



### Master series Mock CAT – 4 2019

Scorecard (procreview.jsp?sid=aaagsPXaw1\_Wbd6ba0x\_wSun Jan 12 09:28:02 IST 2020&qsetId=LXNkY82Oclw=&qsetName=Master series Mock CAT – 4 2019)

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Video Attempt (VideoAnalysis.jsp?sid=aaagsPXaw1\_Wbd6ba0x\_wSun Jan 12 09:28:02 IST 2020&qsetId=LXNkY82Oclw=&qsetName=Master series Mock CAT – 4 2019)

Solutions (Solution.jsp?sid=aaagsPXaw1\_Wbd6ba0x\_wSun Jan 12 09:28:02 IST 2020&qsetId=LXNkY82Oclw=&qsetName=Master series Mock CAT – 4 2019)

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VARC

LRDI

QA

## Sec 1

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

There ought to be, and many times is, a close nexus between manmade law and justice – law should aim at justice. Laws should be the objective expressions of the nature of reality rather than merely the subjective prejudices or whims of person, group of people, or society as a whole. Natural law is objective since it is inherent in the nature of the entity to which it relates. The content of natural law is accessible to human reason. For example, it is easily understood that since each man has a natural right to survive, flourish, and pursue his own happiness, no other man or group of men should attempt to deprive him of a chosen value or action through the initiation or threat of force.

Historically, socially emergent ideas of legal principles, oftentimes in accord with the nature of reality, occurred prior to their adoption by political authorities. Voluntary forms of governance through customary private laws pre-existed state law and effectively ordered human affairs. Law arose as a spontaneous order something to be discovered rather than enacted. Law is an evolutionary systemic process involving the experiences of a vast number of people.

The idea of law includes fundamental rules of behaviour, as well as institutions and devices for changing, clarifying, refining, and applying the rules. Law is a natural outcome of people living and working together. If people are to live among others, there must be a way to resolve the inevitable disputes. Law can be seen as the activity of subjecting human conduct to the governance of rules.

The evolution of law began before history was recorded with laws built up one by one as disputes were settled. In fact, the development of rules in society predates both courts and the written law. For thousands of years, customary and private legal systems alone ordered human activities. The power of customary law is found in the fact that it is reflected in the conduct of people toward one another. The further a society moves away from customary and private law systems, the greater the need for laws coercively enforced by the state.

The law is essentially discovered, not made. Law is a systemic discovery process involving the historical experiences of successive generations. Law reflects and embodies the experiences of all men who have ever lived.

Customary law involves spontaneously evolved rules emerging through dispute adjudication. Customary law provides a rather reliable process for discovering the natural law, since a spontaneously evolved and voluntarily followed custom is more likely to result in mutual advantages to the involved parties than a rule imposed by a powerful group. Natural law is the immutable standard to which manmade laws must correspond in order to be legitimate. Natural law is the general body of rules of right conduct and justice common to all men. Analogously, a common law system in which law arises via judicial precedent is better than a system in which courts and judges merely apply positive laws enacted by a legislative body.

#### **Q.1**

**Upon which of the following, according to the author, should laws be based?**

1  **Unbiased expression of what is real**

2  **Close nexus between manmade laws and justice**

3  **Objective interpretation of natural reality**

4  **Inherent objectivity of Nature**

**Solution:**

**Correct Answer : 1**

**Genre: Law /Legal Studies**

**Word Count# 500**

 **Bookmark**

 **Answer key/Solution**

In the first paragraph the author states that “Laws should be the objective expressions of the nature of reality rather than merely the subjective prejudices or whims person, group of people, or society as a whole” and therefore Option 1 is the correct answer.

**Options 2, 3, and 4 – All are distorted options which twist the intention of the author.**

**FeedBack**

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## Q.2

**In historical perspective, what was the modality of the evolution of law?**

- 
- 1  **Laws used to be enacted and adopted by political authority.**
- 2  **Laws used to arise as a spontaneous order based on customary practices.**
- 3  **Laws were enacted based on the subjective prejudices of the society.**
- 
- 4  **Laws arose out of an evolutionary social process where experience of people was given sole importance.**
- 

**Solution:**

**Correct Answer : 2**

**Genre: Law /Legal Studies**

**Word Count# 500**

 **Bookmark**

 **Answer key/Solution**

In the second paragraph the author states that historically law was based on socially emergent ideas of legal principles prior to their adoption by political authorities. In the next three paragraphs, the author explains how law evolves as a result of humans learning what is right for them. So, option 2 is the correct answer.

