the passage, which of the following gives an explanation for the difference in probiotics’ effect on rodents and humans?

1 **The level of stress and anxiety in human beings is much more than that of rodents.**

2 **Human beings fail to meet the stress level needed for probiotics to work, whereas rodents possess that naturally.**

3 **Rodents get a stronger dose of probiotics as compared to human beings.**

4 **There is a huge disparity between the doses given to rodents and human beings.**

✖

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
Your Answer : 4
GENRE: Science / Biology/ Neuropsychology
This is moderate level question. It requires a combination of fact and inference based approaches. Refer to the lines, ""the doses of probiotics given to rodents were up to 100 times larger than those given to humans, once body weight was taken into account."
Option 1 – It states a fact which is not found in the passage. Secondly, it doesn't answer the question.
Option 2 – It looks like the correct option. However, the second part is incorrect. The passage doesn't discuss the natural stress levels of rodents.
Option 4 – The phrase "huge disparity" makes the option incorrect. This can also mean that humans get a stronger dose. The correct answer needs to mention that the rodents got the stronger dose. So, this option is vague.
Option 3 – It is the only possible choice left. Hence, it is the correct answer.

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Q.15
Which of the following is factually true?

1 **Probiotics is not the only best way to fight mood related issues.**

2 **Not all probiotics are vain when it comes to treating human anxiety.**

3 **Probiotics are less useful in easing problems of rodents than of human beings.**

4 **There is no proof that probiotics can cause anxiety.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
GENRE: Science / Biology/ Neuropsychology
This is a moderate fact based question. Let's use the method of elimination for this.
Option 1 is incorrect as the author negates the use of probiotics. Calling it 'not best' would mean that it can still be an option.
Option 4 – It looks correct. However, the passage does mention that there may be some proof. So, it is not entirely true.
Option 3 – It is incorrect as it does not specify the nature of 'problems' mentioned. Moreover, the passage clearly mentions that people should not look for probiotics, but for professional treatment.
Option 2 is the correct answer as it sums up what the author intends to say.

FeedBack

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Q.16

Which of the following identifies the main idea of the passage?

1 **To have a systematic view of the effects of probiotics on stress and anxiety level**

2 **To show how taking probiotics could make you comparatively less stressed**

3 **To show the researchers' struggle to establish probiotics as a useful agent to lessen human anxiety**

4 **To show the researches' contradiction on the effects of probiotics on human mind**

✖

Solution:
Correct Answer : 4
Your Answer : 3
GENRE: Science / Biology/ Neuropsychology
This is an easy main idea question. Again, we need to use the method of elimination.
Effects of probiotics have not been enumerated, so 1 is ruled out.
Option 2 goes against the information provided in the passage. It doesn't match the tone of the author.
Option 3 is incorrect as the point of views of different researchers' is presented, and how they contradict but nothing has been shown to gain superiority over the other.
Option 4 – It is the best choice.

Bookmark

Answer key/Solution

FeedBack

Directions for questions (13 to18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

There is no sign that taking probiotics can help dampen feelings of anxiety in humans, according to new research, despite evidence that it works for rodents. A wide range of conditions, from obesity to asthma, have been linked to the microbes living in our guts, with a number of studies suggesting a link and effect to mind, mood and behavior. As a result, there is a burgeoning interest in psychobiotics.

But researchers who have examined evidence from previous studies say that while probiotics appear to reduce anxiety in rodents with various problems, there is little to show that they offer similar benefits to humans, whether healthy or not.

"If people are suffering from anxiety ... probiotics should not be the solution they look for. They should definitely seek professional treatment," said Daniel Reis, first author of the research from the University of Kansas, noting that both therapy and medication are available.

Reis and colleagues looked at 22 studies involving a total of 743 rats and mice, and 14 involving a total of 1,527 humans, and analysed the data to see if, overall, probiotics reduce anxiety.

The results, published in the journal Plos One, show that while such a link was seen among "diseased" rodents – where researchers had exposed the animals to early life stress, infection or other induced conditions – it was not seen overall in healthy animals. Beneficial effects in animals were consistently linked to one type of bacteria – Lactobacillus rhamnosus – although individual studies suggested a

number of other species and strains might have an anxiety-reducing effect.

By contrast, when the studies were taken together, no beneficial effect was seen for humans, whether healthy or with conditions such as cancer, irritable bowel syndrome or mood disturbance.

That said, the team noted that none of the studies involved individuals diagnosed with an anxiety disorder, adding that it might be that probiotics only help once certain levels of anxiety have been reached. They also noted that for humans, anxiety was based on self-report – which can be unreliable – and that follow-up might not have lasted long enough for effects to be seen.

"Before we make any firm conclusions, we really do need to see these probiotics being tested in people who had clinically significant anxiety," said Reis. The team adds that the doses of probiotics given to rodents were up to 100 times larger than those given to humans, once body weight was taken into account, suggesting that researchers should explore whether the lack of effect seen in humans might at least in part be down to probiotics not being given in high enough doses.

What's more, one of the few human studies that did show some evidence of an effect involved Lactobacillus rhamnosus – a finding the team says should be further explored.

Prof John Cryan, a neuropharmacologist and microbiome expert from University College Cork who was not involved in the research, disagreed with the study's conclusion, saying there was some evidence that probiotics might help tackle anxiety in humans.

"What this study highlights is the importance of bacterial strain selection in mediating such effects. Researchers have long known that only specific strains will have beneficial effects and that most don't," he said, adding that clinical trials are needed to explore whether particular microbes offer a health benefit and can hence be termed "probiotics".

Cryan noted that while his team has previously found that one type of Bifidobacteria longum reduces anxiety in humans and animals, other types of Bifidobacteria do nothing. "By 'lumping' all strains together in the one analysis, any potential effect is completely masked," he said.

Q.17

According to the passage, psychobiotics is:

1 ○ **destroying the bacteria in the gut to create a positive effect on the brain.**

2 ○ **killing bacteria that causes the ill functioning of the brain.**

3 ○ **using bacteria to tinker with the gut to affect brain health.**

4 ○ **attaining a proper functioning of the body by inducing artificial bacteria.**

✔

Solution:
Correct Answer : 3
Your Answer : 3
GENRE: Science / Biology/ Neuropsychology
This is an easy fact based question.
Option 4 is beyond the scope of the passage.
The passage does not mention anywhere about killing or destroying of bacteria. It simply talks about the link between the microbes in the guts to their effect on mind. So, 1 and 2 and are ruled out.
Moreover, whether their effect is positive or negative is not stated. So, 1 is ruled out.
Option 3 is the most appropriate in this regard.

Bookmark

Answer key/Solution

FeedBack

Directions for questions (13 to18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

There is no sign that taking probiotics can help dampen feelings of anxiety in humans, according to new research, despite evidence that it works for rodents. A wide range of conditions, from obesity to asthma, have been linked to the microbes living in our guts, with a number of studies suggesting a link and effect to mind, mood and behavior. As a result, there is a burgeoning interest in psychobiotics.

But researchers who have examined evidence from previous studies say that while probiotics appear to reduce anxiety in rodents with various problems, there is little to show that they offer similar benefits to humans, whether healthy or not.

"If people are suffering from anxiety ... probiotics should not be the solution they look for. They should definitely seek professional treatment," said Daniel Reis, first author of the research from the University of Kansas, noting that both therapy and medication are available.

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By contrast, when the studies were taken together, no beneficial effect was seen for humans, whether healthy or with conditions such as cancer, irritable bowel syndrome or mood disturbance.

That said, the team noted that none of the studies involved individuals diagnosed with an anxiety disorder, adding that it might be that probiotics only help once certain levels of anxiety have been reached. They also noted that for humans, anxiety was based on self-report – which can be unreliable – and that follow-up might not have lasted long enough for effects to be seen.

"Before we make any firm conclusions, we really do need to see these probiotics being tested in people who had clinically significant anxiety," said Reis. The team adds that the doses of probiotics given to rodents were up to 100 times larger than those given to humans, once body weight was taken into account, suggesting that researchers should explore whether the lack of effect seen in humans might at least in

part be down to probiotics not being given in high enough doses.

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"What this study highlights is the importance of bacterial strain selection in mediating such effects. Researchers have long known that only specific strains will have beneficial effects and that most don't," he said, adding that clinical trials are needed to explore whether particular microbes offer a health benefit and can hence be termed "probiotics".

Cryan noted that while his team has previously found that one type of Bifidobacteria longum reduces anxiety in humans and animals, other types of Bifidobacteria do nothing. "By 'lumping' all strains together in the one analysis, any potential effect is completely masked," he said.

Q.18
All of the following are true, EXCEPT:

1 **Professional treatment should be the first action to treat anxiety, for there are some therapies that can help with various anxiety disorders.**

2 **There are medications available for curing anxiety disorders.**

3 **Human anxiety cannot really be trusted.**

4 **If probiotics starts reacting on the body, it cures all the strains of the body.**

✔

Solution:
Correct Answer : 4
Your Answer : 4
GENRE: Science / Biology/ Neuropsychology
This again is a fact based question. The answer can be found on the basis of elimination. However, this is a moderate question as the options look tricky.
Both option 1 and 2 can be verified from the fourth paragraph of the passage. The author clearly mentions the presence of medication and therapies.
The passage mentions- "They also noted that for humans, anxiety was based on self-report – which can be unreliable". Hence 3 is ruled out as it is supported by these lines.
The passage mentions- "Researchers have long known that only specific strains will have beneficial effects and that most don't". 4 is hence the correct answer as it is false based on the information given in the passage.

FeedBack

Directions for questions (19 to21): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

The English language is part of the Germanic branch of the Indo-European Family of languages. These Indo-European languages originate from Old Norse and Saxon. English originated from a fusion of languages and dialects, now called Old English.

It all started when the Germanic tribes arrived in Britain and invaded the country during the 5th century AD. Before the Germanic invasions in Britain, Britain was populated by various Celtic tribes. These Celtic tribes were united by customs, religion and common speech. But the celtic tribes lacked political unity and that made them vulnerable. During the first century, Britain was conquered by Rome. When Britain finally gained independence from Rome in the year 410 AD, the Roman legions had withdrawn from Britain and this left the country vulnerable to invaders. Inhabitants from the north began attacking the inhabitants of Britain. A lot of different Germanic tribes started to migrate to Britain, but a few stood out amongst the rest, such as the Saxons, the Angles, the Jutes, the Franks and the Frisians. They came from different parts of what is nowadays northwest Germany, Denmark and the Netherlands.

The original inhabitants of Britain spoke a Celtic language. But most of the original inhabitants were driven to the west and north by the invaders. They mainly migrated to what is now Wales, Scotland and Cornwall. The Saxons called the native Britons, 'wealas' and wealas meant foreigner or slave; this is where the modern word Welsh came from.

The Germanic tribes were constantly fighting over power. But as time passed the different Germanic cultures gradually became similar to each other until they eventually stopped seeing themselves as their individual origin but collectively as either Anglo-Saxon or English. The Germanic tribes already spoke similar languages that now developed into what we now call Old English. The words England and English are derived from Engla-land ("land of the Angles") and englisc (the language the Angles spoke).

Q.19

All of the following cannot be inferred except:

1 **English language has evolved over time because of its colonial influences.**

2 **Old English or Anglo Saxon denotes the origin of the modern English language.**

3 **The common language link stopped the Germanic tribes from fighting among one another.**

4 **English language owes its origin to the Germanic invasion in the 5th century AD.**

✔

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
Your Answer : 4
GENRE: Linguistics / History
The language of the question stem makes it a tricky question. Otherwise, the options are quite straightforward. We need to find an option that can be inferred from the passage.
Option 1 – It is beyond the scope of the given passage.
Option 2 - English language evolved from a fusion of different languages and dialects. Hence option 2 is incorrect.
Option 3 – It is incorrect as common culture was the reason why they stopped fighting. Refer to- "It all started when the Germanic tribes arrived in Britain and invaded the country during the 5th century…"
This makes option 4, the correct inference.

FeedBack

Directions for questions (19 to21): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

The English language is part of the Germanic branch of the Indo-European Family of languages. These Indo-European languages originate from Old Norse and Saxon. English originated from a fusion of languages and dialects, now called Old English.

It all started when the Germanic tribes arrived in Britain and invaded the country during the 5th century AD. Before the Germanic invasions in Britain, Britain was populated by various Celtic tribes. These Celtic tribes were united by customs, religion and common speech. But the celtic tribes lacked political unity and that made them vulnerable. During the first century, Britain was conquered by Rome. When Britain finally gained independence from Rome in the year 410 AD, the Roman legions had withdrawn from Britain and this left the country vulnerable to invaders. Inhabitants from the north began attacking the inhabitants of Britain. A lot of different Germanic tribes started to migrate to Britain, but a few stood out amongst the rest, such as the Saxons, the Angles, the Jutes, the Franks and the Frisians. They came from different parts of what is nowadays northwest Germany, Denmark and the Netherlands.

The original inhabitants of Britain spoke a Celtic language. But most of the original inhabitants were driven to the west and north by the invaders. They mainly migrated to what is now Wales, Scotland and Cornwall. The Saxons called the native Britons, 'wealas' and wealas meant foreigner or slave; this is where the modern word Welsh came from.

The Germanic tribes were constantly fighting over power. But as time passed the different Germanic cultures gradually became similar to each other until they eventually stopped seeing themselves as their individual origin but collectively as either Anglo-Saxon or English. The Germanic tribes already spoke similar languages that now developed into what we now call Old English. The words England and English are derived from Engla-land ("land of the Angles") and englisc (the language the Angles spoke).

Q.20
What after-effect did the Roman rule have on the Celtic tribes?

1 **It made way for the Germanic tribes to impose their language and culture on Britain.**

2 **The Celtic tribes were exposed to the Germanic invaders who migrated from the North.**

3 Many Germanic and Danish tribes started to invade the Celtic regions and settle there once and for all.

4 The Celtic tribes were outnumbered and had to accept the migration of the foreign invaders.

✔

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Your Answer : 2
GENRE: Linguistics / History
This is a direct fact based question. So, it is quite easy to answer.
Refer to- "...the Roman legions had withdrawn from Britain and this left the country vulnerable to invaders. Inhabitants from the north began attacking the inhabitants of Britain." This makes option 2 the correct choice.
All the other three options are either incorrect or irrelevant.

FeedBack

Directions for questions (19 to21): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

The English language is part of the Germanic branch of the Indo-European Family of languages. These Indo-European languages originate from Old Norse and Saxon. English originated from a fusion of languages and dialects, now called Old English.

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The Germanic tribes were constantly fighting over power. But as time passed the different Germanic cultures gradually became similar to each other until they eventually stopped seeing themselves as their individual origin but collectively as either Anglo-Saxon or English. The Germanic tribes already spoke similar languages that now developed into what we now call Old English. The words England and English are derived from Engla-land ("land of the Angles") and englisc (the language the Angles spoke).

Q.21
What could have made the Germanic tribes stop fighting among each other?

1 They realized that they were culturally more superior to other European races and decided to unite.

2 They all spoke the same language which was the major reason behind their unity.

3 The integration of cultures of the different Germanic tribes united them.

4 The urge for creating a common language stopped them from fighting.

✖

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
Your Answer : 2
GENRE: Linguistics / History
This is an inference based question. The answer to this can be found by understanding the logic behind the question. Refer to- "…the different Germanic cultures gradually became similar to each other until they eventually stopped seeing themselves as their individual origin."
Hence, the awareness of this similar root resulted in the unifying effect. This makes option 3 the correct choice.
Option 2 – It looks close. However, "major reason" makes it an extreme option.
Options 1 and 4 – Neither of these has been supported by the passage. Both the options are irrelevant.

FeedBack

Directions for questions (22 to24): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

One lakh rupees invested in bitcoin in 2010 would be worth a few hundred crore rupees today. That is the kind of extraordinary return the digital currency has given investors as its price has witnessed a meteoric rise, from just a few cents in 2010 to hit a lifetime high of over $11,000 last week. In 2017 alone, bitcoin price has increased by over 1000%. In fact, all it took for the currency to reach $11,000 after breaching the $10,000 mark was a single day. True to its nature, however, soon after hitting $11,000, bitcoin witnessed a sharp drop of 20% before recovering some of its losses to close the day almost flat. Other cryptocurrencies like Ethereum too have shown equally impressive gains and falls, particularly over the last year. Enthusiasts argue that cryptocurrencies like bitcoin are rapidly transforming into mainstream money that will offer serious competition to national currencies issued by central banks. Therefore they see bitcoin's current price rise as merely a reflection of its bright future as a stateless currency. Its limited supply and the blockchain technology on which it functions, they say, have also added to its exotic appeal. Sceptics, however, have pointed to the Tulip Bubble of the 17th century and Internet stocks of the late 1990s as cautionary examples. The most notable among the critics has been J.P.Morgan chief executive officer Jamie Dimon who called bitcoin a "fraud" that will make its investors poor.

Whether bitcoin holds huge fundamental value as a medium of exchange, as many of its supporters claim, is yet to be seen. The blockchain technology may well have some merits, as shown by increasing interest in it even among central banks and other financial institutions. Many have even started offering financial products and services centred around bitcoin. Yet the fundamental value of any currency is based not on its underlying technology but on its general acceptability as money for the purpose of commerce. Bitcoin, or any other cryptocurrency, is nowhere close to widespread use as a medium that helps in the exchange of goods and services. Earlier this year, a Morgan Stanley research note concluded that bitcoin's acceptance "is virtually zero". In fact, it found that the acceptance of bitcoin among the top 500 online retailers actually dropped in the last year. What then explains bitcoin's huge price rise? The fear of missing out on extraordinary gains, achievable within extremely short periods of time in the case of bitcoin, has likely pulled people from all walks of life into the digital currency. This is typical of bubbles that are driven by emotion rather than value. It is also a telling sign of the times where easy monetary policy has pushed investors starved of yield in traditional assets into highly risky assets like bitcoin.

Q.22

Why does the author give the example of Ethereum?

1 **To highlight the failure of cryptocurrency**

2 **To predict the ultimate outcome of the cryptocurrency bubble**

3 **To highlight the performance of cryptocurrency**

4 **To predict the future success of alternative cryptocurrency**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
GENRE: Economics / Technology
This is arguably the easiest passage in the paper. This question is an example based question. The author normally gives an example to strengthen his main idea.
The author mentions Ethereum as an example to show the trend of gains and falls as mentioned in the 7th line of the 1st paragraph. So, option 3 is the best choice. The author in the passage evaluates the performance of cryptocurrency in general, and not only that of Bitcoin.
Option 1 – It is not the answer because the author is not highlighting the failure of cryptocurrency. S/he simply cautions us about its potential failure.
Option 2 talks about prediction which is not what the author does. This option doesn't match the tone of the passage.
Option 4 talks about success which is not being talked about in the passage. It also talks about alternative cryptocurrency which is misleading.

FeedBack

Directions for questions (22 to24): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

One lakh rupees invested in bitcoin in 2010 would be worth a few hundred crore rupees today. That is the kind of extraordinary return the digital currency has given investors as its price has witnessed a meteoric rise, from just a few cents in 2010 to hit a lifetime high of over $11,000 last week. In 2017 alone, bitcoin price has increased by over 1000%. In fact, all it took for the currency to reach $11,000 after breaching the $10,000 mark was a single day. True to its nature, however, soon after hitting $11,000, bitcoin witnessed a sharp drop of 20% before recovering some of its losses to close the day almost flat. Other cryptocurrencies like Ethereum too have shown equally impressive gains and falls, particularly over the last year. Enthusiasts argue that cryptocurrencies like bitcoin are rapidly transforming into mainstream money that will offer serious competition to national currencies issued by central banks. Therefore they see bitcoin's current price rise as merely a reflection of its bright future as a stateless currency. Its limited supply and the blockchain technology on which it functions, they say, have also added to its exotic appeal. Sceptics, however, have pointed to the Tulip Bubble of the 17th century and Internet stocks of the late 1990s as cautionary examples. The most notable among the critics has been J.P.Morgan chief executive officer Jamie Dimon who called bitcoin a "fraud" that will make its investors poor.

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Q.23

All of the following are true according to the passage except:

1 **Blockchain technology added to Bitcoin's exotic appeal.**

2 **Cryptocurrency is widely used for exchange of goods and services.**

3 **Bitcoin might hold huge fundamental value as a medium of exchange.**

4 **Despite warning signs, cryptocurrency has attracted a myriad investors.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
GENRE: Economics / Technology
It's an easy fact based question.
Option 2 is not true according to the passage because paragraph 2 clearly mentions 'Bitcoin, or any other cryptocurrency, is nowhere close to widespread use as a medium that helps in the exchange of goods and services.'
The other three options can be located in the passage.
Option 1 – Refer to the lines "The blockchain technology may well have some merits, as shown by increasing interest in it even among central banks and other financial institutions."
Option 3 – It is one of the reasons the author doesn't completely rule out the usage of cryptocurrency. The word 'might' makes it factually true.
Option 4 – It is clearly mentioned towards the end of the passage.

FeedBack

Directions for questions (22 to24): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

One lakh rupees invested in bitcoin in 2010 would be worth a few hundred crore rupees today. That is the kind of extraordinary return the digital currency has given investors as its price has witnessed a meteoric rise, from just a few cents in 2010 to hit a lifetime high of over $11,000 last week. In 2017 alone, bitcoin price has increased by over 1000%. In fact, all it took for the currency to reach $11,000 after breaching the $10,000 mark was a single day. True to its nature, however, soon after hitting $11,000, bitcoin witnessed a sharp drop of 20% before recovering some of its losses to close the day almost flat. Other cryptocurrencies like Ethereum too have shown equally impressive gains and falls, particularly over the last year. Enthusiasts argue that cryptocurrencies like bitcoin are rapidly transforming into mainstream money that will offer serious competition to national currencies issued by central banks. Therefore they see bitcoin's current price rise as merely a reflection of its bright future as a stateless currency. Its limited supply and the blockchain technology on which it functions, they say, have also added to its exotic appeal. Sceptics, however, have pointed to the Tulip Bubble of the 17th century and Internet stocks of the late 1990s as cautionary examples. The most notable among the critics has been J.P.Morgan chief executive officer Jamie Dimon who called bitcoin a "fraud" that will make its investors poor.

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Q.24

What is the primary purpose of the author?

1 **To condemn the use of Bitcoin**

2 **To warn against the use of cryptocurrency**

3 **To encourage the reader to use cryptocurrency**

4 **To evaluate the future prospects of cryptocurrency**

Solution:
Correct Answer : 4
GENRE: Economics / Technology
The answer is 4 because the author mentions about the pros and cons of Bitcoin and mentions about future possibilities such as bubbles being created. 1 and 2 can't be the answers because the author is not disapproving of using bitcoin or cryptocurrency anywhere. 3 again cannot be the answer because the author does not promote the use of Bitcoin anywhere.

Bookmark

Answer key/Solution

FeedBack

Q.25

Directions for question 25: The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Sometimes the narrator's unreliability is made immediately evident. For instance, a story may open with the narrator making a plainly false or delusional claim or admitting to being severely mentally ill, or the story itself may have a frame in which the narrator appears as a character, with clues to the character's unreliability. A more dramatic use of the device delays the revelation until near the story's end. In some cases, the reader discovers that in the foregoing narrative, the narrator had concealed or greatly misrepresented vital pieces of information. Such a twist ending forces readers to reconsider their point of view and experience of the story.

1. The unreliability of the narrator of a story is used by the author of the story to shock the readers.
2. The authors, who practice the use of unreliable narrators in their stories, use it in order to force readers not to take anything for granted.
3. The different times of revelation of the unreliability of the narrator of a story can evoke different feelings in the reader.
4. Dramatic narration is often unreliable in nature.

✔

Solution:
Correct Answer : 3
Your Answer : 3
The passage talks about how the unreliability of the narrator of a story gets revealed sometimes at the beginning and sometimes in a very dramatic fashion towards the end. If from the start the narrator is unreliable the reader can get accustomed to that, however as the passage mentions if the author reveals the unreliability towards the end, 'Such a twist ending forces readers to reconsider their point of view and experience of the story.' So, option 3 is the correct answer. The other options are either incorrect or incomplete.

Bookmark

Answer key/Solution

FeedBack

Q.26

Directions for question 26: The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Spivak developed and applied Foucault's term epistemic violence to describe the destruction of non–Western ways of perceiving the world and the resultant dominance of the Western ways of perceiving the world. Conceptually, epistemic violence specifically relates to women, whereby the "Subaltern [woman] must always be caught in translation, never [allowed to be] truly expressing herself", because the colonial power's destruction of her culture pushed to the social margins her non–Western ways of perceiving, understanding, and knowing the world.

1. Spivak applied the term epistemic violence to showcase the marginalization and destruction of a woman's ability to express her non-Western perception.
2. Spivak improved Foucault's theory of epistemic violence by applying it to the non-Western ways of perceiving the world.
3. Spivak developed and applied Foucault's term epistemic violence which describes the dominance of the non-Western viewpoint.
4. Spivak used the term epistemic violence to highlight the atrocities committed by the colonial forces on the subaltern woman of the non-Western world.

Solution:
Correct Answer : 1
The passage mentions that, 'Conceptually, epistemic violence specifically relates to women, whereby the "Subaltern [woman] must always be caught in translation, never [allowed to be] truly expressing herself", because the colonial power's destruction of her culture pushed to the social margins her non–Western ways of perceiving, understanding, and knowing the world.' So, option 1 is correct. The other options do not capture the essence of the paragraph.

FeedBack

Bookmark

Answer key/Solution

Q.27

Directions for question 27: The passage given below is followed by four summaries. Choose the option that best captures the author's position.

In 1968, ecologist Garrett Hardin explored this social dilemma in his article "The Tragedy of the Commons", published in the journal Science. Hardin discussed problems that cannot be solved by technical means, as distinct from those with solutions that require "a change only in the techniques of the natural sciences, demanding little or nothing in the way of change in human values or ideas of morality". Hardin focused on human population growth, the use of the Earth's natural resources, and the welfare state. Hardin argued that if individuals relied on themselves alone, and not on the relationship of society and man, then the number of children had by each family would not be of public concern. Hardin said that if the children of improvident parents starved to death, if overbreeding was its own punishment, then there would be no public interest in controlling the breeding of families.

1. According to Hardin, some problems can only be solved when human beings realise their relationship with nature.
2. According to Hardin, some societal problems cannot be solved through technology but by reshaping human values.
3. According to Hardin, some problems depend on the way we perceive our roles in a society and not on the way science has developed a society.
4. According to Hardin, some problems can only be tackled if poverty was a crime in itself.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Option 2 is the best answer since unlike the other options it clearly mentions that Hardin is discussing societal problems in his essay. All the other options talk about some general problem. In the passage it has been stated that, 'Hardin discussed problems that cannot be solved by technical means, as distinct from those with solutions that require "a change only in the techniques of the natural sciences, demanding little or nothing in the way of change in human values or ideas of morality"' Thus, Option 2 is the correct choice.

FeedBack

Q.28

Directions for question 28: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. The best way, thus, to celebrate the day would be by implementing his teachings.
2. The ideal way to celebrate the birthday of the twenty-fourth and last Tirthankara would be by offering a helping hand to all.
3. Mahavir Jayanti is also known as Mahavir Janm Kalyanak, which means his birth blessed everyone.
4. Offer a helping hand to a family member who may be going through a rough patch.
5. Whatever you have, share it; if you work in an office, or own a shop or a factory, ensure that you do something to make your co-workers happy.

Solution:
Correct Answer : 32541
3 and 2 form a mandatory pair. 3 introduces the concept of Mahavir Jayanti and 2 states the way it should be observed. 5 comes next as it describes how one can follow Mahavir's teachings. 1 is the last sentence as it contains the word 'thus' and this shows an air of finality.

Bookmark

Answer key/Solution

FeedBack

Q.29

Directions for question 29: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. Domestic investors were already spooked by a widening fiscal deficit, so the foreign selling now has managed to add pressure on the market.
2. Foreign investors have been net sellers of over $1 billion in Indian debt this month, almost cancelling out inflows since the beginning of the year.
3. More people are losing their love for Indian bonds.
4. The yield on the benchmark 10-year bond has risen by almost 100 basis points since late-July amid lacklustre investor demand.
5. The deserting of the Indian market by foreign investors comes at a time when the Centre is looking at tapping the bond market aggressively to finance its election-year spending.

Solution:
Correct Answer : 32154
The given paragraph if arranged logically talks about more and more people losing their interest in Indian bonds as the foreign investors are also deserting the market. Sentence 3 introduces the topic. It is followed by 2 and 1 which form a mandatory pair discussing the reason behind this. It is followed by 5 and 4 which also form a mandatory pair discussing the effect of this change in the market.

Bookmark

Answer key/Solution

FeedBack

Q.30

Directions for question 30: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. The phrase 'it's not Cricket' refers to any act that is not fair.
2. Cricket is a sport, but it is also a code of honour.
3. The seemingly innocuous application of saliva and sweat, and more interventionist acts such as pressing chewed lozenges, throwing the ball hard on the surface, the use of nails or abrasive dust from the turf, and in some cases the use of bottle openers have plunged a knife into the game's heart even as they enhanced many a fast bowler's ability to extract reverse-swing.
4. Yet, like a few other things wrong with the game, ball-tampering remains one of its murkiest secrets.
5. That it has also been called 'a gentleman's game' suggests that it is held to high standards.

Solution:
Correct Answer : 21543
The given paragraph if arranged logically discusses the issue of 'ball tampering' and how it breaks the code of honour. The paragraph opens with sentence 2 describing that cricket also stands for honour. Sentence 1 automatically follows 2 as it describes the phrase 'it' used in the previous sentence. It is followed by 5 which portrays cricket as a gentleman's game. Sentence 4 introduces the issue of ball tampering as an anomaly in this gentleman's game. 3 concludes the given paragraph logically as it describes why ball-tampering is violating the code of honour.

Bookmark

Answer key/Solution

FeedBack

Q.31

Directions for question 31: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. An international team led by the University of Exeter in the UK showed that chemical genetic inhibition of a single protein in the fungus stops it from spreading inside a rice leaf – leaving it trapped within a single plant cell.
2. The finding is a breakthrough in terms of understanding rice blast, a disease that is hugely important in terms of global food security, researchers said.
3. The research led by Wasin Sakulkoo, revealed how the fungus can manipulate and then squeeze through natural channels (called plasmodesmata) that exist between plant cells.
4. However, the scientists caution that this is a "fundamental" discovery – not a cure that can yet be applied outside the laboratory.
5. In a breakthrough, scientists have found a way to stop the spread of rice blast, a fungus that destroys up to 30 per cent of the world's rice crop each year.

Solution:
Correct Answer : 51324
The given jumbled paragraph of arranged logically discusses the achievement of scientists in finding a way to prevent the spread of rice blast. It opens with sentence 5 which introduces the topic. It is followed by 1 which elaborates how this breakthrough was possible. It is followed by 3 which states why this breakthrough was important. 2 and 4 form a mandatory pair explaining how this discovery is yet to be applied. 4 is the last sentence as it further explains the importance of the discovery and its applications.

Bookmark

Answer key/Solution

FeedBack

Q.32

Directions for question 32: Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. The scene dates from the same period in 1882 when Van Gogh painted View of the Sea at Scheveningen, which was stolen by the Italian Camorra organised crime syndicate from the Van Gogh museum in Amsterdam in 2002.
2. Women Mending Nets in the Dunes, which the Dutch artist painted early in his career at Scheveningen near The Hague, is expected to go for around €5m (£4.4m/US$6m) when it is auctioned in June.
3. But with the art market booming and prices for artists such as Vincent Van Gogh rocketing, experts said it was hard to predict exactly when the bidding would stop.
4. One of them, a portrait of the artist's childhood friend Claude Antoine Charles Favre, is expected to go for between €180,000 and €250,000
5. The first Van Gogh painting to go under the hammer in France in more than two decades has been unveiled.

Solution:
Correct Answer : 4
Other than sentence 4, all other sentences can be logically arranged to form a paragraph which discusses in details the event of an auction featuring a Van Gogh painting going under the hammer after almost two decades. Sentence 4 although may seem to talk about the same event of paintings being sold in an auction does not fit in here as it does not elaborate on who the artist is.

Bookmark

Answer key/Solution

FeedBack

Q.33

Directions for question 33: Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. There she is, embroidered on the front of a £145 cushion. Look: she is bunting, she is necklace. She is gif, she is emoji, she is meme.
2. Her clothes were an expression of her communist politics and her indigenous heritage.
3. She is on T-shirts, candles, duvet covers; she is on the front cover of the Little Book of Feminist Saints and was a cake on The Great British Bake Off.
4. It feels as though Frida Kahlo is everywhere.
5. I bet anything you like she starts to appear in the baby name charts.

✖

Solution:
Correct Answer : 2
Your Answer : 1
The given paragraph other than 2 if arranged sequentially portrays the popularity of Frida Kahlo. Sentence 2 seems to be the part of the same paragraph but it portrays a different topic altogether about her political alliance and how it got represented via her clothes.

Bookmark

Answer key/Solution

FeedBack

Q.34

Directions for question 34: Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. Two buildings were pulled down and a third had hammer-wielding workers perched on its roof by evening on the first day of a demolition exercise to reclaim land for the New Garia-Airport Metro corridor.
2. The Mahisgote Free Primary School and a building adjacent to it that housed three shops were demolished with two earthmovers, one of them equipped with a pneumatic drill.
3. New Town police station confirmed receiving a complaint.
4. The team then moved to the Blue Orchid Hotel. Officers from New Town police station had twice visited Mahisbathan to ensure there was no trouble when the earthmovers moved in.
5. The State Government has decided to open another route for the East-West Metro.

✔

Solution:
Correct Answer : 5
Your Answer : 5
Other than 5, the remaining sentences can be sequentially arranged to form a logical paragraph depicting the pulling down of few buildings by workers to reclaim the land which was earlier taken for the construction of the New Garia-Airport Metro. 5 talks about a different topic altogether.

Bookmark

Answer key/Solution

FeedBack

Sec 2

Directions for questions 35 to 38: Answer the questions on the basis of the information given below.

A company named 'Nexus Ltd.' organized five parties on five different occasions - Deepawali, Holi, Navratri, Christmas and New Year - in 2017 for the enjoyment of its employees. In each party, there were four activities - dancing, singing, skit and story writing - to participate in. Only those employees attended the function who participated in any activity. An employee could participate in exactly one activity on each occasion. Each employee had attended at least one of the five parties.

Following table provides the information about the number of employees who participated in the different activities at different occasions.

	Dancing		Singing		Skit		Story Writing	
	Male	Female	Male	Female	Male	Female	Male	Female
Deepawali	16	27	33	43	21	32	45	55
Holi	47	47	14	35	25	59	36	22
Navratri	25	43	49	55	12	22	11	34
Christmas	45	50	23	40	38	30	19	25
New Year	22	35	20	29	44	43	31	58

Q.35

If each of the employees was absent for exactly one of the five parties, then find the total number of employees in the company.

Solution:

Correct Answer : 340

Bookmark

Answer key/Solution

	Dancing		Singing		Skit		Story writing		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	female
Deepawali	16	27	33	43	21	32	45	55	115	157
Holi	47	47	14	35	25	59	36	22	122	163
Navratri	25	43	49	55	12	22	11	34	97	154
Christmas	45	50	23	40	38	30	19	25	125	145
New Year	22	35	20	29	44	43	31	58	117	165
	155	202	139	202	140	186	142	194	576	784

If each employee was absent only in one of the five parties then the sum of all given values in the table is equal to 4A where A is the total number of employees because each employee has attended 4 parties and hence counted 4 times in total number.
Thus, 1360 = 4A
And therefore, A = 340.

FeedBack

Directions for questions 35 to 38: Answer the questions on the basis of the information given below.

A company named 'Nexus Ltd.' organized five parties on five different occasions - Deepawali, Holi, Navratri, Christmas and New Year - in 2017 for the enjoyment of its employees. In each party, there were four activities - dancing, singing, skit and story writing - to participate in. Only those employees attended the function who participated in any activity. An employee could participate in exactly one activity on each occasion. Each employee had attended at least one of the five parties.

Following table provides the information about the number of employees who participated in the different activities at different occasions.

	Dancing		Singing		Skit		Story Writing	
	Male	Female	Male	Female	Male	Female	Male	Female
Deepawali	16	27	33	43	21	32	45	55
Holi	47	47	14	35	25	59	36	22
Navratri	25	43	49	55	12	22	11	34
Christmas	45	50	23	40	38	30	19	25
New Year	22	35	20	29	44	43	31	58

Q.36

Find the difference between the maximum and the minimum possible number of female employees in the company?

1 **201**

2 **703**

3 **804**

4 **619**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

	Dancing		Singing		Skit		Story writing		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	female
Deepawali	16	27	33	43	21	32	45	55	115	157
Holi	47	47	14	35	25	59	36	22	122	163
Navratri	25	43	49	55	12	22	11	34	97	154
Christmas	45	50	23	40	38	30	19	25	125	145
New Year	22	35	20	29	44	43	31	58	117	165
	155	202	139	202	140	186	142	194	576	784

To calculate the difference between maximum and minimum number of female employees of the company, let us first estimate the maximum and minimum number of female employees.
165 females have attended the New Year's party, so there has to be at least 165 female employees.
Similarly, if we assume that every single party was attended by a unique set of female employees, there will be a maximum of (157 + 163 + 154 + 145 + 165) = 784 female employees.
Therefore, the difference between the maximum and the minimum number of female employees will be 784 – 165 = 619.

FeedBack

Directions for questions 35 to 38: Answer the questions on the basis of the information given below.

A company named 'Nexus Ltd.' organized five parties on five different occasions - Deepawali, Holi, Navratri, Christmas and New Year - in 2017 for the enjoyment of its employees. In each party, there were four activities - dancing, singing, skit and story writing - to participate in. Only those employees attended the function who participated in any activity. An employee could participate in exactly one activity on each occasion. Each employee had attended at least one of the five parties.

Following table provides the information about the number of employees who participated in the different activities at different occasions.

	Dancing		Singing		Skit		Story Writing	
	Male	Female	Male	Female	Male	Female	Male	Female
Deepawali	16	27	33	43	21	32	45	55
Holi	47	47	14	35	25	59	36	22
Navratri	25	43	49	55	12	22	11	34
Christmas	45	50	23	40	38	30	19	25
New Year	22	35	20	29	44	43	31	58

Q.37
If the number of female employees is maximum possible and the number of male employees is minimum possible, then find the total number of employees in the company.

1 **909**

2 **345**

3 **748**

4 **576**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

	Dancing		Singing		Skit		Story writing		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	female
Deepawali	16	27	33	43	21	32	45	55	115	157
Holi	47	47	14	35	25	59	36	22	122	163
Navratri	25	43	49	55	12	22	11	34	97	154
Christmas	45	50	23	40	38	30	19	25	125	145
New Year	22	35	20	29	44	43	31	58	117	165
	155	202	139	202	140	186	142	194	576	784

The number of female employees to be maximum possible is when, we assume that every single party was attended by a unique set of female employees that is 784.
And for number of male employees to be minimum possible it should be 125.
Thus, total number of employees in the company will be 784 + 125 = 909.

FeedBack

Directions for questions 35 to 38: Answer the questions on the basis of the information given below.

A company named 'Nexus Ltd.' organized five parties on five different occasions - Deepawali, Holi, Navratri, Christmas and New Year - in 2017 for the enjoyment of its employees. In each party, there were four activities - dancing, singing, skit and story writing - to participate in. Only those employees attended the function who participated in any activity. An employee could participate in exactly one activity on each occasion. Each employee had attended at least one of the five parties.

Following table provides the information about the number of employees who participated in the different activities at different occasions.

	Dancing		Singing		Skit		Story Writing	
	Male	Female	Male	Female	Male	Female	Male	Female
Deepawali	16	27	33	43	21	32	45	55
Holi	47	47	14	35	25	59	36	22
Navratri	25	43	49	55	12	22	11	34
Christmas	45	50	23	40	38	30	19	25
New Year	22	35	20	29	44	43	31	58

Q.38

If any female employee had participated in singing or dancing in any party, then that female employee can participate in neither singing nor dancing in any other party. What can be the minimum number of total female employees in the firm?

1 **202**

2 **404**

3 **165**

4 **784**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

	Dancing		Singing		Skit		Story writing		Total	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	female
Deepawali	16	27	33	43	21	32	45	55	115	157
Holi	47	47	14	35	25	59	36	22	122	163
Navratri	25	43	49	55	12	22	11	34	97	154
Christmas	45	50	23	40	38	30	19	25	125	145
New Year	22	35	20	29	44	43	31	58	117	165
	155	202	139	202	140	186	142	194	576	784

As per the given condition there should be at least 202 + 202 = 404 employees. We can assume that the other activities were taken up by the women from this same set of 404 female employees.

FeedBack

Directions for questions 39 to 42: Answer the questions on the basis of the information given below.

In Aa-liga, a football tournament, there are 15 teams competing in a round robin format i.e. each team plays with all the other teams exactly once. The top two teams during the league will play the finals against each other. After every match, points will be awarded to both the teams based on the following criteria:

1 win ≡ 3 points;
1 draw ≡ 1 point;
1 loss ≡ 0 point

When 11 of the 15 teams were done playing all their matches, following observations were made about the top 5 scoring teams at that stage:

	Matches Played	Points
Barcelona	13	32
Atletico Madrid	12	29
Sevilla	12	23
Real Madrid	11	26
Valencia	14	28

Further, when all teams have played all their league matches, it is noted that:
(i) Real Madrid scored the highest points.
(ii) No two teams, among the top five, have the same number of drawn matches.
(iii) Among the top 5 teams, Valencia is not involved in the highest number of drawn matches.

Q.39
Who is the other finalist with Real Madrid?

1 **Barcelona**

2 **Atletico Madrid**

3 **Sevilla**

4 **Cannot be determined**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Since each team plays with all the other teams, exactly once, therefore, each team played exactly 14 matches. Now while counting their winning, lost and drawn matches such that the team scored the points given in the table, we get the following possible cases:

Teams	Matches	Points	Win	Draw	Loss
Barcelona	13	32	10	2	1
Atletico Madrid	12	29	9	2	1
Sevilla	12	23	7	2	3
			6	5	1
Real Madrid	11	26	8	2	1
Valencia	14	28	9	1	4
			8	4	2
			7	7	0

At this stage, 4 teams are yet to play their full quota of matches;
Real Madrid Vs Barcelona
Real Madrid Vs Atletico Madrid
Real Madrid Vs Sevilla
Sevilla Vs Atletico Madrid

Since no 2 teams among the top 5, have equal number of draws and Real Madrid is the team with highest points, it implies real Madrid has 33 points with 3 drawn matches.
Now, it cannot win all its 3 remaining matches because then Real Madrid and Barcelona both will have 2 drawn matches each.

And also it could not have played a draw with Barcelona because then both teams will have 33 points each.
Now, Barcelona has 2 drawn matches and Real Madrid has 3.
Therefore, one of the Sevilla or Atletico Madrid will have 4 drawn matches and the other will have more than 4 drawn matches.
Since only 2 matches of Atletico Madrid are left, so it can not have more than 4 drawn matches and hence will have 4 drawn matches and then Sevilla will have more than 4 drawn matches.
So, the final table looks like the one shown below:

Teams	Matches	Points	Win	Draw	Loss
Real Madrid	14	33	10	3	1
Barcelona	14	32	10	2	2
Atletico Madrid	14	31	9	4	1
Valencia	14	28	9	1	4
Sevilla	14	24	6	6	2

Barcelona is the other finalist, since it has the second highest points.

FeedBack

Directions for questions 39 to 42: Answer the questions on the basis of the information given below.