Therefore Option 1 and 3 are incorrect. It is also stated that law arose as a spontaneous order, something to be discovered rather than enacted. Option 4 is wrong because of the word 'sole reason' too.

**FeedBack**

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**Q.3**

**According to the author, all the statements given below are the functions of law in society EXCEPT:**

- 1  **It dictates the fundamental rules of behaviour.**
- 2  **It serves as a medium for the amendment of rules.**
- 3  **It determines the medium for resolving disputes.**
- 4  **It helps in subjecting humans to the control of governments.**

**Solution:**

**Correct Answer : 4**

**Genre: Law /Legal Studies**

**Word Count# 500**

**In the third paragraph the authors states all the functions as mentioned in options 1, 2, and 3.**

**Option 4 – Government control is not mentioned. So, this is the correct answer.**

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

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#### Q.4

**What does the author mean by the line, 'The law is essentially discovered, not made.'?**

- 
- 1  Law is essentially created by political authorities, after taking social sensibilities into account.
- 
- 2  Law evolves as a result of a heuristic method of trying to discover what works for an individual and what doesn't.
- 
- 3  Law is created by a process of systemic discovery involving historical experiences of successive generations.
- 
- 4  Law evolves spontaneously with rules and regulations emerging through the human attempts to resolve disputes.

**Solution:**

**Correct Answer : 3**

**Genre: Law /Legal Studies**

**Word Count# 500**

The author has stated that law does not stem from political enactments and is not based on the subjective prejudices of a group of people.

Hence options 1 and 2 are incorrect.

Option 3 is correct as law is derived from the experience of generations.

Option 4 – ‘Spontaneously’ is incorrect. The process is gradual.

 **Bookmark**

 **Answer key/Solution**

 **FeedBack**

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#### Q.5

**Which of the following is not correct with respect to natural laws?**

- 1  They have an irretrievable standard.
- 2  They are accessible to human reason.
- 3  Their standard must be followed by manmade laws.
- 4  They are easily understood by all.

**Solution:**

**Correct Answer : 4**

**Genre: Law /Legal Studies**

**Word Count# 500**



[Answer key/Solution](#)

Refer to the two paragraphs: "Natural law is objective since it is inherent in the nature of the entity to which it relates. ...through the initiation or threat of force."

"Natural law is the immutable standard ...laws enacted by a legislative body."

Options 1, 2, and 3 are mentioned in these two paragraphs.

Option 4 – Whether the laws are easily understood by all is not clear. It is accessible to all.

[FeedBack](#)

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#### Q.6

**What is the central idea of the passage?**

1  **The distinction between customary law and manmade law**

2  **The tenets of natural law**

3  **The process of evolution of law**

4  **The function served by law in the modern society**

**Solution:**

**Correct Answer : 3**

**Genre: Law /Legal Studies**

**Word Count# 500**

 **Bookmark**

 **Answer key/Solution**

**The entire passage lays down the process of the evolution of law.**

**So, option 3 is correct.**

**Option 1 – It is too narrow and it is not the focal point of the passage.**

**Option 2 – It is again too narrow.**

**Option 4 – It is not discussed throughout the passage.**

**FeedBack**

**Directions for questions (7 to 12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

You have thoughts, feelings and desires. You remember your past and imagine your future. Sometimes you make a special effort, other times you are content to simply relax. All of these things are true about you. But do you exist? Is your sense of self an illusion, or is there something in the world that we can point to and say: 'Ah, yes – that is you'? If you are familiar with the contemporary science of mind, you will know that the concept of a substantive self, separate from the mere experience of self, is unpopular. But this stance is unwarranted. Research on attention points to a self beyond experience, with its own powers and properties.

**So what is attention?** Attention is what you use to drown out distracting sights and sounds, to focus on whatever it is you need to focus on. You are using attention to read this, right now. It is something that you can control and maintain but it is also strongly influenced by the world around you, which encourages you to focus on new and different stimuli. Sometimes being encouraged to change focus can be good – it is good that you look up from your cell phone when a bike comes barrelling down the sidewalk, for example. But this encouragement can also keep you from completing tasks, as when you get caught in a spiral of mindless click bait. You might think of your powers of attention as what you use to control the focus of your attention, away from distractions and toward your favoured point of focus.