In Aa-liga, a football tournament, there are 15 teams competing in a round robin format i.e. each team plays with all the other teams exactly once. The top two teams during the league will play the finals against each other. After every match, points will be awarded to both the teams based on the following criteria:

1 win ≡ 3 points;
1 draw ≡ 1 point;
1 loss ≡ 0 point

When 11 of the 15 teams were done playing all their matches, following observations were made about the top 5 scoring teams at that stage:

	Matches Played	Points
Barcelona	13	32
Atletico Madrid	12	29
Sevilla	12	23
Real Madrid	11	26
Valencia	14	28

Further, when all teams have played all their league matches, it is noted that:
(i) Real Madrid scored the highest points.
(ii) No two teams, among the top five, have the same number of drawn matches.
(iii) Among the top 5 teams, Valencia is not involved in the highest number of drawn matches.

Q.40
Out of all the matches played by Sevilla during the tournament, how many ended in a draw?

1 **6**

2 **2**

3 **5**

4 **Cannot be determined**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Since each team plays with all the other teams, exactly once, therefore, each team played exactly 14 matches. Now while counting their winning, lost and drawn matches such that the team scored the points given in the table, we get the following possible cases:

Teams	Matches	Points	Win	Draw	Loss
Barcelona	13	32	10	2	1
Atletico Madrid	12	29	9	2	1
Sevilla	12	23	7	2	3
			6	5	1
Real Madrid	11	26	8	2	1
Valencia	14	28	9	1	4
			8	4	2
			7	7	0

At this stage, 4 teams are yet to play their full quota of matches;
Real Madrid Vs Barcelona
Real Madrid Vs Atletico Madrid
Real Madrid Vs Sevilla
Sevilla Vs Atletico Madrid

Since no 2 teams among the top 5, have equal number of draws and Real Madrid is the team with highest points, it implies real Madrid has 33 points with 3 drawn matches.
Now, it cannot win all its 3 remaining matches because then Real Madrid and Barcelona both will have 2 drawn matches each.

And also it could not have played a draw with Barcelona because then both teams will have 33 points each.
Now, Barcelona has 2 drawn matches and Real Madrid has 3.
Therefore, one of the Sevilla or Atletico Madrid will have 4 drawn matches and the other will have more than 4 drawn matches.
Since only 2 matches of Atletico Madrid are left, so it can not have more than 4 drawn matches and hence will have 4 drawn matches and then Sevilla will have more than 4 drawn matches.
So, the final table looks like the one shown below:

Teams	Matches	Points	Win	Draw	Loss
Real Madrid	14	33	10	3	1
Barcelona	14	32	10	2	2
Atletico Madrid	14	31	9	4	1
Valencia	14	28	9	1	4
Sevilla	14	24	6	6	2

Sevilla had 6 drawn matches.

FeedBack

Directions for questions 39 to 42: Answer the questions on the basis of the information given below.

In Aa-liga, a football tournament, there are 15 teams competing in a round robin format i.e. each team plays with all the other teams exactly once. The top two teams during the league will play the finals against each other. After every match, points will be awarded to both the teams based on the following criteria:

1 win ≡ 3 points;
1 draw ≡ 1 point;
1 loss ≡ 0 point

When 11 of the 15 teams were done playing all their matches, following observations were made about the top 5 scoring teams at that stage:

	Matches Played	Points
Barcelona	13	32
Atletico Madrid	12	29
Sevilla	12	23
Real Madrid	11	26
Valencia	14	28

Further, when all teams have played all their league matches, it is noted that:
(i) Real Madrid scored the highest points.
(ii) No two teams, among the top five, have the same number of drawn matches.
(iii) Among the top 5 teams, Valencia is not involved in the highest number of drawn matches.

Q.41
Which team scored the 4th highest?

1 **Barcelona**

2 **Atletico Madrid**

3 **Valencia**

4 **Cannot be determined**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Since each team plays with all the other teams, exactly once, therefore, each team played exactly 14 matches. Now while counting their winning, lost and drawn matches such that the team scored the points given in the table, we get the following possible cases:

Teams	Matches	Points	Win	Draw	Loss
Barcelona	13	32	10	2	1
Atletico Madrid	12	29	9	2	1
Sevilla	12	23	7	2	3
			6	5	1
Real Madrid	11	26	8	2	1
Valencia	14	28	9	1	4
			8	4	2
			7	7	0

At this stage, 4 teams are yet to play their full quota of matches;
Real Madrid Vs Barcelona
Real Madrid Vs Atletico Madrid
Real Madrid Vs Sevilla
Sevilla Vs Atletico Madrid

Since no 2 teams among the top 5, have equal number of draws and Real Madrid is the team with highest points, it implies real Madrid has 33 points with 3 drawn matches.
Now, it cannot win all its 3 remaining matches because then Real Madrid and Barcelona both will have 2 drawn matches each.

And also it could not have played a draw with Barcelona because then both teams will have 33 points each.
Now, Barcelona has 2 drawn matches and Real Madrid has 3.
Therefore, one of the Sevilla or Atletico Madrid will have 4 drawn matches and the other will have more than 4 drawn matches.
Since only 2 matches of Atletico Madrid are left, so it can not have more than 4 drawn matches and hence will have 4 drawn matches and then Sevilla will have more than 4 drawn matches.
So, the final table looks like the one shown below:

Teams	Matches	Points	Win	Draw	Loss
Real Madrid	14	33	10	3	1
Barcelona	14	32	10	2	2
Atletico Madrid	14	31	9	4	1
Valencia	14	28	9	1	4
Sevilla	14	24	6	6	2

Valencia scored 28 points, which is the 4th highest.

FeedBack

Directions for questions 39 to 42: Answer the questions on the basis of the information given below.

In Aa-liga, a football tournament, there are 15 teams competing in a round robin format i.e. each team plays with all the other teams exactly once. The top two teams during the league will play the finals against each other. After every match, points will be awarded to both the teams based on the following criteria:

1 win ≡ 3 points;
1 draw ≡ 1 point;
1 loss ≡ 0 point

When 11 of the 15 teams were done playing all their matches, following observations were made about the top 5 scoring teams at that stage:

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Barcelona	13	32
Atletico Madrid	12	29
Sevilla	12	23
Real Madrid	11	26
Valencia	14	28

Further, when all teams have played all their league matches, it is noted that:
(i) Real Madrid scored the highest points.
(ii) No two teams, among the top five, have the same number of drawn matches.
(iii) Among the top 5 teams, Valencia is not involved in the highest number of drawn matches.

Q.42
Of the top five teams, which team lost the maximum number of matches?

1 **Valencia**

2 **Sevilla**

3 **Barcelona**

4 **Cannot be determined**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Since each team plays with all the other teams, exactly once, therefore, each team played exactly 14 matches. Now while counting their winning, lost and drawn matches such that the team scored the points given in the table, we get the following possible cases:

Teams	Matches	Points	Win	Draw	Loss
Barcelona	13	32	10	2	1
Atletico Madrid	12	29	9	2	1
Sevilla	12	23	7	2	3
			6	5	1
Real Madrid	11	26	8	2	1
Valencia	14	28	9	1	4
			8	4	2
			7	7	0

At this stage, 4 teams are yet to play their full quota of matches;
Real Madrid Vs Barcelona
Real Madrid Vs Atletico Madrid
Real Madrid Vs Sevilla
Sevilla Vs Atletico Madrid

Since no 2 teams among the top 5, have equal number of draws and Real Madrid is the team with highest points, it implies real Madrid has 33 points with 3 drawn matches.
Now, it cannot win all its 3 remaining matches because then Real Madrid and Barcelona both will have 2 drawn matches each.

And also it could not have played a draw with Barcelona because then both teams will have 33 points each.
Now, Barcelona has 2 drawn matches and Real Madrid has 3.
Therefore, one of the Sevilla or Atletico Madrid will have 4 drawn matches and the other will have more than 4 drawn matches.
Since only 2 matches of Atletico Madrid are left, so it can not have more than 4 drawn matches and hence will have 4 drawn matches and then Sevilla will have more than 4 drawn matches.
So, the final table looks like the one shown below:

Teams	Matches	Points	Win	Draw	Loss
Real Madrid	14	33	10	3	1
Barcelona	14	32	10	2	2
Atletico Madrid	14	31	9	4	1
Valencia	14	28	9	1	4
Sevilla	14	24	6	6	2

Valencia lost 4 matches.

FeedBack

Directions for questions 43 to 46: Answer the questions on the basis of the information given below.

There are 10 friends - Aditi, Akash, Charu, Gautam, Jyoti, Laxman, Mohan, Neeti, Sanya and Shashank - who each lives in a different rented house. Each of them has to pay a distinct house rent. House rent paid by each of them is an integral multiple of Rs.1000. Rent paid by each of the ten friends belongs to one of the following three categories:

• Rent lies in the range from Rs. 1000 to Rs. 5000 - LESS RENT
• Rent lies in the range from Rs. 6000 to Rs. 12000 - MODERATE RENT
• Rent lies in the range from Rs. 15000 to Rs. 19000 - OVER RENT

Some additional information is also known:
1. Number of friends with their house rents belonging to LESS, MODERATE and OVER RENT categories are 3, 5 and 2 respectively.
2. Total rent paid by Neeti, Gautam and Aditi taken together is Rs.29000, and Aditi's and Gautam's house rent do not belong to MODERATE RENT category.
3. Laxman pays the least rent and Jyoti pays the most.
4. Total rent paid by Charu, Akash and Mohan taken together is a multiple of 4000. Rent paid by Akash do not belong to LESS RENT category.
5. Difference between the rent paid by Jyoti and Aditi is equivalent to the house rent of Gautam.
6. Total rent paid by Sanya and Laxman taken together is equivalent to the rent paid by Shashank.
7. Nobody pays Rs.1000, Rs.10000 and Rs.17000 as their house rent.
8. Shashank pays more than Akash but less than Mohan, whose house rent belongs to MODERATE RENT category and had exactly 7 people paying less rent than him.
9. Laxman, Gautam and Charu pay the consecutive integral multiple of thousand as their house rent, where Gautam has to pay less than Charu.

Q.43
What is the total house rent (in Rs.) paid by Charu, Akash and Mohan taken together?

Solution:
Correct Answer : 24000

Bookmark

Answer key/Solution

- By statement 3 and 9, Laxman played the least and Laxman, Gautam and Charu pays the consecutive amount such that Gautam pays less rent than Charu.
  ∴ Rent paid by the three is in order Laxman < Gautam < Charu.
  Therefore, there are two possibilities for the rent paid by them (2000, 3000, 4000) and (3000, 4000, 5000)
- Jyoti pays the highest rent and rent paid by Aditi also belongs to the OVER RENT category.
  And rent paid by other 5 friends – Akash, Mohan, Neeti, Sanya and Shashank - belong to MODERATE RENT category.
- By statement 4 and 8, sum of rent paid by Charu, Akash and Mohan is multiple of 4000, the only possible rents could be 16000, 20,000 and 24,000, as possible rent paid by Charu alone is either Rs. 4000 and Rs. 5000.
  And also, Mohan has exactly 7 people paying less than him that means Mohan paid either 11000 or 12000 as rent.
- Since rent paid by (Jyoti – Aditi) = rent paid by Gautam = either 3000 or 4000, Also rent paid by (Neeti + Gautam + Aditi) = 29000, only possible case is when Gautam's house rent is 3000 and Aditi's and Jyoti's house rents are 15000 and 18000 respectively.
  So final table looks like

Friends	Rent(in Rs.)
Jyoti	18000
Aditi	15000
Mohan	12000
Neeti	11000
Shashank	9000
Akash	8000
Sanya	7000
Charu	4000
Gautam	3000
Laxman	2000

House rent paid by Charu + Akash + Mohan = 4000 + 8000 + 12000 = 24000.

FeedBack

Directions for questions 43 to 46: Answer the questions on the basis of the information given below.

There are 10 friends - Aditi, Akash, Charu, Gautam, Jyoti, Laxman, Mohan, Neeti, Sanya and Shashank - who each lives in a different rented house. Each of them has to pay a distinct house rent. House rent paid by each of them is an integral multiple of Rs.1000. Rent paid by each of the ten friends belongs to one of the following three categories:

• Rent lies in the range from Rs. 1000 to Rs. 5000 - LESS RENT
• Rent lies in the range from Rs. 6000 to Rs. 12000 - MODERATE RENT
• Rent lies in the range from Rs. 15000 to Rs. 19000 - OVER RENT

Some additional information is also known:
1. Number of friends with their house rents belonging to LESS, MODERATE and OVER RENT categories are 3, 5 and 2 respectively.
2. Total rent paid by Neeti, Gautam and Aditi taken together is Rs.29000, and Aditi's and Gautam's house rent do not belong to MODERATE RENT category.
3. Laxman pays the least rent and Jyoti pays the most.
4. Total rent paid by Charu, Akash and Mohan taken together is a multiple of 4000. Rent paid by Akash do not belong to LESS RENT category.
5. Difference between the rent paid by Jyoti and Aditi is equivalent to the house rent of Gautam.
6. Total rent paid by Sanya and Laxman taken together is equivalent to the rent paid by Shashank.
7. Nobody pays Rs.1000, Rs.10000 and Rs.17000 as their house rent.
8. Shashank pays more than Akash but less than Mohan, whose house rent belongs to MODERATE RENT category and had exactly 7 people paying less rent than him.
9. Laxman, Gautam and Charu pay the consecutive integral multiple of thousand as their house rent, where Gautam has to pay less than Charu.

Q.44
If the rent paid by Jyoti and Mohan were interchanged, and that by Aditi and Gautam were also interchanged, then what is the absolute difference between the rent (in Rs.) paid by Mohan and Aditi?

Solution:
Correct Answer : 15000

Bookmark

Answer key/Solution

- By statement 3 and 9, Laxman played the least and Laxman, Gautam and Charu pays the consecutive amount such that Gautam pays less rent than Charu.
  ∴ Rent paid by the three is in order Laxman < Gautam < Charu.
  Therefore, there are two possibilities for the rent paid by them (2000, 3000, 4000) and (3000, 4000, 5000)
- Jyoti pays the highest rent and rent paid by Aditi also belongs to the OVER RENT category.
  And rent paid by other 5 friends – Akash, Mohan, Neeti, Sanya and Shashank - belong to MODERATE RENT category.
- By statement 4 and 8, sum of rent paid by Charu, Akash and Mohan is multiple of 4000, the only possible rents could be 16000, 20,000 and 24,000, as possible rent paid by Charu alone is either Rs. 4000 and Rs. 5000.
  And also, Mohan has exactly 7 people paying less than him that means Mohan paid either 11000 or 12000 as rent.
- Since rent paid by (Jyoti – Aditi) = rent paid by Gautam = either 3000 or 4000, Also rent paid by (Neeti + Gautam + Aditi) = 29000, only possible case is when Gautam's house rent is 3000 and Aditi's and Jyoti's house rents are 15000 and 18000 respectively.
  So final table looks like

Friends	Rent(in Rs.)
Jyoti	18000
Aditi	15000
Mohan	12000
Neeti	11000
Shashank	9000
Akash	8000
Sanya	7000
Charu	4000
Gautam	3000
Laxman	2000

New rent of Mohan = 18000
New rent of Aditi = 3000
∴ The required difference = 18000 – 3000 = 15000.

FeedBack

Directions for questions 43 to 46: Answer the questions on the basis of the information given below.

There are 10 friends - Aditi, Akash, Charu, Gautam, Jyoti, Laxman, Mohan, Neeti, Sanya and Shashank - who each lives in a different rented house. Each of them has to pay a distinct house rent. House rent paid by each of them is an integral multiple of Rs.1000. Rent paid by each of the ten friends belongs to one of the following three categories:

• Rent lies in the range from Rs. 1000 to Rs. 5000 - LESS RENT
• Rent lies in the range from Rs. 6000 to Rs. 12000 - MODERATE RENT
• Rent lies in the range from Rs. 15000 to Rs. 19000 - OVER RENT

Some additional information is also known:
1. Number of friends with their house rents belonging to LESS, MODERATE and OVER RENT categories are 3, 5 and 2 respectively.
2. Total rent paid by Neeti, Gautam and Aditi taken together is Rs.29000, and Aditi's and Gautam's house rent do not belong to MODERATE RENT category.
3. Laxman pays the least rent and Jyoti pays the most.
4. Total rent paid by Charu, Akash and Mohan taken together is a multiple of 4000. Rent paid by Akash do not belong to LESS RENT category.
5. Difference between the rent paid by Jyoti and Aditi is equivalent to the house rent of Gautam.
6. Total rent paid by Sanya and Laxman taken together is equivalent to the rent paid by Shashank.
7. Nobody pays Rs.1000, Rs.10000 and Rs.17000 as their house rent.
8. Shashank pays more than Akash but less than Mohan, whose house rent belongs to MODERATE RENT category and had exactly 7 people paying less rent than him.
9. Laxman, Gautam and Charu pay the consecutive integral multiple of thousand as their house rent, where Gautam has to pay less than Charu.

Q.45
Which of the following statements is/are false?

1 **The house rent of Akash is the fifth lowest.**

2 **Total house rent paid by Shashank and Jyoti taken together is same as the total house rent paid by Laxman, Mohan and Neeti taken together.**

3 **Rent paid by Akash, Shashank, Charu and Sanya belong to the same category.**

4 **Both (b) and (c)**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

- By statement 3 and 9, Laxman played the least and Laxman, Gautam and Charu pays the consecutive amount such that Gautam pays less rent than Charu.
  ∴ Rent paid by the three is in order Laxman < Gautam < Charu.
  Therefore, there are two possibilities for the rent paid by them (2000, 3000, 4000) and (3000, 4000, 5000)
- Jyoti pays the highest rent and rent paid by Aditi also belongs to the OVER RENT category.
  And rent paid by other 5 friends – Akash, Mohan, Neeti, Sanya and Shashank - belong to MODERATE RENT category.
- By statement 4 and 8, sum of rent paid by Charu, Akash and Mohan is multiple of 4000, the only possible rents could be 16000, 20,000 and 24,000, as possible rent paid by Charu alone is either Rs. 4000 and Rs. 5000.
  And also, Mohan has exactly 7 people paying less than him that means Mohan paid either 11000 or 12000 as rent.
- Since rent paid by (Jyoti – Aditi) = rent paid by Gautam = either 3000 or 4000, Also rent paid by (Neeti + Gautam + Aditi) = 29000, only possible case is when Gautam's house rent is 3000 and Aditi's and Jyoti's house rents are 15000 and 18000 respectively.
  So final table looks like

Friends	Rent(in Rs.)
Jyoti	18000
Aditi	15000
Mohan	12000
Neeti	11000
Shashank	9000
Akash	8000
Sanya	7000
Charu	4000
Gautam	3000
Laxman	2000

Both statements (b) and (c) are false.

FeedBack

Directions for questions 43 to 46: Answer the questions on the basis of the information given below.

There are 10 friends - Aditi, Akash, Charu, Gautam, Jyoti, Laxman, Mohan, Neeti, Sanya and Shashank - who each lives in a different rented house. Each of them has to pay a distinct house rent. House rent paid by each of them is an integral multiple of Rs.1000. Rent paid by each of the ten friends belongs to one of the following three categories:

• Rent lies in the range from Rs. 1000 to Rs. 5000 - LESS RENT
• Rent lies in the range from Rs. 6000 to Rs. 12000 - MODERATE RENT
• Rent lies in the range from Rs. 15000 to Rs. 19000 - OVER RENT

Some additional information is also known:
1. Number of friends with their house rents belonging to LESS, MODERATE and OVER RENT categories are 3, 5 and 2 respectively.
2. Total rent paid by Neeti, Gautam and Aditi taken together is Rs.29000, and Aditi's and Gautam's house rent do not belong to MODERATE RENT category.
3. Laxman pays the least rent and Jyoti pays the most.
4. Total rent paid by Charu, Akash and Mohan taken together is a multiple of 4000. Rent paid by Akash do not belong to LESS RENT category.
5. Difference between the rent paid by Jyoti and Aditi is equivalent to the house rent of Gautam.
6. Total rent paid by Sanya and Laxman taken together is equivalent to the rent paid by Shashank.
7. Nobody pays Rs.1000, Rs.10000 and Rs.17000 as their house rent.
8. Shashank pays more than Akash but less than Mohan, whose house rent belongs to MODERATE RENT category and had exactly 7 people paying less rent than him.
9. Laxman, Gautam and Charu pay the consecutive integral multiple of thousand as their house rent, where Gautam has to pay less than Charu.

Q.46
Total rent (in Rs.) paid by all of them taken together is

Solution:
Correct Answer : 89000

Bookmark

Answer key/Solution

- By statement 3 and 9, Laxman played the least and Laxman, Gautam and Charu pays the consecutive amount such that Gautam pays less rent than Charu.
∴ Rent paid by the three is in order Laxman < Gautam < Charu.
Therefore, there are two possibilities for the rent paid by them (2000, 3000, 4000) and (3000, 4000, 5000)
- Jyoti pays the highest rent and rent paid by Aditi also belongs to the OVER RENT category.
And rent paid by other 5 friends – Akash, Mohan, Neeti, Sanya and Shashank - belong to MODERATE RENT category.
- By statement 4 and 8, sum of rent paid by Charu, Akash and Mohan is multiple of 4000, the only possible rents could be 16000, 20,000 and 24,000, as possible rent paid by Charu alone is either Rs. 4000 and Rs. 5000.
And also, Mohan has exactly 7 people paying less than him that means Mohan paid either 11000 or 12000 as rent.
- Since rent paid by (Jyoti – Aditi) = rent paid by Gautam = either 3000 or 4000, Also rent paid by (Neeti + Gautam + Aditi) = 29000, only possible case is when Gautam's house rent is 3000 and Aditi's and Jyoti's house rents are 15000 and 18000 respectively.
So final table looks like

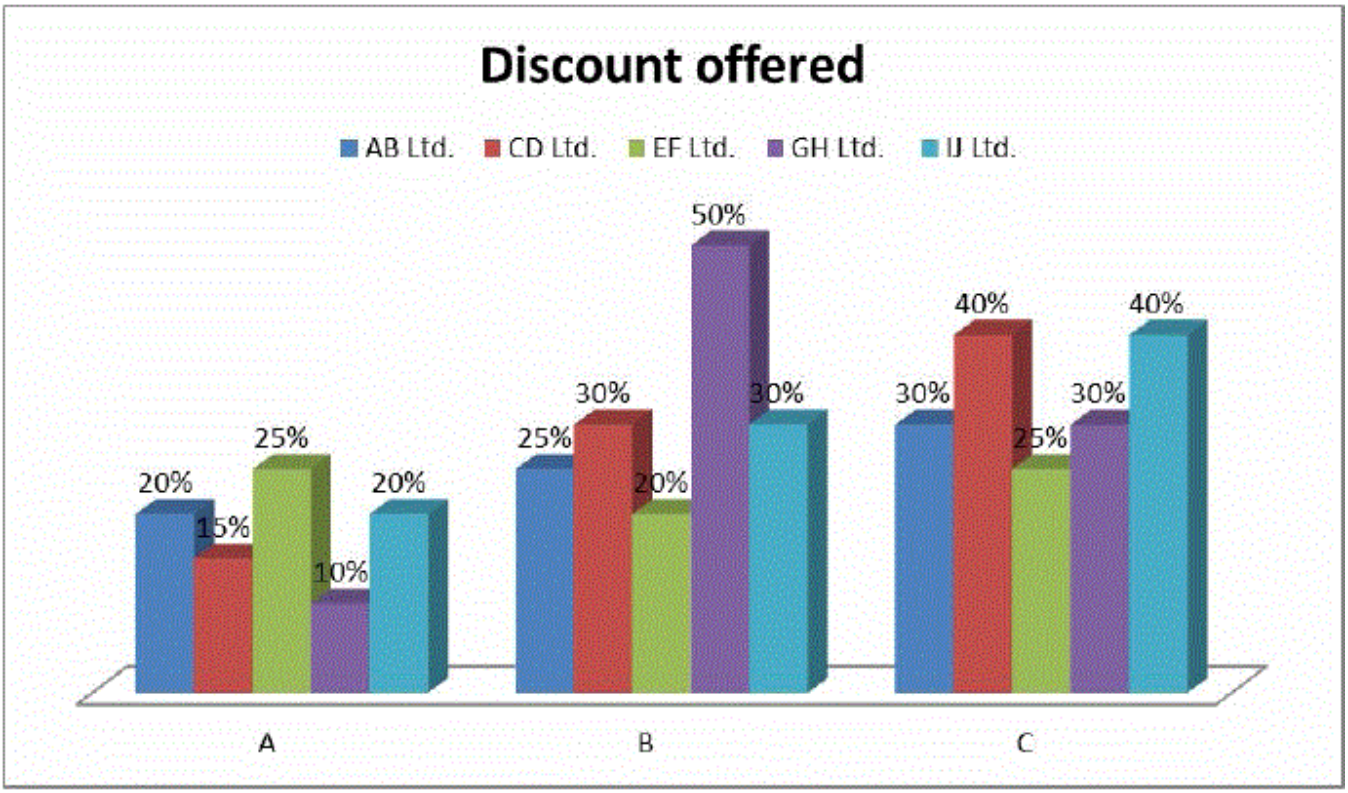
Friends	Rent(in Rs.)
Jyoti	18000
Aditi	15000
Mohan	12000
Neeti	11000
Shashank	9000
Akash	8000
Sanya	7000
Charu	4000
Gautam	3000
Laxman	2000

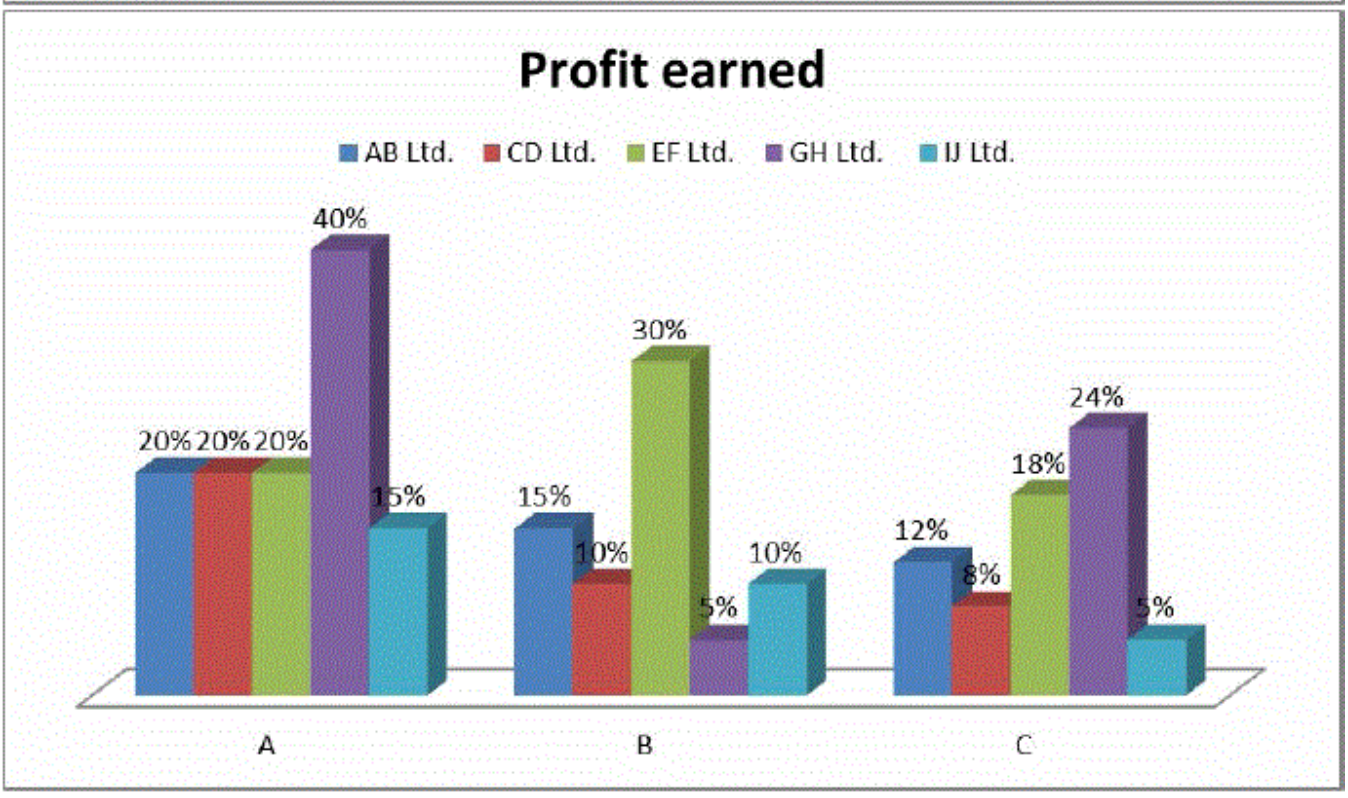
Total rent paid by all ten friends = Rs. 89000

FeedBack

Directions for questions 47 to 50: Answer the questions on the basis of the information given below.

The following bar-graphs show the percentage discounts offered and profit earned by various companies to sell products A, B and C.





Q.47

If marked price of product A is same for all the companies then which company had the lowest cost price of A?

1 **AB Ltd.**

2 **CD Ltd.**

3 **EF Ltd.**

4 **GH Ltd.**

Solution:
Correct Answer : 3
Your Answer : 4

Bookmark

Answer key/Solution

If marked price and cost price of a product is M and C respectively, and discount offered and profit earned be d% and p%, then we can say

$M = C\left(1+\frac{x}{100}\right)$ and $M\left(1-\frac{d}{100}\right) = C\left(1+\frac{p}{100}\right)$ = selling price.

Using this equation and the given bar-graphs, we can form the following table:

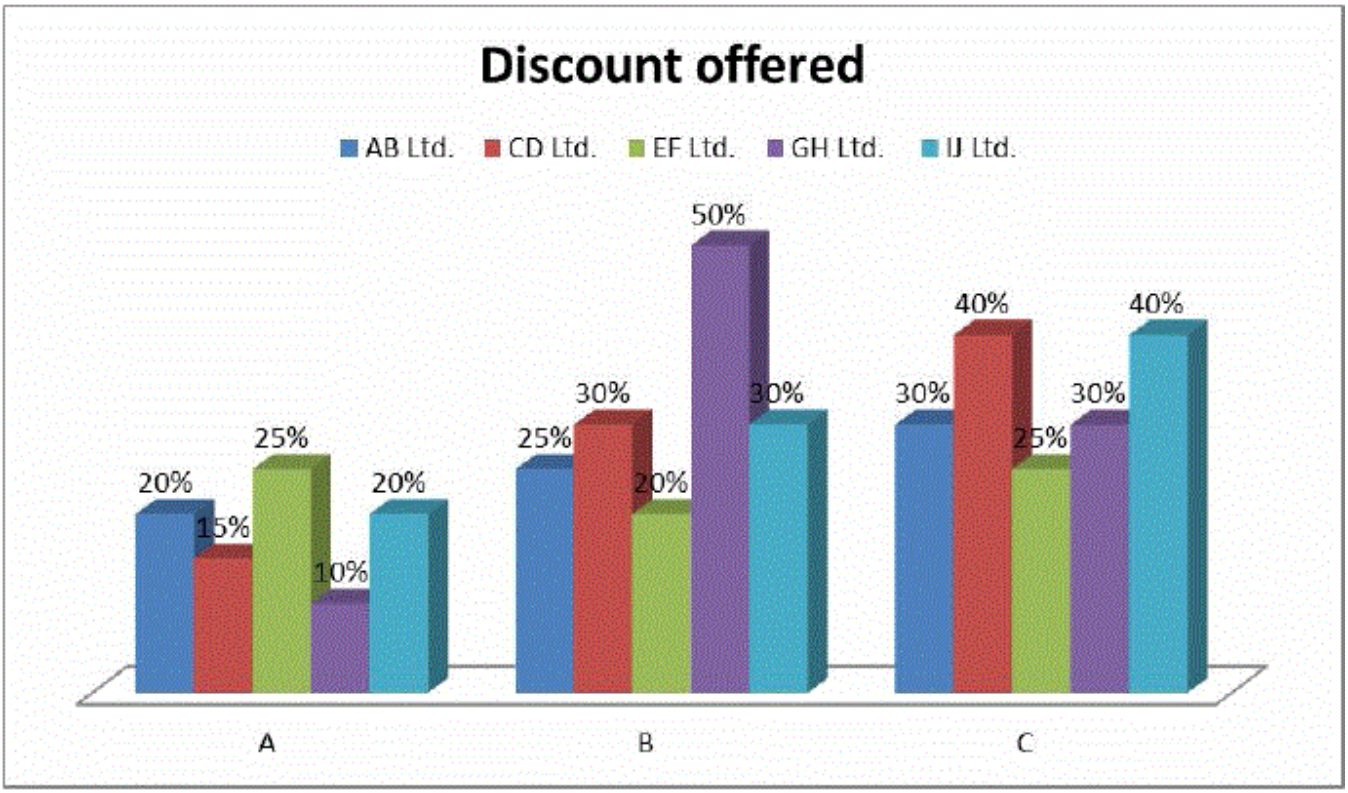
	A			B			C		
	MP (Say)	SP	CP	MP (Say)	SP	CP	MP (Say)	SP	CP
AB Ltd.	A_1	$0.8\ A_1$	$\frac{0.8}{1.2}A_1$	B_1	$0.75\ B_1$	$\frac{0.75}{1.15}B_1$	C_1	$0.7\ C_1$	$\frac{0.7}{1.12}C_1$
CD Ltd.	A_2	$0.85\ A_2$	$\frac{0.85}{1.2}A_2$	B_2	$0.7\ B_2$	$\frac{0.7}{1.10}B_2$	C_2	$0.6\ C_2$	$\frac{0.6}{1.08}C_2$
EF Ltd.	A_3	$0.75\ A_3$	$\frac{0.75}{1.2}A_3$	B_3	$0.8\ B_3$	$\frac{0.8}{1.3}B_3$	C_3	$0.75\ C_3$	$\frac{0.75}{1.18}C_3$
GH Ltd.	A_4	$0.9\ A_4$	$\frac{0.9}{1.4}A_4$	B_4	$0.5\ B_4$	$\frac{0.5}{1.05}B_4$	C_4	$0.7\ C_4$	$\frac{0.7}{1.24}C_4$
IJ Ltd.	A_5	$0.8\ A_5$	$\frac{0.8}{1.15}A_5$	B_5	$0.7\ B_5$	$\frac{0.7}{1.1}B_5$	C_5	$0.6\ C_5$	$\frac{0.6}{1.05}C_5$

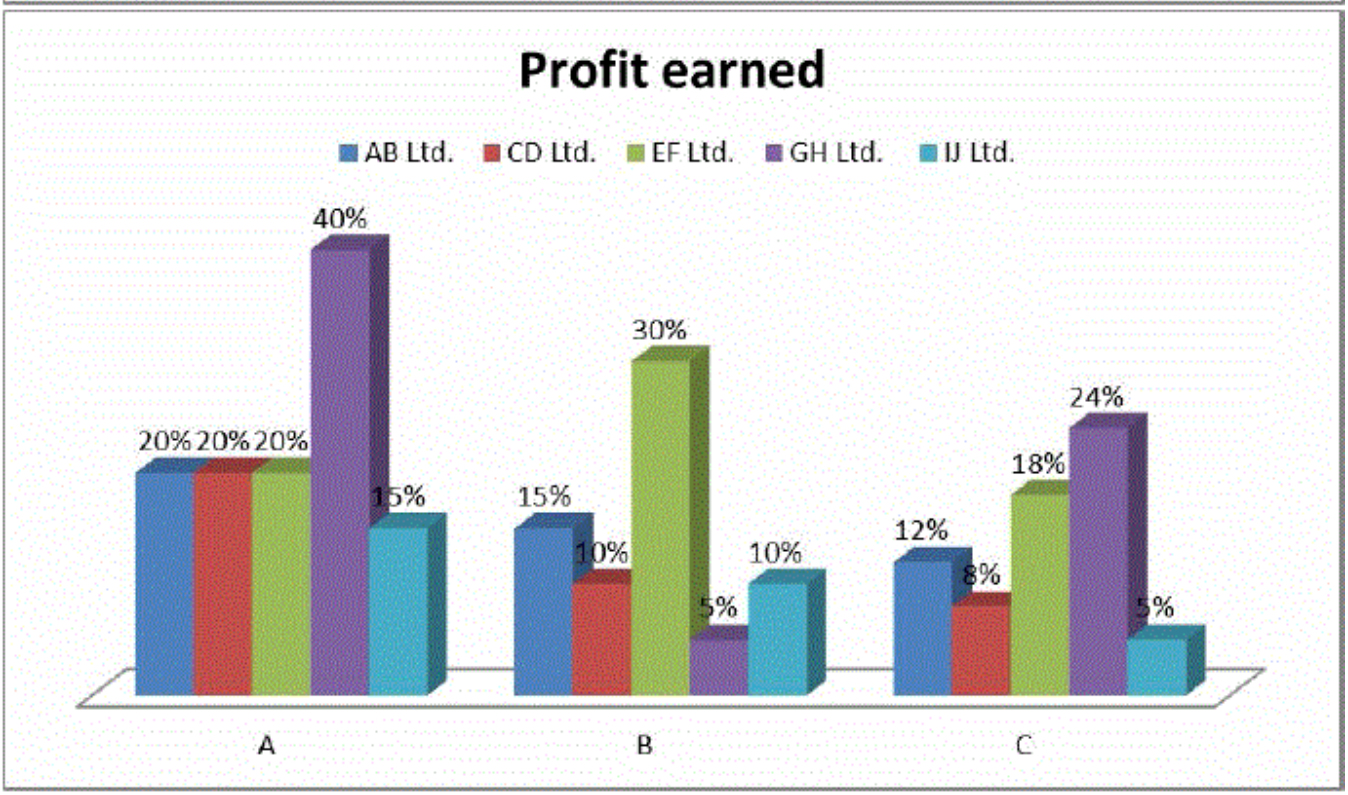
If A_1, A_2, A_3, A_4 and A_5 are all equal (say A), then the lowest CP will be for company EF Ltd. i.e. $\frac{0.75}{1.2}A = \frac{5}{8}A$.

FeedBack

Directions for questions 47 to 50: Answer the questions on the basis of the information given below.

The following bar-graphs show the percentage discounts offered and profit earned by various companies to sell products A, B and C.





Q.48

If the cost price of products A and B are in the ratio of 3 : 4 for EF Ltd., then what is the ratio of their discounts?

1 **5:4**

2 **12:13**

3 **9:13**

4 **None of these**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

If marked price and cost price of a product is M and C respectively, and discount offered and profit earned be d% and p%, then we can say

$M = C\left(1+\frac{x}{100}\right)$ and $M\left(1-\frac{d}{100}\right) = C\left(1+\frac{p}{100}\right)$ = selling price.

Using this equation and the given bar-graphs, we can form the following table:

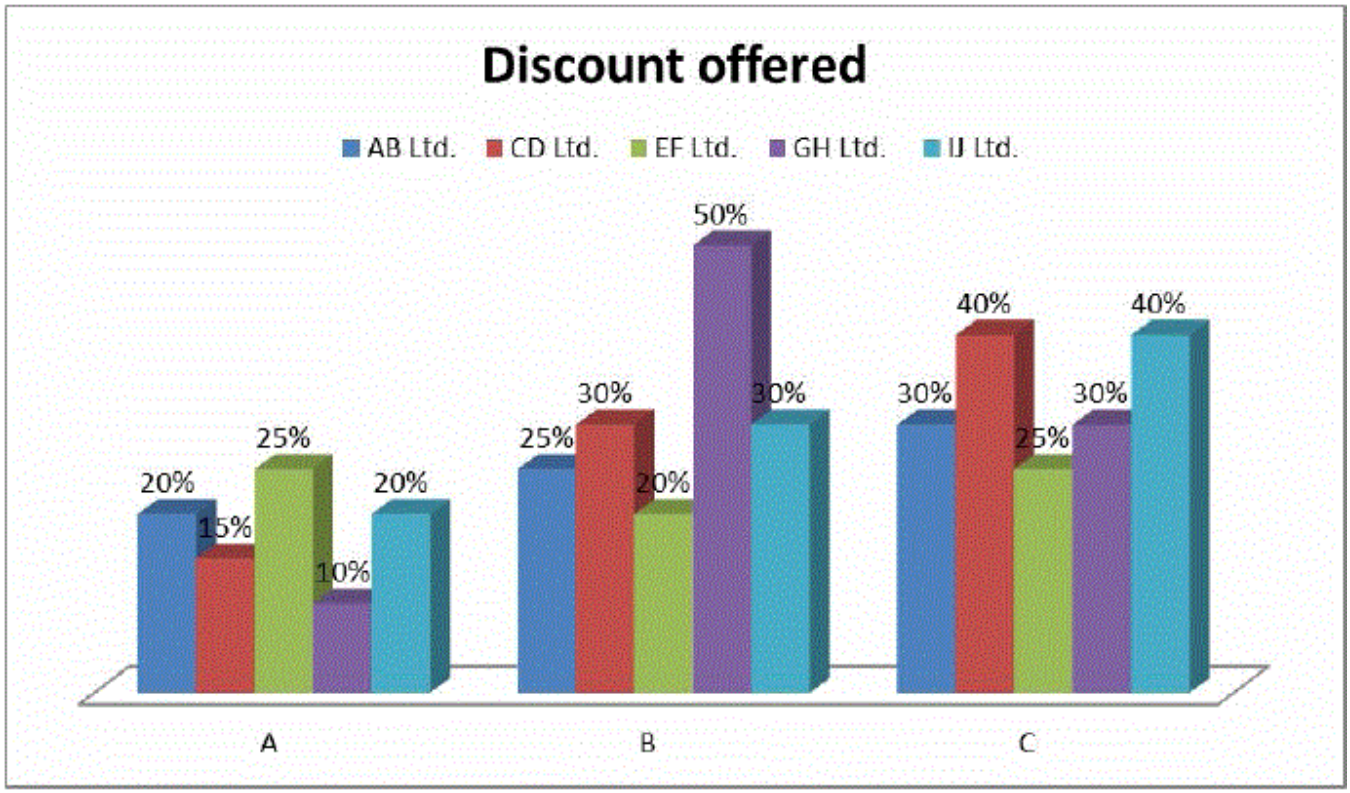
	A			B			C		
	MP (Say)	SP	CP	MP (Say)	SP	CP	MP (Say)	SP	CP
AB Ltd.	A_1	$0.8\ A_1$	$\frac{0.8}{1.2}A_1$	B_1	$0.75\ B_1$	$\frac{0.75}{1.15}B_1$	C_1	$0.7\ C_1$	$\frac{0.7}{1.12}C_1$
CD Ltd.	A_2	$0.85\ A_2$	$\frac{0.85}{1.2}A_2$	B_2	$0.7\ B_2$	$\frac{0.7}{1.10}B_2$	C_2	$0.6\ C_2$	$\frac{0.6}{1.08}C_2$
EF Ltd.	A_3	$0.75\ A_3$	$\frac{0.75}{1.2}A_3$	B_3	$0.8\ B_3$	$\frac{0.8}{1.3}B_3$	C_3	$0.75\ C_3$	$\frac{0.75}{1.18}C_3$
GH Ltd.	A_4	$0.9\ A_4$	$\frac{0.9}{1.4}A_4$	B_4	$0.5\ B_4$	$\frac{0.5}{1.05}B_4$	C_4	$0.7\ C_4$	$\frac{0.7}{1.24}C_4$
IJ Ltd.	A_5	$0.8\ A_5$	$\frac{0.8}{1.15}A_5$	B_5	$0.7\ B_5$	$\frac{0.7}{1.1}B_5$	C_5	$0.6\ C_5$	$\frac{0.6}{1.05}C_5$