This same power of attention – what you use in everyday life to stay on task – is what helps you in moments of conflict more generally – moments when you are caught between two (or more) options, both of which appeal to you, and you are torn on which option to choose. The philosopher Robert Kane has a way of talking about these life-defining moments: they are 'self-forming actions'. Kane's idea is that our truest expressions of ourselves come at moments in which our will is divided. At such moments, we could go either of two ways, but we go one way, and in doing so we help set in place some feature of ourselves – the feature that aligns with the chosen path.

For Kane, the effort of choosing between these two halves of yourself – the half that is concerned about security and the half that desires change – creates conflict in the brain that can be resolved only through a combination of quantum indeterminacy and chaotic amplification. While this might seem implausible on its face, Kane's proposed mechanism has some evidentiary support. The result is a self-forming action in two respects. We are responsible for forming the action, whatever the outcome, by putting our efforts behind each of two opposing outcomes and forcing a resolution. And the outcome helps to shape our future self, in that it favours one of two hitherto conflicting motivations.

Although Kane does not explicitly mention attention, it is clear that attention is an essential part of this picture. When faced with conflicting options, we attend to them in turn. You turn your attention from the security of one job to the excitement of the other.

**Q.7**

**Which of the following is not a characteristic of attention?**

- 1  It is used to eliminate distracting sounds and visions.
- 2  It can be controlled by the will of the person.
- 3  It helps us to focus on new and different stimuli.
- 4  It helps one maintain one's focus.

**Solution:**

**Correct Answer : 3**

**Genre: Psychology**

**Word Count# 540**

**Refer to the second paragraph. Options 1, 2, and 4 are mentioned.**

**'Focus on new and different stimuli' is done by "the world around you". Attention helps us escape this. So, option 3 is the correct answer.**

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

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#### **Q.8**

**Why has Robert Kane termed life-defining moments as self-forming actions?**

- 1  Because our actions during such moments define our future.
- 2  Because the decisions made at such moment help us to build some corresponding personality trait.
- 3  Because we show our true selves only when our will is divided.
- 4  Because a scope of self evaluation and introspection is available only when we are conflicted between two choices.

**Solution:**

**Correct Answer : 2**

**Genre: Psychology**

**Word Count# 540**

**Option 2 is the correct option as it clearly establishes the relationship between our actions and our internal features; the reason because of which Robert Kane termed life-defining moments as self-forming actions.**

**FeedBack**

 **Bookmark**

 **Answer key/Solution**

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**Q.9**

**Why does the author ask if one's sense of self is an illusion?**

- 1  **To show that one has thoughts, feelings, and desires**
- 2  **To highlight that the sense of self makes one exist**
- 3  **To show how one's illusory self can help one take decisions about one's future**
- 4  **To raise the topic of substantive self and attention**

**Solution:**

**Correct Answer : 4**

**Genre: Psychology**

**Word Count# 540**

**Refer to the first paragraph. The author uses this paragraph to build his case for introducing the concept of attention. So, option 4 is the correct answer. The other options are irrelevant or alien to the context.**

**FeedBack**

 **Bookmark**

 **Answer key/Solution**

**Directions for questions (7 to 12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

You have thoughts, feelings and desires. You remember your past and imagine your future. Sometimes you make a special effort, other times you are content to simply relax. All of these things are true about you. But do you exist? Is your sense of self an illusion, or is there something in the world that we can point to and say: 'Ah, yes – that is you'? If you are familiar with the contemporary science of mind, you will know that the concept of a substantive self, separate from the mere experience of self, is unpopular. But this stance is unwarranted. Research on attention points to a self beyond experience, with its own powers and properties.

**So what is attention?** Attention is what you use to drown out distracting sights and sounds, to focus on whatever it is you need to focus on. You are using attention to read this, right now. It is something that you can control and maintain but it is also strongly influenced by the world around you, which encourages you to focus on new and different stimuli. Sometimes being encouraged to change focus can be good – it is good that you look up from your cell phone when a bike comes barrelling down the sidewalk, for example. But this encouragement can also keep you from completing tasks, as when you get caught in a spiral of mindless click bait. You might think of your powers of attention as what you use to control the focus of your attention, away from distractions and toward your favoured point of focus.

This same power of attention – what you use in everyday life to stay on task – is what helps you in moments of conflict more generally – moments when you are caught between two (or more) options, both of which appeal to you, and you are torn on which option to choose. The philosopher Robert Kane has a way of talking about these life-defining moments: they are 'self-forming actions'. Kane's idea is that our truest expressions of ourselves come at moments in which our will is divided. At such moments, we could go either of two ways, but we go one way, and in doing so we help set in place some feature of ourselves – the feature that aligns with the chosen path.

For Kane, the effort of choosing between these two halves of yourself – the half that is concerned about security and the half that desires change – creates conflict in the brain that can be resolved only through a combination of quantum indeterminacy and chaotic amplification. While this might seem implausible on its face, Kane's proposed mechanism has some evidentiary support. The result is a self-forming action in two respects. We are responsible for forming the action, whatever the outcome, by putting our efforts behind each of two opposing outcomes and forcing a resolution. And the outcome helps to shape our future self, in that it favours one of two hitherto conflicting motivations.

Although Kane does not explicitly mention attention, it is clear that attention is an essential part of this picture. When faced with conflicting options, we attend to them in turn. You turn your attention from the security of one job to the excitement of the other.

#### **Q.10**

**According to Kane, how can conflict in the brain be resolved?**

1  By the method of quantum indeterminacy

2  By the method of chaotic amplification

3  By the combination of quantum indeterminacy and chaotic amplification

4  By changing our focus from security to excitement

**Solution:**

**Correct Answer : 3**

**Genre: Psychology**

**Word Count# 540**

**It is clearly mentioned in the 5th paragraph of the passage that the dilemma can only be resolved by a combination of quantum indeterminacy and chaotic amplification.**

**Options 1 and 2 are partially correct.**

**Option 4 is irrelevant.**

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Directions for questions (7 to 12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

You have thoughts, feelings and desires. You remember your past and imagine your future. Sometimes you make a special effort, other times you are content to simply relax. All of these things are true about you. But do you exist? Is your sense of self an illusion, or is there something in the world that we can point to and say: 'Ah, yes – that is you'? If you are familiar with the contemporary science of mind, you will know that the concept of a substantive self, separate from the mere experience of self, is unpopular. But this stance is unwarranted. Research on attention points to a self beyond experience, with its own powers and properties.

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#### **Q.11**

**Which of the following is true regarding the end of the passage?**

- 
- 1  The author has conclusively determined the method of solving the dilemmas of life.
- 2  The author has highlighted the importance of attention in choosing between conflicting choices.
- 
- 3  The author has clearly concluded that attention is essential to avoiding conflicts in life.
- 
- 4  The author has established Kane as a leading proponent of the theory of substantive self.
- 

**Solution:**

**Correct Answer : 2**

**Genre: Psychology**

**Word Count# 540**



[Answer key/Solution](#)

In the last passage the author has brought forward certain research proposition for further analysis but at the same time his exercise cannot be termed futile as he determined that attention plays a crucial role in determination of actions. So, option 2 is the best choice.

Option 1 – The author has not given any definitive conclusion.

Option 3 – ‘Clearly concluded’ is wrong.

Option 4 – It is totally irrelevant.

[FeedBack](#)

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You have thoughts, feelings and desires. You remember your past and imagine your future. Sometimes you make a special effort, other times you are content to simply relax. All of these things are true about you. But do you exist? Is your sense of self an illusion, or is there something in the world that we can point to and say: 'Ah, yes – that is you'? If you are familiar with the contemporary science of mind, you will know that the concept of a substantive self, separate from the mere experience of self, is unpopular. But this stance is unwarranted. Research on attention points to a self beyond experience, with its own powers and properties.

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#### **Q.12**

**What is the central idea of the passage?**

1  The importance of attention in the determination of self forming actions

2  The ways to solve the dilemmas of life

3  The evolution of self forming actions in a human psyche

4  The art of self consciousness as propagated by Kane

**Solution:**

**Correct Answer : 1**

**Genre: Psychology**

**Word Count# 540**

 **Bookmark**

 **Answer key/Solution**

The entire passage revolves around the idea of the importance of attention in the determination of human actions during critical moments in life. So, option 1 is the correct answer.