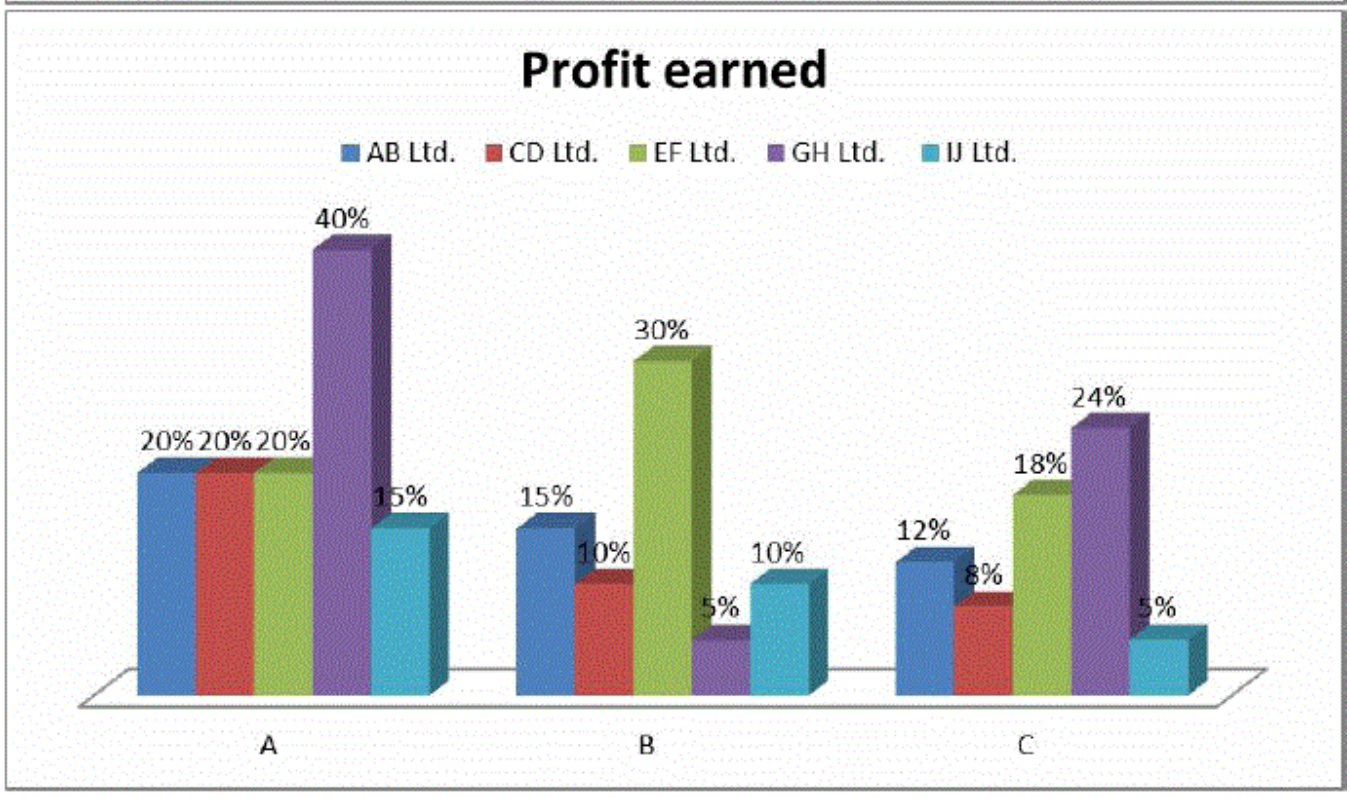
CP of A and B for EF Ltd. is in the ratio 3 : 4 i.e. $\frac{0.75}{1.2}A_3 : \frac{0.8}{1.3}B_3 = 3 : 4$.
Hence, $A_3 : B_3 = 48 : 65$.
So, ratio of discount on A and B is $0.25\ A_3 : 0.2\ B_3$ i.e. 12 : 13.

FeedBack

Directions for questions 47 to 50: Answer the questions on the basis of the information given below.

The following bar-graphs show the percentage discounts offered and profit earned by various companies to sell products A, B and C.





Q.49

For how many companies the mark up percentage for C is definitely more than 50%?

1 **1**

2 **2**

3 **3**

4 **5**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

If marked price and cost price of a product is M and C respectively, and discount offered and profit earned be d% and p%, then we can say

$M = C\left(1+\frac{x}{100}\right)$ and $M\left(1-\frac{d}{100}\right) = C\left(1+\frac{p}{100}\right)$ = selling price.

Using this equation and the given bar-graphs, we can form the following table:

	A			B			C		
	MP (Say)	SP	CP	MP (Say)	SP	CP	MP (Say)	SP	CP
AB Ltd.	A_1	$0.8\ A_1$	$\frac{0.8}{1.2}A_1$	B_1	$0.75\ B_1$	$\frac{0.75}{1.15}B_1$	C_1	$0.7\ C_1$	$\frac{0.7}{1.12}C_1$
CD Ltd.	A_2	$0.85\ A_2$	$\frac{0.85}{1.2}A_2$	B_2	$0.7\ B_2$	$\frac{0.7}{1.10}B_2$	C_2	$0.6\ C_2$	$\frac{0.6}{1.08}C_2$
EF Ltd.	A_3	$0.75\ A_3$	$\frac{0.75}{1.2}A_3$	B_3	$0.8\ B_3$	$\frac{0.8}{1.3}B_3$	C_3	$0.75\ C_3$	$\frac{0.75}{1.18}C_3$
GH Ltd.	A_4	$0.9\ A_4$	$\frac{0.9}{1.4}A_4$	B_4	$0.5\ B_4$	$\frac{0.5}{1.05}B_4$	C_4	$0.7\ C_4$	$\frac{0.7}{1.24}C_4$
IJ Ltd.	A_5	$0.8\ A_5$	$\frac{0.8}{1.15}A_5$	B_5	$0.7\ B_5$	$\frac{0.7}{1.1}B_5$	C_5	$0.6\ C_5$	$\frac{0.6}{1.05}C_5$

Mark up percentage of C for AB Ltd. is $\left(\frac{C_1}{\frac{0.7}{1.12}C_1}-1\right)\times 100 = \left(\frac{1.12}{0.7}-1\right)\times 100 = 60\%$.

Similarly, mark-up percentage for other companies is:

For CD Ltd., $\left(\frac{1.08}{0.6}-1\right)$ × 100 = 80%

For EF Ltd., $\left(\frac{1.18}{0.75}-1\right)$ × 100 = 57.2% approx.

For GH Ltd., $\left(\frac{1.24}{0.7}-1\right)$ × 100 = 77% approx.

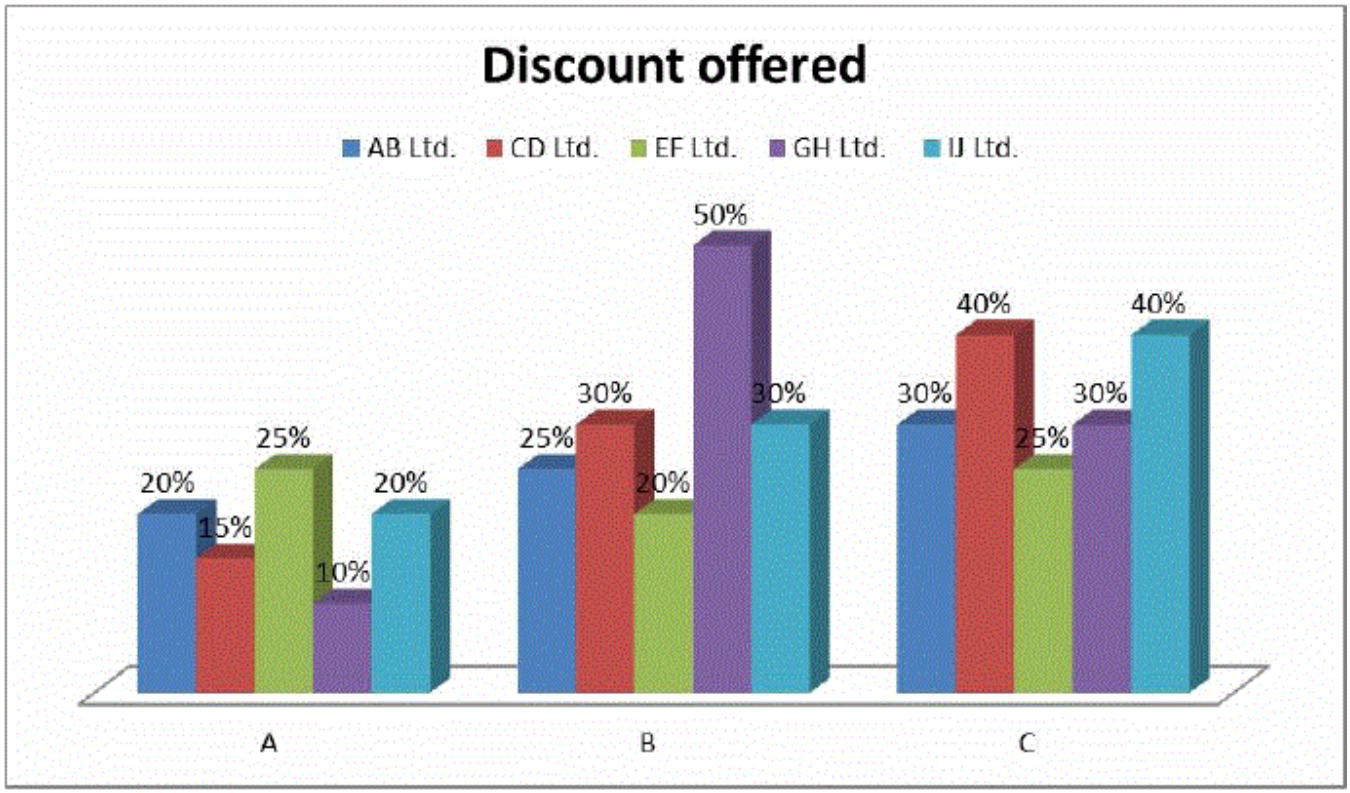
For IJ Ltd., $\left(\frac{1.05}{0.6}-1\right)$ × 100 = 75%

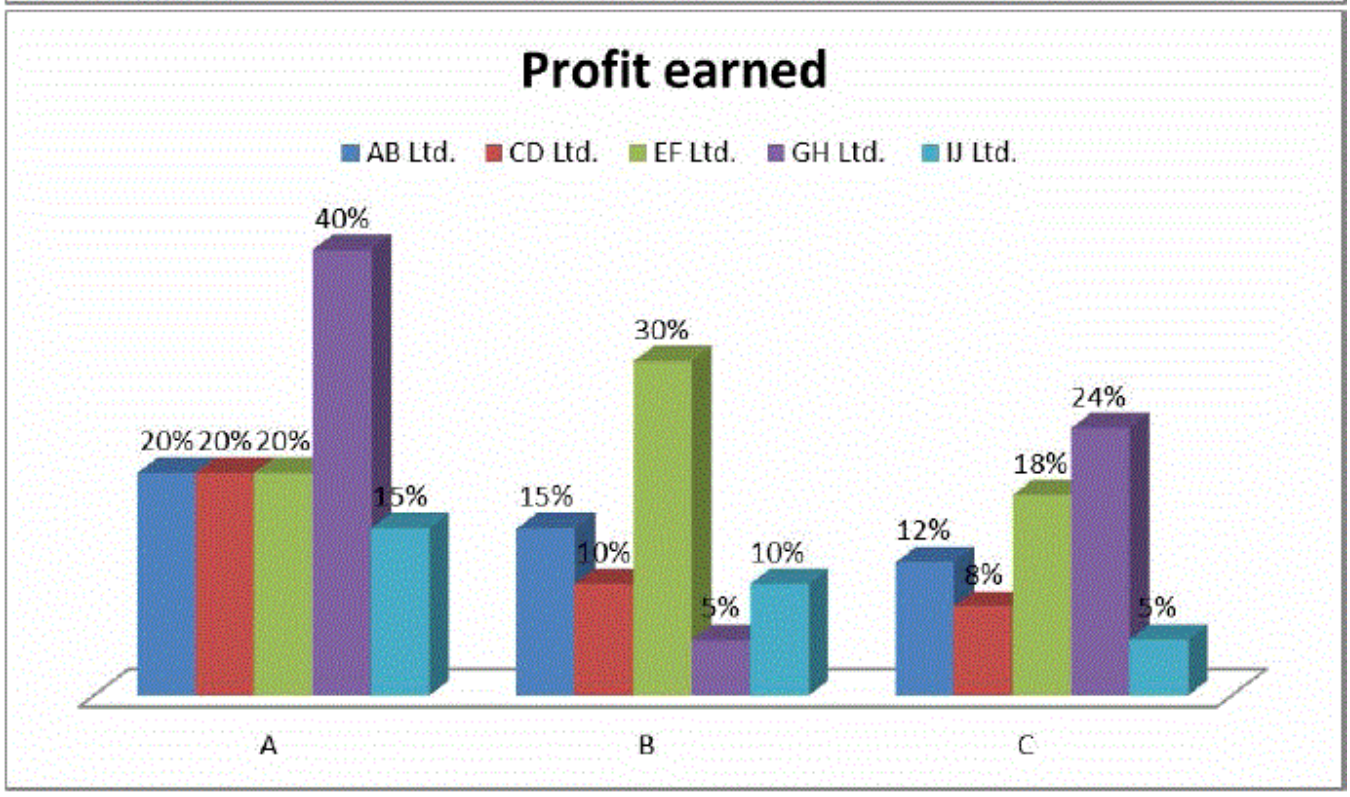
So, for all the five mentioned companies mark up is more than 50%.

FeedBack

Directions for questions 47 to 50: Answer the questions on the basis of the information given below.

The following bar-graphs show the percentage discounts offered and profit earned by various companies to sell products A, B and C.





Q.50

If the cost price for each product is same for all the companies but different for each product for any company then how many companies definitely earned more or equal profit to that of IJ Ltd, if every company sold equal number of products of each type?

1 ○ **0**

2 **1**

3 **2**

4 **3**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

If marked price and cost price of a product is M and C respectively, and discount offered and profit earned be d% and p%, then we can say

$M = C\left(1+\frac{x}{100}\right)$ and $M\left(1-\frac{d}{100}\right) = C\left(1+\frac{p}{100}\right)$ = selling price.

Using this equation and the given bar-graphs, we can form the following table:

	A			B			C		
	MP (Say)	SP	CP	MP (Say)	SP	CP	MP (Say)	SP	CP
AB Ltd.	A_1	$0.8\ A_1$	$\frac{0.8}{1.2} A_1$	B_1	$0.75\ B_1$	$\frac{0.75}{1.15} B_1$	C_1	$0.7\ C_1$	$\frac{0.7}{1.12} C_1$
CD Ltd.	A_2	$0.85\ A_2$	$\frac{0.85}{1.2} A_2$	B_2	$0.7\ B_2$	$\frac{0.7}{1.10} B_2$	C_2	$0.6\ C_2$	$\frac{0.6}{1.08} C_2$
EF Ltd.	A_3	$0.75\ A_3$	$\frac{0.75}{1.2} A_3$	B_3	$0.8\ B_3$	$\frac{0.8}{1.3} B_3$	C_3	$0.75\ C_3$	$\frac{0.75}{1.18} C_3$
GH Ltd.	A_4	$0.9\ A_4$	$\frac{0.9}{1.4} A_4$	B_4	$0.5\ B_4$	$\frac{0.5}{1.05} B_4$	C_4	$0.7\ C_4$	$\frac{0.7}{1.24} C_4$
IJ Ltd.	A_5	$0.8\ A_5$	$\frac{0.8}{1.15} A_5$	B_5	$0.7\ B_5$	$\frac{0.7}{1.1} B_5$	C_5	$0.6\ C_5$	$\frac{0.6}{1.05} C_5$

Except GH Ltd, every company earned more or equal profit than IJ Ltd. as all their figures of profit percentages are greater than that of IJ Ltd. Hence, answer is 3.

FeedBack

Directions for questions 51 to 54: Answer the questions on the basis of the information given below.

IIM Delhi was set up this year and it absorbed a batch of 80 students for its two-year PGP course in management. Every student satisfied all of the three given selection criteria. The criteria for selection were as follows:

I. The candidate should have taken exactly one of the CAT or XAT examinations.
II. The candidate must have:
Secured at least 96 percentile in the examination he/she had written OR secured a rank among the top 10 students in his or her university examination (university topper) OR both.
III. The candidate must either be a fresher or have work experience of more than 3 years.
Further information about the students absorbed by the Institute is as follows:

a. There were 45 students who had secured a rank among the top 10 students in their university examination. Of these 33.3 % were fresher while 66.66% had appeared for CAT.
b. 30 students had taken the XAT examination, of which 15 were fresher.
c. Of the students who had work experience greater than 3 years, 15 students were university toppers (i.e. in the top 10) and these students had also secured 96 or more percentile in the examination they had taken (i.e. CAT or XAT).
d. There were 20 students who had taken the CAT examination, had secured a rank among the top 10 students in their university examination and also had work experience of more than 3 years.
e. There were a total of 40 students who had work experience of more than 3 years.
f. No fresher satisfied both the criteria mentioned in (II) above.

Q.51
What was the number of students with work experience that the college had absorbed who were also university toppers, had taken CAT examination and secured more than 96 percentile.

1 **5**

2 **7**

3 **3**

4 **Cannot be determined**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Since there are a total of 80 students and they write only one of the two exams i.e. either CAT or XAT but not both, so if XAT takers are 30 (Refer Pt. b) this implies CAT takers are 50 (i.e. 80 – 30 = 50).
Now, XAT takers who are freshers = 15 (Refer Pt. b) so this implies remaining XAT takers have work experience i.e. 15 = 30 – 15.
So, CAT who have work experience = 40 – 15 = 25 (Refer Pt. e) and CAT takers who are freshers = 50 – 25 = 25.

45 UT i.e University toppers i.e students who secured top 10 ranks in their respective university
25 CF i.e CAT takers + freshers
25 CW i.e CAT takers + Work experience of more than 3 years
15 XW i.e XAT takers + Work experience of more than 3 years
UT who are freshers are 15 (Refer Pt. a), this implies UT with work experience of more than 3 years is 30 i.e (45 – 15).
UT who appeared for CAT are 30 (Refer Pt. a), this implies that UT who appeared for XAT are 15 i.e (45 – 30).
Now, there are 20 CW who are UT (Refer Pt. d), this implies that the remaining 5 CW have definitely got more than 96%ile in CAT and it also implies that out of the 30 UT who appeared for CAT, 10 were freshers i.e 10 were CF.
This further implies that the remaining 15 CF got more than 96%ile in CAT out of the 15 UT who are freshers, 5 appeared for XAT.
This means that the remaining 10 XF got more than 96%ile in XAT and 5 XF are UT.
Since there are 15 UT who wrote XAT out of which only 5 belongs to XW, which implies the remaining 5 XW definitely got more than 96%ile in XAT.

Cannot be determined

FeedBack

Directions for questions 51 to 54: Answer the questions on the basis of the information given below.

IIM Delhi was set up this year and it absorbed a batch of 80 students for its two-year PGP course in management. Every student satisfied all of the three given selection criteria. The criteria for selection were as follows:

I. The candidate should have taken exactly one of the CAT or XAT examinations.
II. The candidate must have:
Secured at least 96 percentile in the examination he/she had written OR secured a rank among the top 10 students in his or her university examination (university topper) OR both.
III. The candidate must either be a fresher or have work experience of more than 3 years.
Further information about the students absorbed by the Institute is as follows:

a. There were 45 students who had secured a rank among the top 10 students in their university examination. Of these 33.3 % were fresher while 66.66% had appeared for CAT.
b. 30 students had taken the XAT examination, of which 15 were fresher.
c. Of the students who had work experience greater than 3 years, 15 students were university toppers (i.e. in the top 10) and these students had also secured 96 or more percentile in the examination they had taken (i.e. CAT or XAT).
d. There were 20 students who had taken the CAT examination, had secured a rank among the top 10 students in their university examination and also had work experience of more than 3 years.
e. There were a total of 40 students who had work experience of more than 3 years.
f. No fresher satisfied both the criteria mentioned in (II) above.

Q.52
Find the absolute difference between the number of CAT takers who were not freshers, and the number of freshers who were not CAT takers.

Solution:
Correct Answer : 10

Bookmark

Answer key/Solution

Since there are a total of 80 students and they write only one of the two exams i.e. either CAT or XAT but not both, so if XAT takers are 30 (Refer Pt. b) this implies CAT takers are 50 (i.e. 80 – 30 = 50).
Now, XAT takers who are freshers = 15 (Refer Pt. b) so this implies remaining XAT takers have work experience i.e. 15 = 30 – 15.
So, CAT who have work experience = 40 – 15 = 25 (Refer Pt. e) and CAT takers who are freshers = 50 – 25 = 25.

45 UT i.e University toppers i.e students who secured top 10 ranks in their respective university
25 CF i.e CAT takers + freshers
25 CW i.e CAT takers + Work experience of more than 3 years
15 XW i.e XAT takers + Work experience of more than 3 years
UT who are freshers are 15 (Refer Pt. a), this implies UT with work experience of more than 3 years is 30 i.e (45 – 15).
UT who appeared for CAT are 30 (Refer Pt. a), this implies that UT who appeared for XAT are 15 i.e (45 – 30).
Now, there are 20 CW who are UT (Refer Pt. d), this implies that the remaining 5 CW have definitely got more than 96%ile in CAT and it also implies that out of the 30 UT who appeared for CAT, 10 were freshers i.e 10 were CF.
This further implies that the remaining 15 CF got more than 96%ile in CAT out of the 15 UT who are freshers, 5 appeared for XAT.
This means that the remaining 10 XF got more than 96%ile in XAT and 5 XF are UT.
Since there are 15 UT who wrote XAT out of which only 5 belongs to XW, which implies the remaining 5 XW definitely got more than 96%ile in XAT.

Number of CAT takers who are not freshers = 25
Number of freshers who are not CAT takers= 15
Therefore, the required difference = 25 – 15 = 10

FeedBack

Directions for questions 51 to 54: Answer the questions on the basis of the information given below.