**Option 2 – Irrelevant**

**Option 3 – 'Human psyche' is too technical. The author has not talked about it.**

**Option 4 – Kane has not been portrayed as the propagator of 'art of self consciousness'.**

**FeedBack**

**Directions for questions (13 to 18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

Nahua philosophy reflects upon the appropriateness of human conduct, attitudes, and states of affairs from the standpoint of achieving, restoring, and maintaining balance-and-purity. This single point of view encompasses under a single rubric what Western thought standardly divides into moral, religious, political, legal points of view. Nahua philosophers saw no significant difference between these, however. For simplicity's sake I discuss this single point of view using the terms "morality", "ethics" and their cognates.

Nahua morality is rooted in the claim that balance-and-purity constitutes the ideal condition as well as what is intrinsically valuable for humans, and derives two fundamental moral precepts from this claim: humans should promote balance-and-purity and avert imbalance-and-impurity. Nahua morality accordingly appraised the moral appropriateness of conduct, attitudes, and states of affairs in light of their consequences upon balance-and-purity. Morally appropriate conduct, for example, is that which promotes, sustains or renews balance-and-purity or that which averts imbalance-and-impurity; morally inappropriate conduct is that which disrupts existing balance-and-purity or creates new imbalance-and-impurity. Good intentions do not suffice; one must actually succeed.

Nahua ethics standardly characterizes morally appropriate conduct as *in quallotl in yecyotl*, i.e. as that which is "fitting for" and "assimilable by" humans in the sense of contributing to their balance-and-purity. Morally appropriate conduct helps humans "assume a face," "develop a heart," and enrich their life. It helps them become authentically human. Morally inappropriate conduct, on the other hand, causes humans to leave their heart undeveloped,

**lose their face, and impoverish their lives. It causes them to become lumps of flesh with two eyes.**

The soundest, wisest course is moderation. One should neither do too much nor too little of anything: e.g. eating, sleeping, or bathing. If one overindulges by feasting, one must restore balance by overindulging in its contrary, fasting. Acting wisely consists of walking a middle path between two extremes. As a Nahuatl proverb proclaims: *tlacoqualli in monequi*: "the center good is required," "the middle good is necessary".

Nahua ethics also employs the notion of *tlatlacolli* -- i.e. damage, harm or spoilage -- when characterizing the moral character of conduct. Immoral conduct is *tlatlacolli* because it causes an entity to suffer a loss of balance, which in turn causes it to suffer decay, disorder, randomness, and spoilage. Spoilage in humans, for example, typically results in physical or psychological disease. Nahua ethics also uses the notions of purity and impurity in this regard. The basic Nahuatl pollution concept is *tlazolli*, the most literal meaning of which is, "something useless, used up, something that has lost its original order or structure and has been rendered loose and undifferentiated matter". Immorality is identified with dirt and filth. Immoral behavior is dirty because it pollutes the actor(s) involved. Purity and impurity are closely related to spoilage. Moral impurity is a form of spoilage accompanied by a loss of balance.

Nahua ethics had a this-worldly rather than other-worldly orientation. Its foundation and justification rested in human nature, the nature of life on earth, and ultimately the nature of the *teotl* -- not in the commandments of some remote deity. The Nahuas' search for the correct codes of conduct was not motivated by a desire for reward in an afterlife, nor did it presuppose the possibility of determining one's destiny after death. There was no talk of punishment or reward in an afterlife for the kind of life one led on earth.

### Q.13

**What is the passage chiefly about?**

- 1  A comparison between Nahua philosophy and Western thought
- 2  The ethics and morality of Nahuas
- 3  Nahuas' views on the conduct of humans in this world
- 4  Nahua philosophy on leading an unspoiled life

**Solution:**

**Correct Answer : 4**

**Genre: Philosophy / Sociology**

**Word Count# 560**

The first three options are also found in the passage but they merely serve as constituents of the passage and do not summarize the entire passage. However, option 4 comprehensively summarizes the passage. Hence, it is the correct answer.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Directions for questions (13 to 18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

Nahua philosophy reflects upon the appropriateness of human conduct, attitudes, and states of affairs from the standpoint of achieving, restoring, and maintaining balance-and-purity. This single point of view encompasses under a single rubric what Western thought standardly divides into moral, religious, political, legal points of view. Nahua philosophers saw no significant difference between these, however. For simplicity's sake I discuss this single point of view using the terms "morality", "ethics" and their cognates.

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Nahua ethics standardly characterizes morally appropriate conduct as *in quallotl in yecyotl*, i.e. as that which is "fitting for" and "assimilable by" humans in the sense of contributing to their balance-and-purity. Morally appropriate conduct helps humans "assume a face," "develop a heart," and enrich their life. It helps them become authentically human. Morally inappropriate conduct, on the other hand, causes humans to leave their heart undeveloped, lose their face, and impoverish their lives. It causes them to become lumps of flesh with two eyes.

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Nahua ethics had a this-worldly rather than other-worldly orientation. Its foundation and justification rested in human nature, the nature of life on earth, and ultimately the nature of the *teotl* -- not in the commandments of some remote deity. The Nahuas' search for the correct codes of conduct was not motivated by a desire for reward in an afterlife, nor did it presuppose the possibility of determining one's destiny after death. There was no talk of punishment or reward in an afterlife for the kind of life one led on earth.

#### Q.14

What can be inferred about Nahuas' views on afterlife?

- 1  Nahuas did not believe in life after death.
- 2  Nahuas did not aim for any reward in life.
- 3  Nahuas did not care for the connection between different lives.
- 4  Nahuas did not bother about rewards and punishment.

**Solution:**

**Correct Answer : 1**

**Genre: Philosophy / Sociology**

**Word Count# 560**



[Answer key/Solution](#)

Refer to "Nahua ethics had a this-worldly rather than other-worldly orientation. .... The Nahuas' search for the correct codes of conduct was not motivated by a desire for reward in an afterlife, nor did it presuppose the possibility of determining one's destiny after death. There was no talk of punishment or reward in an afterlife for the kind of life one led on earth." Hence, it can be inferred that Nahuas did not believe in afterlife. So, option 1 is the correct answer.

Options 2, 3 and 4 are mentioned in the passage.

[FeedBack](#)

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**Morally appropriate conduct, for example, is that which promotes, sustains or renews balance-and-purity or that which averts imbalance-and-impurity; morally inappropriate conduct is that which disrupts existing balance-and-purity or creates new imbalance-and-impurity. Good intentions do not suffice; one must actually succeed.**

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### Q.15

**Morally inappropriate conduct, according to Nahua philosophy, is:**

- 1  that which encourages disunity between one's attitude and action.
- 2  that which defies existing norms of ethical values.
- 3  that which disrupts existing balance-and-purity or creates new imbalance-and-impurity.

4  that which undermines existing balance-and-purity and creates a new balance-and-purity.

**Solution:**

**Correct Answer : 3**

**Genre: Philosophy / Sociology**

**Word Count# 560**

 **Bookmark**

 **Answer key/Solution**

Refer to the line "morally inappropriate conduct is that which disrupts existing balance-and-purity or creates new imbalance-and-impurity." Hence, option 3 is the correct answer.

**FeedBack**

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#### Q.16

**According to the passage, physical or psychological disease is the consequence of:**

- 1  moral impurity of a person.
- 2  spoilage in humans.
- 3  morally inappropriate conduct of a person.
- 4  spoilage in the balance-and-purity.

**Solution:**

**Correct Answer : 2**

**Genre: Philosophy / Sociology**

**Word Count# 560**

Refer to "Spoilage in humans..... typically results in physical or psychological disease." Hence, option 2 is the correct answer.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

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**Q.17**

**Which of the following can be inferred about Nahua morality?**

- 1  The Nahua moral codes advocated the concept of purity of action.
- 2  The Nahua morality didn't value good intentions.
- 3  The Nahua morality and the Nahua ethics paid undue attention to the concept of spoilage.
- 4  The Nahua morality didn't discuss the broad concepts of Western ideas on impurity.

**Solution:**

**Correct Answer : 1**

**Genre: Philosophy / Sociology**

**Word Count# 560**

 **Bookmark**

 **Answer key/Solution**

**Option 1 can be inferred from the entire passage.**

**Option 2 – 'Didn't value' is too extreme. They said that good intentions are not enough. We can't conclude that 'they didn't value it'.**

**Option 3 – 'Undue attention' makes it wrong.**

**Option 4 – It is irrelevant. We don't know whether they covered it or not**

**FeedBack**

**Directions for questions (13 to 18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.**

Nahua philosophy reflects upon the appropriateness of human conduct, attitudes, and states of affairs from the standpoint of achieving, restoring, and maintaining balance-and-purity. This single point of view encompasses under a single rubric what Western thought standardly divides into moral, religious, political, legal points of view. Nahua philosophers saw no significant difference between these, however. For simplicity's sake I discuss this single point of view using the terms "morality", "ethics" and their cognates.