IIM Delhi was set up this year and it absorbed a batch of 80 students for its two-year PGP course in management. Every student satisfied all of the three given selection criteria. The criteria for selection were as follows:

I. The candidate should have taken exactly one of the CAT or XAT examinations.
II. The candidate must have:
Secured at least 96 percentile in the examination he/she had written OR secured a rank among the top 10 students in his or her university examination (university topper) OR both.
III. The candidate must either be a fresher or have work experience of more than 3 years.
Further information about the students absorbed by the Institute is as follows:

a. There were 45 students who had secured a rank among the top 10 students in their university examination. Of these 33.3 % were fresher while 66.66% had appeared for CAT.
b. 30 students had taken the XAT examination, of which 15 were fresher.
c. Of the students who had work experience greater than 3 years, 15 students were university toppers (i.e. in the top 10) and these students had also secured 96 or more percentile in the examination they had taken (i.e. CAT or XAT).
d. There were 20 students who had taken the CAT examination, had secured a rank among the top 10 students in their university examination and also had work experience of more than 3 years.
e. There were a total of 40 students who had work experience of more than 3 years.
f. No fresher satisfied both the criteria mentioned in (II) above.

Q.53

How many CAT takers have scored more than 96+ percentile and are not university toppers?

Solution:

Correct Answer : 20

Bookmark

Answer key/Solution

Since there are a total of 80 students and they write only one of the two exams i.e. either CAT or XAT but not both, so if XAT takers are 30 (Refer Pt. b) this implies CAT takers are 50 (i.e. 80 – 30 = 50).
Now, XAT takers who are freshers = 15 (Refer Pt. b) so this implies remaining XAT takers have work experience i.e. 15 = 30 – 15.
So, CAT who have work experience = 40 – 15 = 25 (Refer Pt. e) and CAT takers who are freshers = 50 – 25 = 25.

45 UT i.e University toppers i.e students who secured top 10 ranks in their respective university
25 CF i.e CAT takers + freshers
25 CW i.e CAT takers + Work experience of more than 3 years
15 XW i.e XAT takers + Work experience of more than 3 years
UT who are freshers are 15 (Refer Pt. a), this implies UT with work experience of more than 3 years is 30 i.e (45 – 15).
UT who appeared for CAT are 30 (Refer Pt. a), this implies that UT who appeared for XAT are 15 i.e (45 – 30).
Now, there are 20 CW who are UT (Refer Pt. d), this implies that the remaining 5 CW have definitely got more than 96%ile in CAT and it also implies that out of the 30 UT who appeared for CAT, 10 were freshers i.e 10 were CF.
This further implies that the remaining 15 CF got more than 96%ile in CAT out of the 15 UT who are freshers, 5 appeared for XAT.
This means that the remaining 10 XF got more than 96%ile in XAT and 5 XF are UT.
Since there are 15 UT who wrote XAT out of which only 5 belongs to XW, which implies the remaining 5 XW definitely got more than 96%ile in XAT.

15 + 5 = 20

FeedBack

Directions for questions 51 to 54: Answer the questions on the basis of the information given below.

IIM Delhi was set up this year and it absorbed a batch of 80 students for its two-year PGP course in management. Every student satisfied all of the three given selection criteria. The criteria for selection were as follows:

I. The candidate should have taken exactly one of the CAT or XAT examinations.
II. The candidate must have:
Secured at least 96 percentile in the examination he/she had written OR secured a rank among the top 10 students in his or her university examination (university topper) OR both.
III. The candidate must either be a fresher or have work experience of more than 3 years.
Further information about the students absorbed by the Institute is as follows:

a. There were 45 students who had secured a rank among the top 10 students in their university examination. Of these 33.3 % were fresher while 66.66% had appeared for CAT.
b. 30 students had taken the XAT examination, of which 15 were fresher.
c. Of the students who had work experience greater than 3 years, 15 students were university toppers (i.e. in the top 10) and these students had also secured 96 or more percentile in the examination they had taken (i.e. CAT or XAT).
d. There were 20 students who had taken the CAT examination, had secured a rank among the top 10 students in their university examination and also had work experience of more than 3 years.
e. There were a total of 40 students who had work experience of more than 3 years.
f. No fresher satisfied both the criteria mentioned in (II) above.

Q.54

What is the sum of all the 96+ percentilers who are not university toppers, and all university toppers who are freshers?

Solution:

Correct Answer : 50

Bookmark

Answer key/Solution

Since there are a total of 80 students and they write only one of the two exams i.e. either CAT or XAT but not both, so if XAT takers are 30 (Refer Pt. b) this implies CAT takers are 50 (i.e. 80 – 30 = 50).
Now, XAT takers who are freshers = 15 (Refer Pt. b) so this implies remaining XAT takers have work experience i.e. 15 = 30 – 15.
So, CAT who have work experience = 40 – 15 = 25 (Refer Pt. e) and CAT takers who are freshers = 50 – 25 = 25.

45 UT i.e University toppers i.e students who secured top 10 ranks in their respective university
25 CF i.e CAT takers + freshers
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15 XW i.e XAT takers + Work experience of more than 3 years
UT who are freshers are 15 (Refer Pt. a), this implies UT with work experience of more than 3 years is 30 i.e (45 – 15).
UT who appeared for CAT are 30 (Refer Pt. a), this implies that UT who appeared for XAT are 15 i.e (45 – 30).
Now, there are 20 CW who are UT (Refer Pt. d), this implies that the remaining 5 CW have definitely got more than 96%ile in CAT and it also implies that out of the 30 UT who appeared for CAT, 10 were freshers i.e 10 were CF.
This further implies that the remaining 15 CF got more than 96%ile in CAT out of the 15 UT who are freshers, 5 appeared for XAT.
This means that the remaining 10 XF got more than 96%ile in XAT and 5 XF are UT.
Since there are 15 UT who wrote XAT out of which only 5 belongs to XW, which implies the remaining 5 XW definitely got more than 96%ile in XAT.

15 + 10 + 5 + 5 + 10 + 5 = 50

FeedBack

Direction for questions 55 to 58: Answer the questions on the basis of the information given below.

In a school, selection trials were going on for the school basket ball team. Each participant was given 15 balls, and he/she was asked to put the ball into the basket. A person can either do a basket, i.e put the ball into the basket, or miss it. The table shown below gives the number of participants and the number of the baskets done by them. For example, there were 11 participants who were unable to do even a single basket; there were 6 participants who each did the basket exactly once; there were 4 participants who each did the basket exactly twice and so on. Some of the data in the table have been left blank intentionally.

Number of baskets done	0	1	2	3	.....	13	14	15
Number of participants	11	6	4	18	.....	4	3	1

• Average number of baskets done by the participants, who did 3 or more than 3 baskets, is 7.
• Average number of baskets done by the participants, who did 12 or less than 12 baskets, is 6.
Average number of baskets can be defined as,
Average number of baskets done by N participants

$$= \frac{\text{Total number of baskets done by N participants taken together}}{N}$$

Q.55

What was the total number of participants in the basket ball selection trials?

1 **147**

2 **186**

3 **194**

4 **None of these**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Let total number of baskets done be x.
And total number of people who participated be y.
There are (y – 21) participants who have done the basket for 3 or more times.
⇒ Total number of baskets done by these participants = (y – 21)7, as their average is given as 7.
∴ Total number of times baskets done by all participants together
= 0 × 11 + 1 × 6 + 2 × 4 + (y – 21)7 = 7y – 133.
⇒ 7y – 133 = x ...(1)
Also, there are (y - 8) participants who have done the basket for 12 or lesser times
∴ Total number of times baskets done by them = (y - 8)6
This implies,
(y – 8)6 + 13 × 4 + 14 × 3 + 15 × 1 = x
i.e. 6y + 61 = x ...(2)
Solving equation (i) and (ii), we get y = 194, x = 1225.

Total numbers of participants = 194

FeedBack

Direction for questions 55 to 58: Answer the questions on the basis of the information given below.

In a school, selection trials were going on for the school basket ball team. Each participant was given 15 balls, and he/she was asked to put the ball into the basket. A person can either do a basket, i.e put the ball into the basket, or miss it. The table shown below gives the number of participants and the number of the baskets done by them. For example, there were 11 participants who were unable to do even a single basket; there were 6 participants who each did the basket exactly once; there were 4 participants who each did the basket exactly twice and so on. Some of the data in the table have been left blank intentionally.

Number of baskets done	0	1	2	3	... ...	13	14	15
Number of participants	11	6	4	18	... ...	4	3	1

• Average number of baskets done by the participants, who did 3 or more than 3 baskets, is 7.
• Average number of baskets done by the participants, who did 12 or less than 12 baskets, is 6.
Average number of baskets can be defined as,
Average number of baskets done by N participants

$$= \frac{\text{Total number of baskets done by N participants taken together}}{N}$$

Q.56
What was the total number of baskets done during the whole process?

1 **1211**

2 **1225**

3 **1048**

4 **Cannot be determined**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Let total number of baskets done be x.
And total number of people who participated be y.
There are (y – 21) participants who have done the basket for 3 or more times.
⇒ Total number of baskets done by these participants = (y – 21)7, as their average is given as 7.
∴ Total number of times baskets done by all participants together
= 0 × 11 + 1 × 6 + 2 × 4 + (y – 21)7 = 7y – 133.
⇒ 7y – 133 = x ...(1)
Also, there are (y - 8) participants who have done the basket for 12 or lesser times
∴ Total number of times baskets done by them = (y - 8)6
This implies,
(y – 8)6 + 13 × 4 + 14 × 3 + 15 × 1 = x
i.e. 6y + 61 = x ...(2)
Solving equation (i) and (ii), we get y = 194, x = 1225.

Total numbers of baskets done =1225

FeedBack

Direction for questions 55 to 58: Answer the questions on the basis of the information given below.

In a school, selection trials were going on for the school basket ball team. Each participant was given 15 balls, and he/she was asked to put the ball into the basket. A person can either do a basket, i.e put the ball into the basket, or miss it. The table shown below gives the number of participants and the number of the baskets done by them. For example, there were 11 participants who were unable to do even a single basket; there were 6 participants who each did the basket exactly once; there were 4 participants who each did the basket exactly twice and so on. Some of the data in the table have been left blank intentionally.

Number of baskets done	0	1	2	3	... ...	13	14	15
Number of participants	11	6	4	18	... ...	4	3	1

• Average number of baskets done by the participants, who did 3 or more than 3 baskets, is 7.
• Average number of baskets done by the participants, who did 12 or less than 12 baskets, is 6.
Average number of baskets can be defined as,
Average number of baskets done by N participants

$$= \frac{\text{Total number of baskets done by N participants taken together}}{N}$$

Q.57

If the selection process is divided into three rounds as:
The participants who had done less than 4 baskets are eliminated after 1st round, and the participants who did more than 12 baskets were qualified directly for the 3rd round and need not participate in the 2nd one. Also for every basket the participant would be awarded '1' point and '0' point for every miss.

What is the mean score of the participants who participated in 1st round but not in 2nd round?

1 **3.76**

2 **1.69**

3 **2.71**

4 **13.62**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Let total number of baskets done be x.
And total number of people who participated be y.
There are (y – 21) participants who have done the basket for 3 or more times.
⇒ Total number of baskets done by these participants = (y – 21)7, as their average is given as 7.
∴ Total number of times baskets done by all participants together
= 0 × 11 + 1 × 6 + 2 × 4 + (y – 21)7 = 7y – 133.
⇒ 7y – 133 = x ...(1)
Also, there are (y - 8) participants who have done the basket for 12 or lesser times
∴ Total number of times baskets done by them = (y - 8)6
This implies,
(y – 8)6 + 13 × 4 + 14 × 3 + 15 × 1 = x
i.e. 6y + 61 = x ...(2)
Solving equation (i) and (ii), we get y = 194, x = 1225.

Total number of participants who participated in 1st round but not second round
= 11 + 6 + 4 + 18 + 4 + 3 + 1 = 47

Therefore, the required mean score $= \frac{(0\times11)+(6\times1)+(4\times2)+(18\times3)+(13\times4)+(14\times3)+(15\times1)}{47} = 3.76$

FeedBack

Direction for questions 55 to 58: Answer the questions on the basis of the information given below.

In a school, selection trials were going on for the school basket ball team. Each participant was given 15 balls, and he/she was asked to put the ball into the basket. A person can either do a basket, i.e put the ball into the basket, or miss it. The table shown below gives the number of participants and the number of the baskets done by them. For example, there were 11 participants who were unable to do even a single basket; there were 6 participants who each did the basket exactly once; there were 4 participants who each did the basket exactly twice and so on. Some of the data in the table have been left blank intentionally.

Number of baskets done	0	1	2	3	.....	13	14	15
Number of participants	11	6	4	18	.....	4	3	1

• Average number of baskets done by the participants, who did 3 or more than 3 baskets, is 7.
• Average number of baskets done by the participants, who did 12 or less than 12 baskets, is 6.
Average number of baskets can be defined as,
Average number of baskets done by N participants

$$= \frac{\text{Total number of baskets done by N participants taken together}}{N}$$

Q.58
If the number of participants who did 4 baskets were 9, then what is the average number of baskets done by the participants who did between 5 to 12 baskets (both included)?

1 **5.22**

2 **7.33**

3 **3.91**

4 **9.12**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Let total number of baskets done be x.
And total number of people who participated be y.
There are (y – 21) participants who have done the basket for 3 or more times.
⇒ Total number of baskets done by these participants = (y – 21)7, as their average is given as 7.
∴ Total number of times baskets done by all participants together
= 0 × 11 + 1 × 6 + 2 × 4 + (y – 21)7 = 7y – 133.
⇒ 7y – 133 = x ...(1)
Also, there are (y - 8) participants who have done the basket for 12 or lesser times
∴ Total number of times baskets done by them = (y - 8)6
This implies,
(y – 8)6 + 13 × 4 + 14 × 3 + 15 × 1 = x
i.e. 6y + 61 = x ...(2)
Solving equation (i) and (ii), we get y = 194, x = 1225.

Number of participants who did the baskets from 5 to 15 times = 194 – (11 + 4 + 18 + 4 + 3 + 1 + 9) = 138.
Total number of baskets done by these participants
= 1225 – (0 × 11 + 1 × 6 + 2 × 4 + 3 × 18 + 4 × 9 + 13 × 4 + 14 × 3 + 15 × 1) = 1225 – 213 = 1012.

∴ Required Average $= \frac{1012}{138} = 7.33$

FeedBack

Directions for questions 59 to 62: Answer the questions on the basis of the information given below.

Six friends A, B, C, D, E and F went for shopping and each of them spent some integral amount of rupees on shopping. No two of them spent the same amount.
It is further known that:

(i) The amount (in Rs.) spent by each friend is a 3-digit number, having all distinct digits, out of 1, 2 and 3 only.
(ii) Difference between the amount spent by C and F was a two digit number.
(iii) Difference between the amount spent by A and E was Rs 9.
(iv) B spent more than twice the amount which E spent.
(v) Sum of the amounts spent by C, D and F was an odd number.

Q.59
If D spent more than B, then what is the difference between the amount spent by D and E?

1 **189**

2 **198**

3 **108**

4 **Cannot be determined**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

- By statement (i), since each friend spent 3-digit amount formed out of 1, 2 and 3 only, therefore, A, B, C, D, E and F must have spent 123, 132, 213, 231, 312, 321 – in no specific order.
- By statement (iii) and (iv), A and E must have spent 123 and 132 in no specific order and B spent either 312 or 321.
- By statement (ii), difference between the amount spent by C and F is a two digit number therefore, the possible combinations are (213, 231), (213, 312), (231, 312), (231, 321).
- By statement (v), since sum of the amounts spent by C, D and F is an odd number,
  therefore, either C, D and F are all odd or exactly two of them are even, which is possible only if (C, F) are either (213, 231) or (231, 321).
- By statement (v), two case are possible

Case I

A	123/132
B	312
C	213/231
D	321
E	132/123
F	231/213

or

Case II

A	123/132
B	312
C	231/321
D	213
E	132/123
F	321/231

If D spent more than B, then case I holds.
D spent 321 but E could have spent either 132 or 123. Therefore, difference cannot be determined.

FeedBack

Directions for questions 59 to 62: Answer the questions on the basis of the information given below.

Six friends A, B, C, D, E and F went for shopping and each of them spent some integral amount of rupees on shopping. No two of them spent the same amount.
It is further known that:

(i) The amount (in Rs.) spent by each friend is a 3-digit number, having all distinct digits, out of 1, 2 and 3 only.
(ii) Difference between the amount spent by C and F was a two digit number.
(iii) Difference between the amount spent by A and E was Rs 9.
(iv) B spent more than twice the amount which E spent.
(v) Sum of the amounts spent by C, D and F was an odd number.

Q.60
If D spent less than both C and F, then the absolute difference of amount spent by C and F is

1 **18**

2 **81**

3 **90**

4 **99**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

- By statement (i), since each friend spent 3-digit amount formed out of 1, 2 and 3 only, therefore, A, B, C, D, E and F must have spent 123, 132, 213, 231, 312, 321 – in no specific order.
- By statement (iii) and (iv), A and E must have spent 123 and 132 in no specific order and B spent either 312 or 321.
- By statement (ii), difference between the amount spent by C and F is a two digit number therefore, the possible combinations are (213, 231), (213, 312), (231, 312), (231, 321).
- By statement (v), since sum of the amounts spent by C, D and F is an odd number,
  therefore, either C, D and F are all odd or exactly two of them are even, which is possible only if (C, F) are either (213, 231) or (231, 321).
- By statement (v), two case are possible

Case I

A	123/132
B	312
C	213/231
D	321
E	132/123
F	231/213

or

Case II

A	123/132
B	312
C	231/321
D	213
E	132/123
F	321/231

Case II holds true, where D spent 213.
Then absolute difference = |321 – 231| = 90.

FeedBack

Directions for questions 59 to 62: Answer the questions on the basis of the information given below.

Six friends A, B, C, D, E and F went for shopping and each of them spent some integral amount of rupees on shopping. No two of them spent the same amount.
It is further known that:

(i) The amount (in Rs.) spent by each friend is a 3-digit number, having all distinct digits, out of 1, 2 and 3 only.
(ii) Difference between the amount spent by C and F was a two digit number.
(iii) Difference between the amount spent by A and E was Rs 9.
(iv) B spent more than twice the amount which E spent.
(v) Sum of the amounts spent by C, D and F was an odd number.

Q.61
If A spent the minimum and F spent the maximum, then the amount spent by C and D taken together was

1 **345**

2 **444**

3 **543**

4 **Cannot be determined**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

- By statement (i), since each friend spent 3-digit amount formed out of 1, 2 and 3 only, therefore, A, B, C, D, E and F must have spent 123, 132, 213, 231, 312, 321 – in no specific order.
- By statement (iii) and (iv), A and E must have spent 123 and 132 in no specific order and B spent either 312 or 321.
- By statement (ii), difference between the amount spent by C and F is a two digit number therefore, the possible combinations are (213, 231), (213, 312), (231, 312), (231, 321).
- By statement (v), since sum of the amounts spent by C, D and F is an odd number,
  therefore, either C, D and F are all odd or exactly two of them are even, which is possible only if (C, F) are either (213, 231) or (231, 321).
- By statement (v), two case are possible

Case I

A	123/132
B	312
C	213/231
D	321
E	132/123
F	231/213

or

Case II

A	123/132
B	312
C	231/321
D	213
E	132/123
F	321/231

Consider case II,
A spent 123 and F spent 321. Then, C must have spent 231.
∴ C + D = 231 + 213 = 444.

FeedBack

Directions for questions 59 to 62: Answer the questions on the basis of the information given below.

Six friends A, B, C, D, E and F went for shopping and each of them spent some integral amount of rupees on shopping. No two of them spent the same amount.
It is further known that:

(i) The amount (in Rs.) spent by each friend is a 3-digit number, having all distinct digits, out of 1, 2 and 3 only.
(ii) Difference between the amount spent by C and F was a two digit number.
(iii) Difference between the amount spent by A and E was Rs 9.
(iv) B spent more than twice the amount which E spent.
(v) Sum of the amounts spent by C, D and F was an odd number.

Q.62
If E spent more than A; and C spent more than F, then which of the following is the amount spent by D?

1 **213**

2 **231**

3 **321**

4 **Either (1) or (3)**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

- By statement (i), since each friend spent 3-digit amount formed out of 1, 2 and 3 only, therefore, A, B, C, D, E and F must have spent 123, 132, 213, 231, 312, 321 – in no specific order.
- By statement (iii) and (iv), A and E must have spent 123 and 132 in no specific order and B spent either 312 or 321.
- By statement (ii), difference between the amount spent by C and F is a two digit number therefore, the possible combinations are (213, 231), (213, 312), (231, 312), (231, 321).
- By statement (v), since sum of the amounts spent by C, D and F is an odd number,
  therefore, either C, D and F are all odd or exactly two of them are even, which is possible only if (C, F) are either (213, 231) or (231, 321).
- By statement (v), two case are possible

Case I

A	123/132
B	312
C	213/231
D	321
E	132/123
F	231/213

or

Case II

A	123/132
B	312
C	231/321
D	213
E	132/123
F	321/231

In case I, E spent 132, A spent 123, C spent 231 , F spent 213, then D spent 321.
In case II, E spent 132, A spent 123, C spent 321, F spent 231, then D spent 213.

FeedBack

Directions for questions 63 to 66: Answer the questions on the basis of the information given below.

Global environment meet is held among eight different countries regarding the increased level of global warming. Each country is represented by its environment minister. These eight ministers – Nitesh, Manoj, Navin, Shashank, Saral, Praveen, Anuj and Shilpa – are sitting around a circular table. Some are facing towards the centre of the table while others are facing away from the centre. Further, it is also known that:

(i) Anuj is sitting second to the right of Shilpa, and is facing towards centre.
(ii) Shilpa is sitting to the immediate left of Praveen, who is facing the centre of the table.
(iii) Nitesh is sitting opposite to Shilpa.
(iv) Manoj is sitting opposite to Anuj, and is facing away from the centre.
(v) Shahsank and Navin are sitting opposite to each other such that one of them is facing towards the centre and the other away from the centre.
(vi) Either Manoj or Shashank is sitting adjacent to Shilpa.

Q.63
Who is definitely sitting adjacent to Saral?

1 **Manoj**

2 **Nitesh**

3 **Anuj**

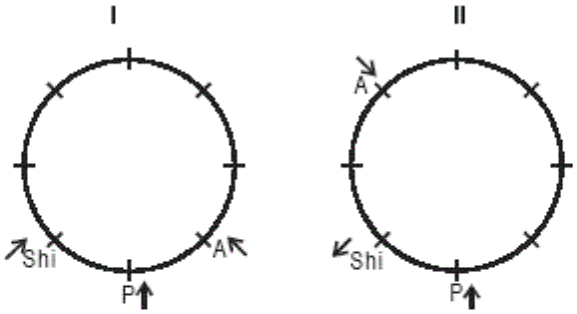
4 **Shashank**

Solution:
Correct Answer : 2
Your Answer : 2

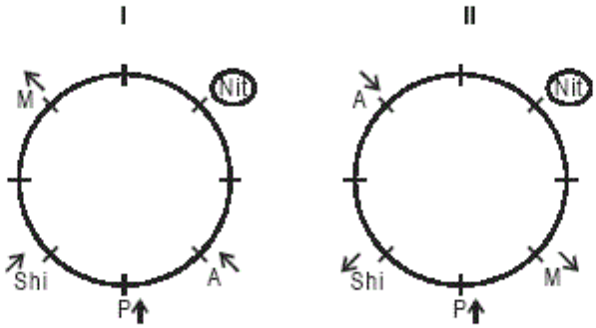
Bookmark

Answer key/Solution

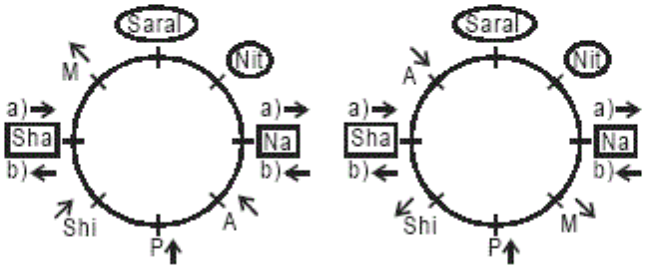
Let us denote the minister's names as follows:
P → Praveen; M → Manoj; A → Anuj; Nit → Nitesh; Na → Naveen; Shi → Shilpa; Sa → Saral; Sha → Shashank
Using points (i) and (ii), we get 2 cases; case I → Shilpa is facing towards centre and case II → Shilpa is facing away from centre



Using points (iii) and (iv), we get



We don't know in which direction is Nitesh facing.
(Arrow define the direction in which a person is facing and the direction of encircled ministers is not sure, it can be either inward or outward.)
Using points (v) and (vi), we get
Either (a) for both Shashank and Navin or (b) for both Shashank and Navin i.e., one of them is facing the centre and other away from the centre;



Nitesh is sitting adjacent to Saral.

FeedBack

Directions for questions 63 to 66: Answer the questions on the basis of the information given below.

Global environment meet is held among eight different countries regarding the increased level of global warming. Each country is represented by its environment minister. These eight ministers – Nitesh, Manoj, Navin, Shashank, Saral, Praveen, Anuj and Shilpa – are sitting around a circular table. Some are facing towards the centre of the table while others are facing away from the centre. Further, it is also known that:

(i) Anuj is sitting second to the right of Shilpa, and is facing towards centre.
(ii) Shilpa is sitting to the immediate left of Praveen, who is facing the centre of the table.
(iii) Nitesh is sitting opposite to Shilpa.
(iv) Manoj is sitting opposite to Anuj, and is facing away from the centre.
(v) Shahsank and Navin are sitting opposite to each other such that one of them is facing towards the centre and the other away from the centre.
(vi) Either Manoj or Shashank is sitting adjacent to Shilpa.

Q.64
Which of the following could be a possible pair sitting opposite to each other and also facing each other?

1 **Anuj - Saral**

2 **Shilpa - Nitesh**

3 **Saral - Praveen**

4 **Both (2) and (3)**

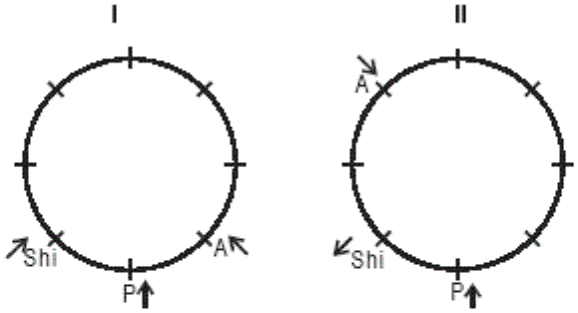
✔

Solution:
Correct Answer : 4
Your Answer : 4

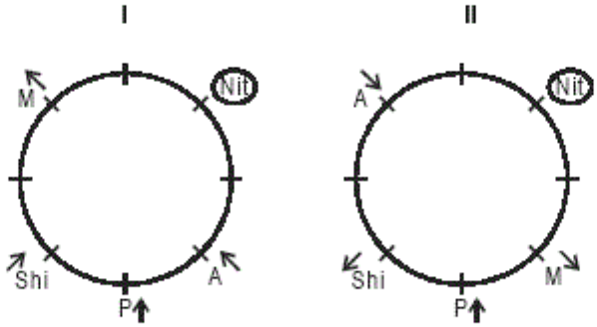
Bookmark

Answer key/Solution

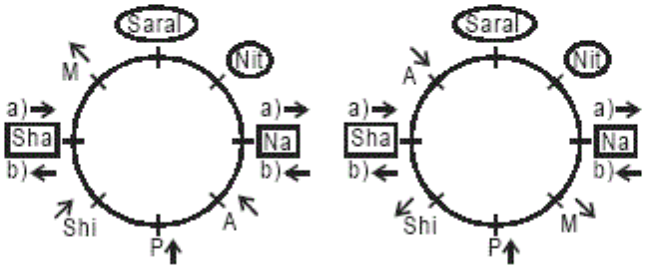
Let us denote the minister's names as follows:
P → Praveen; M → Manoj; A → Anuj; Nit → Nitesh; Na → Naveen; Shi → Shilpa; Sa → Saral; Sha → Shashank
Using points (i) and (ii), we get 2 cases; case I → Shilpa is facing towards centre and case II → Shilpa is facing away from centre



Using points (iii) and (iv), we get



We don't know in which direction is Nitesh facing.
(Arrow define the direction in which a person is facing and the direction of encircled ministers is not sure, it can be either inward or outward.)
Using points (v) and (vi), we get
Either (a) for both Shashank and Navin or (b) for both Shashank and Navin i.e., one of them is facing the centre and other away from the centre;



Shilpa – Nitesh and Saral – Praveen both could be the possible pairs.

FeedBack

Directions for questions 63 to 66: Answer the questions on the basis of the information given below.

Global environment meet is held among eight different countries regarding the increased level of global warming. Each country is represented by its environment minister. These eight ministers – Nitesh, Manoj, Navin, Shashank, Saral, Praveen, Anuj and Shilpa – are sitting around a circular table. Some are facing towards the centre of the table while others are facing away from the centre. Further, it is also known that:

(i) Anuj is sitting second to the right of Shilpa, and is facing towards centre.
(ii) Shilpa is sitting to the immediate left of Praveen, who is facing the centre of the table.
(iii) Nitesh is sitting opposite to Shilpa.
(iv) Manoj is sitting opposite to Anuj, and is facing away from the centre.
(v) Shahsank and Navin are sitting opposite to each other such that one of them is facing towards the centre and the other away from the centre.
(vi) Either Manoj or Shashank is sitting adjacent to Shilpa.

Q.65
What could be the maximum number of ministers facing away from the centre?

1 **4**

2 **5**

3 **6**

4 **3**

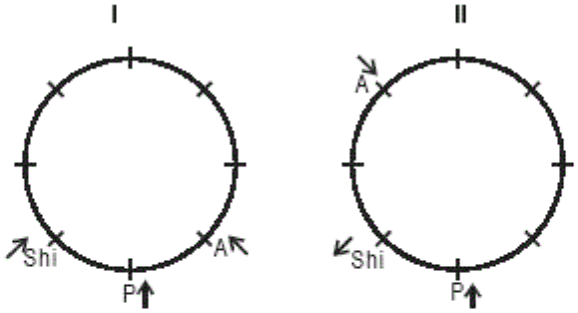
✔

Solution:
Correct Answer : 2
Your Answer : 2

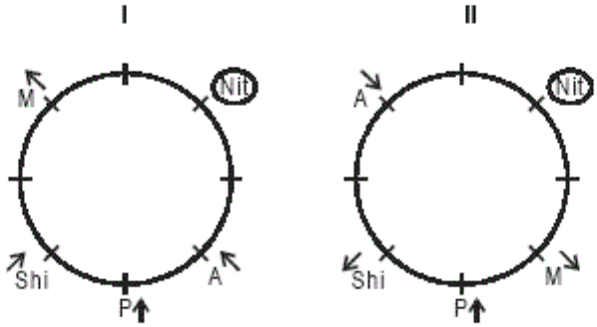
Bookmark

Answer key/Solution

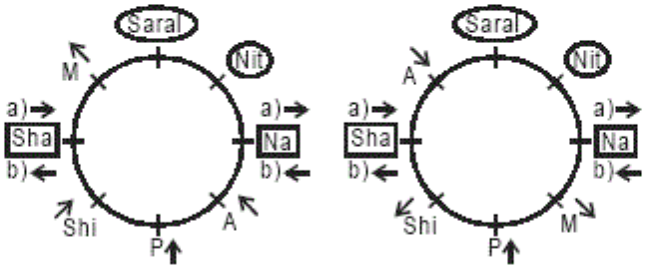
Let us denote the minister's names as follows:
P → Praveen; M → Manoj; A → Anuj; Nit → Nitesh; Na → Naveen; Shi → Shilpa; Sa → Saral; Sha → Shashank
Using points (i) and (ii), we get 2 cases; case I → Shilpa is facing towards centre and case II → Shilpa is facing away from centre



Using points (iii) and (iv), we get



We don't know in which direction is Nitesh facing.
(Arrow define the direction in which a person is facing and the direction of encircled ministers is not sure, it can be either inward or outward.)
Using points (v) and (vi), we get
Either (a) for both Shashank and Navin or (b) for both Shashank and Navin i.e., one of them is facing the centre and other away from the centre;



In case I → Maximum ministers facing away = 4
In case II → Maximum ministers facing away = 5

FeedBack

Directions for questions 63 to 66: Answer the questions on the basis of the information given below.

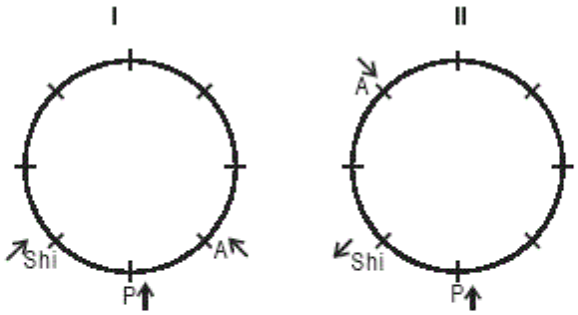
Global environment meet is held among eight different countries regarding the increased level of global warming. Each country is represented by its environment minister. These eight ministers – Nitesh, Manoj, Navin, Shashank, Saral, Praveen, Anuj and Shilpa – are sitting around a circular table. Some are facing towards the centre of the table while others are facing away from the centre. Further, it is also known that:

(i) Anuj is sitting second to the right of Shilpa, and is facing towards centre.
(ii) Shilpa is sitting to the immediate left of Praveen, who is facing the centre of the table.
(iii) Nitesh is sitting opposite to Shilpa.
(iv) Manoj is sitting opposite to Anuj, and is facing away from the centre.
(v) Shahsank and Navin are sitting opposite to each other such that one of them is facing towards the centre and the other away from the centre.
(vi) Either Manoj or Shashank is sitting adjacent to Shilpa.

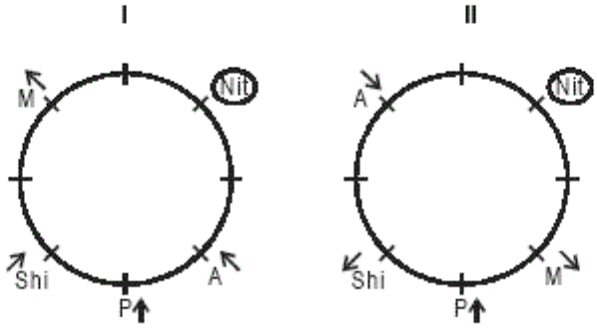
Q.66
How many different arrangements are possible?

Solution:
Correct Answer : 16

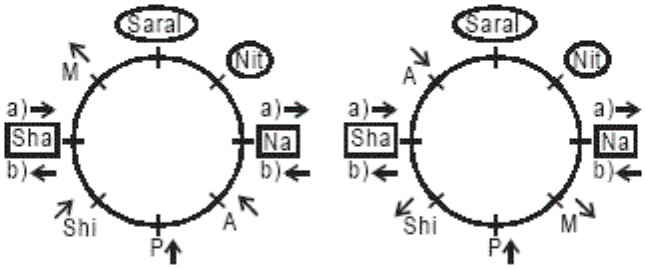
Let us denote the minister's names as follows:
P → Praveen; M → Manoj; A → Anuj; Nit → Nitesh; Na → Naveen; Shi → Shilpa; Sa → Saral; Sha → Shashank
Using points (i) and (ii), we get 2 cases; case I → Shilpa is facing towards centre and case II → Shilpa is facing away from centre



Using points (iii) and (iv), we get



We don't know in which direction is Nitesh facing.
(Arrow define the direction in which a person is facing and the direction of encircled ministers is not sure, it can be either inward or outward.)
Using points (v) and (vi), we get
Either (a) for both Shashank and Navin or (b) for both Shashank and Navin i.e., one of them is facing the centre and other away from the centre;



There are 2 cases: Case I for Saral, Nitesh there are 2 ways each (i.e. either towards centre or away) and for Shashank and Navin combined there are 2 ways, so a total of 2 × 2 × 2 = 8
Similarly for Case II.
Hence a total of 16 ways.

FeedBack

Sec 3

Q.67

If a, b and c are sides (in cm) of an obtuse angle triangle, where a, b and c are integers and ab = 4, then find the value(s) (in cm) that c can take.

1 ○ **2**

2 **3**

3 **1**

4 **More than one possible value**

✖

Solution:
Correct Answer : 2
Your Answer : 3

Bookmark

Answer key/Solution

As a × b = 4, values of a and b can be 1, 4 or 2, 2.
For c to be side of a triangle, 'c' should be more than the difference of the other two sides and less than the sum of the other two sides.
So, sides of all possible triangles are - 1, 4, 4; 2, 2, 2; 2, 2, 1; 2, 2, 3
Now for an obtuse angled triangle,
$a^2 + b^2 < c^2$
$\Rightarrow$ (1, 4, 4), (2, 2, 1) are acute angled triangle and (2, 2, 2) is equilateral.
Only (2, 2, 3) satisfies the above condition.
$\therefore c = 3$.

FeedBack

Q.68
A dummy spherical model of planet Earth was framed at NASA. The model was cut into two equal parts, the total surface area of one of which is equal to 48π. A meteor can hit on any point on the base of the any cut part with equal probability. If two identical square regions, defined as hot area, were inscribed one each on the base of each of the two parts, the probability for a meteor not hitting in those square regions is 7/16. Find the side of the square region.

1 **6**

2 **3**

3 **5.31**

4 **4.5**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

$3\pi r^2 = 48\pi$

$\pi r^2 = 16\pi$

Now, area of square = $\left(1-\frac{7}{16}\right)$ area of circular base.

$\Rightarrow \frac{9}{16} \times 16\pi = a^2 \Rightarrow a = 5.31$.

FeedBack

Q.69

Ravindra polish 3 chairs in 6 hours, where area of these three chairs is in the ratio of 1 : 2 : 3. In how many hours will he polish 3 chairs of first kind, 4 chairs of second kind, and 2 chairs of third kind, if his efficiency is increased by 70%?

Solution:

Correct Answer : 10

Area's ratio = 1 : 2 : 3
Let area be x , 2x, 3x for the three kinds of chairs respectively.
Total area = 6x

Ravindra's efficiency $= \frac{6x}{6} = x$

Total work to be done = 3x + 8x + 6x = 17x

and new efficiency of Ravindra $= x\left(1+\frac{70}{100}\right) = 1.7x$

Therefore, total time taken to polish $= \frac{17x}{1.7x} = 10$ hours

FeedBack

Bookmark

Answer key/Solution

Q.70

A three digit number, XYZ, when increased by 33.33% becomes ZXY and then the resulting number is again increased by 33.33% which then becomes YZX. How many such three digit numbers are possible, if X, Y, Z are distinct integers?

1 **0**

2 **1**

3 **2**

4 **3**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

When XYZ increased by 33.33%, it becomes $\frac{4}{3}(XYZ) = ZXY$

Similarly, on again increasing the number with 33.33% the number becomes YZX.

i.e., $\frac{4}{3}(ZXY) = YZX \Rightarrow \frac{16}{9}(XYZ) = YZX$

i.e, the number XYZ should be a multiple of 9

$\Rightarrow$ YZX is also a multiple of 9. (Because both the numbers have the same set of digits)

Moreover, $(XYZ) = \frac{9}{16}(YZX)$

i.e, the number YZX should be a multiple of 16.
So, YZX is a multiple of 9 and 16 both i.e. a multiple of 144.
Multiples of 144 are 144, 288, 432, 576, 720, 864.
Since all three digits are distinct, 432 and 864 are the only possible values of YZX.
So, XYZ can be 243 or 486.

Alternative method:

33.33% increase $= \frac{4}{3}$ times the original value

Hence, $\frac{4}{3}(XYZ) = ZXY$ ... (i)

and $\frac{4}{3}(ZXY) = YZX$ ... (ii)

(i) $\rightarrow \frac{4}{3}(100X + 10Y + Z) = 100Z + 10X + Y$

$\Rightarrow 370X + 37Y = 296Z$ ... (i)

(ii) $\rightarrow \frac{4}{3}(100Z + 10X + Y) = 100Y + 10Z + X$

$\Rightarrow 370Z + 37X = 296Y$ ... (ii)

Now, solving (i) and (ii) together we get

$\frac{X}{Z} = \frac{6}{9} = \frac{2}{3} = \frac{4}{6}$

Putting X = 6 and Z = 9 in (i) $\Rightarrow$ Y = 12 (not possible)
X = 2 and Z = 3 $\Rightarrow$ Y = 4 (acceptable)
X = 4 and Z = 6 $\Rightarrow$ Y = 8 (acceptable)
Possible value of number XYZ are 243 and 486.

FeedBack

Q.71

Swami and his friends have made sweets after boiling sweetened milk. They had processed the sweetened milk to make the sweets which is poured into moulds each having shape of frustum with the diameters of its two circular faces as 30 cm and 35 cm. The vertical height of the mould is 14 cm. If each cubic cm of sweet has mass of 1.2 gm, then find the approximate mass of the sweet that can be poured into each mould?

1 **12 kg**

2 **16 kg**

3 **14 kg**

4 **18 kg**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Since the mould is in shape of a frustum of a cone, the volume of the sweet that can be poured into it will be the volume of the frustum.

Volume of frustum $= \frac{1}{3}\pi h\left[R^2 + r^2 + Rr\right] = \frac{1}{3} \times 14\pi \times \left[(17.5)^2 + (15)^2 + 17.5 \times 15\right] = 11636.98\,cm^3$

As given that, 1 cubic cm of sweet has mass 1.2 gm,
mass of the sweet that can be poured into each mould = 11636.98 × 1.2 ~ 13970 gms = 13.9 kg ~ 14 kg

FeedBack

Q.72

Mr. X marks up the price of a fan by 14.28%. The percentage of discount he offered on fan, and the profit/ loss he incurred on it is in the ratio 7 : 8. Find his profit or loss percentage.

1 **7.14% profit**

2 **6.66% loss**

3 **7.14% loss**

4 **6.66% profit**

✖

Solution:
Correct Answer : 1
Your Answer : 3

Bookmark

Answer key/Solution

Let the MP and CP be 8x and 7x.
And as discount : profit = 7 : 8, let discount be 7y and profit by 8y.

So SP = $8x\left(1 - \frac{7y}{100}\right) = 7x\left(1 \pm \frac{8y}{100}\right)$

Or we can rewrite it as $\frac{8}{7} = \frac{\left(1 \pm \frac{8y}{100}\right)}{\left(1 - \frac{7y}{100}\right)}$

It can be possible only in the case of profit. On solving y = $\frac{25}{28}$, so the value of 8y be $8 \times \frac{25}{28}$ = 7.14%.

FeedBack

Q.73

A convex polygon has 90 diagonals, and its internal angles are in an AP with common difference 1. Find the measure of the highest interior angle of the polygon.

1 **149**

2 **156**

3 **163**

4 **165**

Solution:

Correct Answer : 3

Bookmark

Answer key/Solution

Number of diagonals in a convex polygon = $\frac{n(n-3)}{2}$

So, $\frac{n(n-3)}{2} = 90 \implies n = 15$.

Sum of the interior angles of n sided convex polygon = (n – 2) × 180 = 13 × 180.
Let the angles be a, a+1, a+2, ..., a+14.
So the sum will be (a, a + 1) .. a + 14) = 15a + 105

$\implies a + 7 = \frac{13 \times 12}{15} = 156$

So, the highest angles = a + 14 = 156 + 7 = 163.

FeedBack

Q.74

In a class, the marks obtained by 7 students with all distinct values, when arranged in the increasing order, form a GP. If there were a total of 200 Multiple Choice Questions (MCQs) of 1 mark each with no negative marking, then the maximum possible marks any student can obtain is,

Solution:

Correct Answer : 192

Bookmark

Answer key/Solution

As the students scored marks are in increasing order with distinct integral values, so common ratio will be more than 1. also, the last term of the GP would be ar^6 , where a and r are the first term and common difference respectively.
So if $r > 2$, $r^6 > 200$ which is not possible as paper has only 200 questions of 1 marks each.
So the only possibility for r is 2. So the marks possible could be
Possibility 1 → 1, 2, 4, 8, 16, 32, 64
Possibility 2 → 2, 4, 8, 16, 32, 64, 128
Possibility 3 → 3, 6, 12, 24, 48, 96, 192
So maximum possible score is 192.

FeedBack

Q.75

Find the approximate maximum value of sum of the squares of the roots of equation:

$x^2 + (a+3)x - \left(a + \frac{15}{4}\right) = 0$, if both the roots are imaginary.

1 $-\frac{5}{2}$

2 **0**

3 **27**

4 **9/2**

Solution:

Correct Answer : 4

Let α, β be the two roots of the equation.

$\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta = (a+3)^2 + 2\left(a + \frac{15}{4}\right) = a^2 + 8a + \frac{33}{2}$

As roots are imaginary,

$D < 0 \Rightarrow (a+3)^2 + 4\left(a + \frac{15}{4}\right) < 0$

$a^2 + 10a + 24 < 0$

$a^2 + 6a + 4a + 24 < 0$

$\Rightarrow -6 < a < -4$

Now, $\alpha^2 + \beta^2 = a^2 + 8a + \frac{33}{2} = (a+4)^2 + \frac{1}{2}$ will be maximum near $a = -6$

So, approximate maximum for $\alpha^2 + \beta^2 = 9/2$

FeedBack

Bookmark

Answer key/Solution

Q.76

Average of 10 terms increases by 10, when 10 more terms are added to it. Find the sum of these 10 newly added terms, if average of these new 10 terms is double the average of the initial 10 terms.

Solution:

Correct Answer : 400

Let initial average of 10 terms be 'x'
So, the new average after the inclusion of 10 new terms would be (x + 10)
Initial sum = 10 × x
New sum = 20(x + 10)
And the average of the 10 new terms = 2x
So, their sum = 2x × 10 = 20x
Equating the sums, we get
10x + 20x = 20(x + 10)
x = 20
Sum of newly added 10 numbers = 20x = 20 × 20 = 400.

FeedBack

Bookmark

Answer key/Solution

Q.77

A certain amount invested at a certain rate of interest, yields Rs. 1470 as interest under simple interest while Rs. 1690 as interest under compound interest after 3 years. Find the rate of interest.

1 **6.25%**

2 **7.14%**

3 **12.5%**

4 **14.28%**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

For three years, SI = 1470, which means every year interest = 1470/3 = 490.
For three years, CI = 1690, which means every year CI will be 490 at least as well.
In first year it will be only 490. Second year it will be (490 + x) while in the third year it will be (490 + x + x + y).
x is related to 490 by rate of Interest and so does y to x.
The extra amount being 220 in CI has to equal to 3x + y.
x might be a multiple of 7 as CI per year is 490 (a multiple of 7). Taking x = 70, we get y = 10.
Also 10 is 1/7 of 70 and 70 is 1/7 of 490.
Therefore, rate of Interest is 1/7 = 14.28%.

FeedBack

Q.78

If x, y and z are positive integers such that $\frac{x}{(x+y)}(10)+\frac{y}{(x+y)}(20)=z$, and $x>y$, then which of the following can be the value of z?

1 **15**

2 **18**

3 **14**

4 **20**

Solution:

Correct Answer : 3

We can check each option one by one.
(i) If z = 15, equation becomes 10x + 20y = 15x + 15y
$\Rightarrow$ x = y ; Not possible
(ii) If z = 18, equation becomes 10x + 20y = 18x + 18y
$\Rightarrow$ 4x = y; Not possible as x > y
(iii) If z = 14, equation becomes 10x + 20y = 14x + 14y
$\Rightarrow$ 2x = 3y; Possible
(iv) If z = 20, equation becomes 10x + 20y = 20x + 20y
$\Rightarrow$ 10x = 0; Not possible

FeedBack

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Answer key/Solution

Q.79

f(x) is a quadratic polynomial having value 2 at x = 0. Also, f(x) has a minimum value of 0 at x = 1. Find f(3).

Solution:

Correct Answer : 8

Let $f(x) = ax^2 + bx + c$
f(0) = c = 2
Also, f(1) = a + b + 2 = 0
$\Rightarrow$ a + b = -2 ...(i)
and f(x) has minimum at x = 1.
As minimum of the quadratic equation is at -b/2a
$\Rightarrow$ -b/2a = 1 $\Rightarrow$ -b = 2a ...(ii)
Using (i) and (ii), a = 2 and b = -4
$f(x) = 2x^2 - 4x + 2$
So, f(3) = 18 - 12 + 2 = 8.

FeedBack

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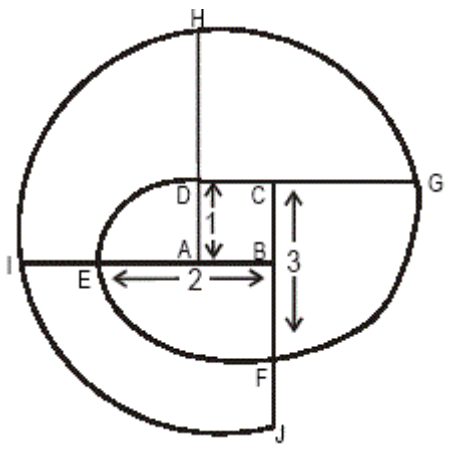
Answer key/Solution

Q.80

A curve is drawn by connecting 6 quarter-circumferences of circles with different radii as shown in the figure. Side of the square ABCD is 1 cm. Find the length (in cm) of the curve DEFGHIJ.



1 10π

2 $\frac{21\pi}{2}$

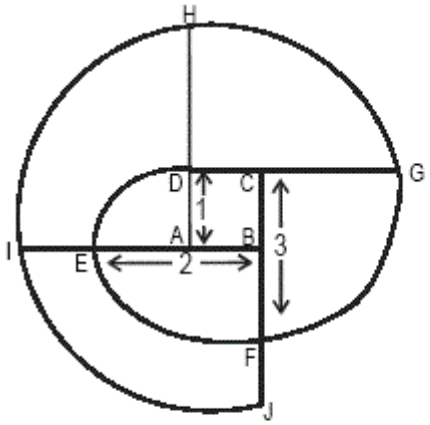
3 42π

4 30π

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution



Radius of the inner-most quarter circle = 1 cm
Radius of next quarter circle i.e EBF = 2 cm
Radius of next quarter circle = EF + CB = 3 cm
so on till radius of last quarter = 6 cm

Therefore, length of curve $=\frac{1}{4}\times 2\pi(1+2+3+4+5+6)=\frac{21\pi}{2}$

FeedBack

Q.81

Cost price of a shirt, a trouser and a suit are in ratio 2 : 3 : 5. If a man incurred x% profit, x% loss and x^2% profit on selling a shirt, a trouser and a suit respectively, then find his overall profit percentage.

1 $\frac{15x}{2}\%$

2 $\frac{x(5x-1)}{10}\%$

3 $\frac{(3x^2-x)}{10}\%$

4 **x(x + 1)%**

Solution:

Correct Answer : 2

Let price of shirt, trouser and suit be Rs.200, Rs.300 and Rs.500 respectively.
So, profit on shirt = Rs.2x,
loss on trouser = Rs.3x,
profit on suit = $5x^2$
Therefore, net profit = $5x^2 - x$

And profit percentage $= \frac{x(5x-1)}{1000} \times 100 \Rightarrow \frac{x(5x-1)}{10}\%$

FeedBack

Bookmark

Answer key/Solution

Q.82

In a race of length 5 km, A beats B by 1 km. In an another race of 1 km, B beats C by 100 m. What is the ratio of speeds of A and C.

1 **17 : 12**

2 **11 : 12**

3 **18 : 13**

4 **25 : 18**

Solution:

Correct Answer : 4

In a 5km race, A beat B by 1 km
So, in a race of 1 km, A would beat B by 1/5 km = 200 meters

$$\frac{\text{distance covered by A}}{\text{distance covered by B}} = \frac{1000}{800} = \frac{5}{4}$$

Similarly for B and C,

$$\frac{\text{distance covered by B}}{\text{distance covered by C}} = \frac{1000}{900} = \frac{10}{9}$$

Therefore, $\frac{\text{distance covered by A}}{\text{distance covered by C}} = \frac{50}{36} = \frac{15}{18}$

Since distance is directly proportional to speed,
Speed of A : Speed of C = 50 : 36 = 25 : 18

FeedBack

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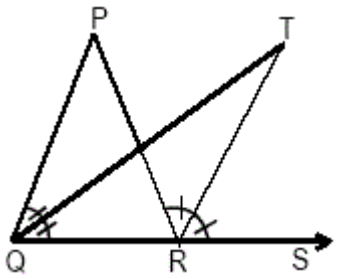
Answer key/Solution

Q.83

In the figure given below, the angle bisectors of ∠PQR and ∠PRS meet at point T. If ∠QPR = 70°, then find ∠QTR (in degrees).



Solution:

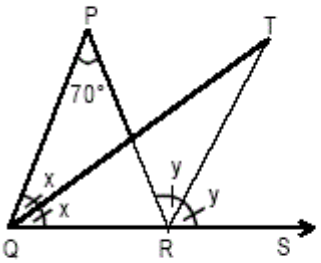
Correct Answer : 35

Your Answer : 35

Applying exterior angle theorem to ΔPQR, we get

$2y = 2x + 70°$

$\therefore y = x + 35°$ ...(i)



Now, applying Exterior angle theorem to ΔQTR, we get

$y = x + \angle QTR$ ... (ii)

Thus, from (i) and (ii), we get

$\angle QTR = 35°$

FeedBack

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Answer key/Solution

Q.84

A poultry farm produces some eggs every month. While transporting them to wholeseller 20% of the eggs got destroyed. Further 25% of the remaining eggs got destroyed while transported from whole seller to retailers. If these retailers received only 6000 eggs, then the number of eggs produced in the farm is

1 **8000**

2 **15000**

3 **12000**

4 **10000**

Solution:
Correct Answer : 4

Let initially produced eggs be x.

Net destruction of eggs $= \left(20 + 25 - \frac{20 \times 25}{100}\right)\% = 40\%$

So, 60% of x = 6000
x = 10000

FeedBack

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Answer key/Solution

Q.85

What is the remainder when 81^{281} is divided by 29?

Solution:
Correct Answer : 23

81^{281} can be written as 81×81^{280}

Rem $\frac{81^{280}}{29}$ will be 1, using the Euler Totient theorem.

So, the remainder of $\frac{81^{281}}{29}$ is same as remainder of $\frac{81}{29}$ which is 23.

FeedBack

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Answer key/Solution

Q.86

There are 2 AP's:
$AP_1 \Rightarrow 3, 7, 11, 15, ..., 403$
and $AP_2 \Rightarrow 5, 11, 17, 23, ..., 507$
How many terms are common in both the AP's?

Solution:
Correct Answer : 33

Common difference in $AP_1 = 4$ and
Common difference in $AP_2 = 6$
So, the first term common in both APs is 11 and they keep on coming at a common difference of 12.
So, terms common in both AP's also from an AP as
11, 23, 35, 47... 395.
So, last term will be 395
Hence, total number of common terms are 33.

FeedBack

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Answer key/Solution

Q.87

Ramu can do a work in 10 days, while Shamu can do that work in 15 days. Chirag can work with half the efficiency of Ramu, and Dinesh can work with twice the efficiency of Shamu. If all four of them work together, in how many days will the work get completed?

1 $4\frac{1}{2}$

2 **3**

3 $2\frac{6}{7}$

4 **2.5**

✔

Solution:
Correct Answer : 3
Your Answer : 3

Let total work be 60 units (i.e, LCM of 10 and 15)
Ramu's one day work = 6 units
Shamu's one day work = 4 units
Chirag's one day work = 3 units
Dinesh's one day work = 8 units
If all work together, their one day's work = 21 units

Time taken to do the work $= \frac{60}{21} = \frac{20}{7}$ days or $2\frac{6}{7}$ days.

FeedBack

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Answer key/Solution

Q.88

A man can row a boat 10 km downstream and 5 km upstream in 4 hours. He can also row 5 km downstream and 10 km upstream in 6 hours. Time taken by him to row 50 km upstream is

1 **20.5 hour**

2 $\frac{80}{3}$ hour

3 **30 hour**

4 $\frac{100}{3}$ hour

Solution:

Correct Answer : 2

Let downstream speed be D km/h and upstream speed be U km/h.

So, $\frac{10}{D}+\frac{5}{U}=4$

$10U + 5D = 4DU$ ...(1)

And, $\frac{5}{D}+\frac{10}{U}=6$

$5U + 10D = 6DU$ ...(2)

Dividing (i) and (ii)

$\frac{10U+5D}{5U+10D}=\frac{4}{5}$

$6U + 3D = 2U + 4D$

$4U = D$

Putting it in (1)

$10U + 20U = 16U^2$

$30 = 16U$

$U=\frac{15}{8}$

So for 50 km upstream, time taken $=\frac{50}{\frac{15}{8}}=\frac{80}{3}$ hours

Alternative method:

A	down stream	down stream	up stream	B
	5 km	5 km	5 km	
	down stream	up stream	up stream	

The difference of 2 hours is because of this stretch of distance

If this part is replaced by upstreams then time would further increase by 2 hours

i.e.Time taken to cover 15 km upstream would be 8 hours

So, to cover 50 km upstream, time taken would be $\frac{8}{15}\times 50=\frac{80}{3}$hrs.

FeedBack

Bookmark

Answer key/Solution

Q.89

If 3x + 7y = 600, where x and y are whole numbers, then which of the following are true?

1 **No solution for x if y > 85**

2 **Atleast one solution for y, if x ≥ 200**

3 **There are total 29 solutions for (x, y)**

4 **All of the above**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

$3x + 7y = 600$

So, $x = 200 - \frac{7y}{3}$

Option (a) is true because if $y > 85$, then least value of $y = 86$ for which $\frac{7y}{3}$ is more than 200,

So, x becomes negative.

Option (b) is correct because if $x = 200$
$y = 0$ satisfies the equation.

Option (c) is true because there are a total of 29 whole number solution, since y can have values 0, 3, 6, 9...84 which are 29 values.

FeedBack

Q.90

Monthly expenditures of A, B and C are Rs.6000, Rs.4000 and Rs.10000 respectively and their savings are in ratio 2 : 1 : 5. If monthly income of the three taken together is Rs.60000, then find the monthly income (in Rs.) of B?

✔

Solution:
Correct Answer : 9000
Your Answer : 9000

Bookmark

Answer key/Solution

Let savings as $A = 2x$, $B = x$, $C = 5x$
So, $8x = (60000 - 20000)$
$\Rightarrow x = 5000.$
$\therefore$ B's salary = 4000 + 5000 = Rs. 9000

FeedBack

Q.91

If a number 'x' is prime, and $(x^2 + 7)$ is also a prime, then how many values can 'x' take?

1 **0**

2 **1**

3 **2**

4 **3**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

This can be done by trial and error method where take values of x as 2, 3, 5, 7etc and observe the result.

Alternative method:
All prime numbers are odd except for 2.
The outcome of the sum has to be odd since it is greater than 2 and we know that only even + odd = odd.

Here $x^2 + 7 = \text{odd}$
So 'x' has to be even since 7 is odd and we know that the only even prime is 2.

FeedBack

Q.92
Find the area enclosed by the graph |3x – 4| + |4y – 3| = 12.

1 **24**

2 **36**

3 **20**

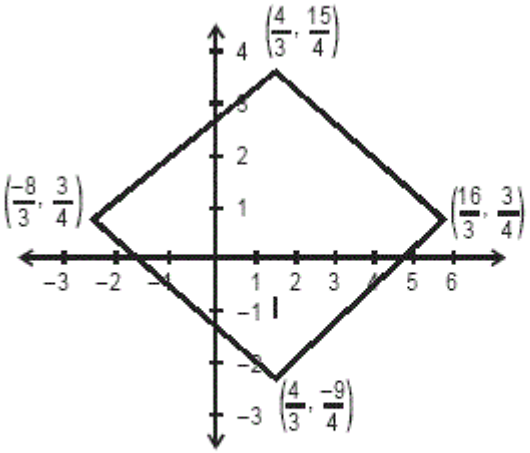
4 **48**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

We will first draw the graph of |3x – 4| + |4y – 3| = 12
and then |3x – 4| + |4y – 3| ≤ 12 will be denoted in the graph.



So, we get a rhombus and area of a rhombus = $\frac{1}{2} \times \text{Product of diagonals}$

Hence, required area A = $\frac{1}{2} \times \left(\frac{16}{3} + \frac{8}{3}\right)\left(\frac{15}{4} + \frac{8}{4}\right) = \frac{1}{2} \times 8 \times 6 = 24$ sq.unit.

FeedBack

Q.93

Value of $(\log_{\sqrt{3}} 0.49) \times (\log_{\sqrt{0.2401}} 81)$ is

Solution:
Correct Answer : 8

Bookmark

Answer key/Solution

$(\log_{\sqrt{3}} 0.49) \times (\log_{\sqrt{0.2401}} 81)$

$\frac{\log 0.49}{\log \sqrt{3}} \times \frac{\log 81}{\log \sqrt{0.2401}} = \frac{\log 0.49}{\log \sqrt{3}} \times \frac{\log (\sqrt{3})^8}{\log 0.49}$ $\{As \sqrt{0.2401} = 0.49\}$ $= \frac{\log (\sqrt{3})^8}{\log \sqrt{3}} = \log_{\sqrt{3}} (\sqrt{3})^8 = 8.$

FeedBack

Q.94

A milkman marks up the cost of milk by 100%. He offers x% discount on the milk because of which he incurs a loss of y%. But now he wants to earn y% profit. For this he added 25% freely available water by volume to the milk and then again 20% freely available water by volume to the new milk solution. And then sell this on the same marked up and discount as earlier. Find the value of x .

1 **60**

2 **50**

3 **80**

4 **40**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Mark up = 100%
Discount = x%
Loss = y%
Applying,

$$\% \text{ profit / loss} = \% \text{ mark up} - \% \text{ discount} - \frac{(\% \text{ mark up})(\% \text{ discount})}{100}$$

$$y = 100 - x - \frac{100x}{100} \Rightarrow y = 100 - 2x$$

Now, adding 25% water and then further to the resulting solution adding 20% ≡ adding 50% water

(applying successive percentage i.e. $25 + 20 + \frac{20 \times 25}{100} = 50\%$)

≡ 50% profit because of adding water since it is free of cost
Now, profit of y% is desired, so take y = –(100 – 2x) and apply successive percentage, we get

$$-(100 - 2x) = 50 + (100 - 2x) + \frac{50(100 - 2x)}{100}$$

we get x = 60%.

FeedBack

Q.95
What is the HCF of $(30)_4$ and $(132)_4$, in base 4?($(x)_4$ represents that x is written according to base 4 system)

1 **$(8)_4$**

2 **$(10)_4$**

3 **$(12)_4$**

4 **$(15)_4$**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Converting both the numbers in base 10, we get
$30_4 = 12_{10}$ and $132_4 = 30_{10}$ and HCF of 12 and 30 is 6 in decimal system.
So, $6_{10} = 12_4$

FeedBack

Q.96
How many factors of $2^4 \times 3^7 \times 5^2$ will have exactly one zero at the end?

1 **24**

2 **64**

3 **40**

4 **32**

Solution:
Correct Answer : 3

$2^4 3^7 5^2$
$(5, 2^x)$ where x = 1, 2, 3, 4 will form 4 factors.
$(5, 2^x, 3^y)$ where x = 1, 2, 3, 4 and y = 1, 2,..7 will form 7 × 4 = 28 factors.
$(5^2, 2, 3^y)$ where y = 0, 1, 2,...7 will form 8 factors. Total 40 factors.

FeedBack

Bookmark

Answer key/Solution

Q.97

If $\frac{mp^2+nq^2}{mp^2-nq^2}=\frac{77}{13}$ and $\frac{pq^2+mn^2}{pq^2-mn^2}=\frac{17}{7}$, then find the value of p : n?

1 **2 : 3**

2 **4 : 9**

3 **9 : 4**

4 **3 : 2**

Solution:
Correct Answer : 4

The expression can be rewritten as $\frac{mp^2}{nq^2}=\frac{45}{32}$ and $\frac{pq^2}{mn^2}=\frac{12}{5}$

On multiplying the two, we get $\frac{mp^2}{nq^2}\times\frac{pq^2}{mn^2}=\frac{45}{32}\times\frac{12}{5}$

$\frac{p^3}{n^3}=\frac{27}{8}\Rightarrow\frac{p}{n}=\frac{3}{2}=3:2$

FeedBack

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Answer key/Solution

Q.98

In a New Year's party there were 13 couples, 5 single males and 7 single females. Every male dances with every female once, except his own wife. How many dances took place in the party in a pair of a male and a female?

Solution:

Correct Answer : 347

Any single male will have 13 + 7 = 20 options
Total number of dances by single males = 5 × 20 = 100
Any married man will have 12 + 7 = 19 options
Total number of dances by married men = 13 × 19 = 247
∴ Total number of dances = 100 + 247 = 347

FeedBack

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Answer key/Solution

Q.99

If $x = (5^7 - 5^5)^2/(3^4 - 3^2)^{(-2)}$ then x is not divisible by which one of the following?

1 **2430000**

2 **62500**

3 **138700**

4 **1000000**

Solution:

Correct Answer : 3

$$x = \frac{(5^7 - 5^5)^2}{(3^4 - 3^2)^{-2}}$$
$$= (5^7 - 5^5)^2 (3^4 - 3^2)^2$$
$$= 5^{10} \times 3^4 \times 24^2 \times 8^2$$
$$= 5^{10} \times 3^6 \times 2^{12}$$

So, x is divisible by all given options except 138700.

FeedBack

Bookmark

Answer key/Solution

Q.100

If $f(x) = ax + b$ and $f^{-1}(x) = bx + a$, find the integral value of a and b.

1 **1, 1**

2 **−1, 1**

3 **1, −1**

4 **−1, −1**

Solution:

Correct Answer : 4

If $f(x) = ax + b$

$f^{-1}(x) = \frac{x-b}{a} = bx + a$ (given)

$\frac{1}{a} = b$ and $\frac{b}{a} = a$

$ab = 1$ and $a^2 = -b$

Solving both the equations, we get

$a = -1$ and $b = -1$.

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Answer key/Solution