Nahua morality is rooted in the claim that balance-and-purity constitutes the ideal condition as well as what is intrinsically valuable for humans, and derives two fundamental moral precepts from this claim: humans should promote balance-and-purity and avert imbalance-and-impurity. Nahua morality accordingly appraised the moral appropriateness of conduct, attitudes, and states of affairs in light of their consequences upon balance-and-purity. Morally appropriate conduct, for example, is that which promotes, sustains or renews balance-and-purity or that which averts imbalance-and-impurity; morally inappropriate conduct is that which disrupts existing balance-and-purity or creates new imbalance-and-impurity. Good intentions do not suffice; one must actually succeed.

**Nahua ethics standardly characterizes morally appropriate conduct as *in quallotl in yecyotl*, i.e. as that which is "fitting for" and "assimilable by" humans in the sense of contributing to**

**their balance-and-purity. Morally appropriate conduct helps humans "assume a face," "develop a heart," and enrich their life. It helps them become authentically human. Morally inappropriate conduct, on the other hand, causes humans to leave their heart undeveloped, lose their face, and impoverish their lives. It causes them to become lumps of flesh with two eyes.**

The soundest, wisest course is moderation. One should neither do too much nor too little of anything: e.g. eating, sleeping, or bathing. If one overindulges by feasting, one must restore balance by overindulging in its contrary, fasting. Acting wisely consists of walking a middle path between two extremes. As a Nahuatl proverb proclaims: *tlacoqualli in monequi*: "the center good is required," "the middle good is necessary".

Nahua ethics also employs the notion of *tlatlacalli* -- i.e. damage, harm or spoilage -- when characterizing the moral character of conduct. Immoral conduct is *tlatlacalli* because it causes an entity to suffer a loss of balance, which in turn causes it to suffer decay, disorder, randomness, and spoilage. Spoilage in humans, for example, typically results in physical or psychological disease. Nahua ethics also uses the notions of purity and impurity in this regard. The basic Nahuatl pollution concept is *tlazolli*, the most literal meaning of which is, "something useless, used up, something that has lost its original order or structure and has been rendered loose and undifferentiated matter". Immorality is identified with dirt and filth. Immoral behavior is dirty because it pollutes the actor(s) involved. Purity and impurity are closely related to spoilage. Moral impurity is a form of spoilage accompanied by a loss of balance.

Nahua ethics had a this-worldly rather than other-worldly orientation. Its foundation and justification rested in human nature, the nature of life on earth, and ultimately the nature of the *teotl* -- not in the commandments of some remote deity. The Nahuas' search for the correct codes of conduct was not motivated by a desire for reward in an afterlife, nor did it presuppose the possibility of determining one's destiny after death. There was no talk of punishment or reward in an afterlife for the kind of life one led on earth.

#### Q.18

According to the passage, one can act in a wise manner and strike a balance in life by:

- 1  weighing between a life of physical comforts and labour.
- 2  leading a quintessential life of discipline and morality.
- 3  walking the middle path between two extremes and leading a life of moderation.
- 4  focusing on the attainments of worldly pursuits and acquisition of luxurious things.

**Solution:****Correct Answer : 3****Genre: Philosophy / Sociology****Word Count# 560** **Bookmark** **Answer key/Solution**

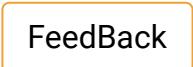
Refer to the line “The soundest, wisest course is moderation.....

Acting wisely consists of walking a middle path between two extremes.” Option 3 is the correct answer.

**Option 1 is not found in the passage.**

**Option 2 is not relevant according to the question.**

**Option 4 does not talk about the moderation in acquisition of worldly things.**

 **FeedBack**

**Directions for questions (19 to 21): The passage below is accompanied by a set of three questions. Choose the best answer to each question.**

Aldous Huxley wrote *Brave New World* in 1931 in the shadow of the first world war, the Wall Street Crash and a devastating flu virus that had claimed millions of lives. The Treaty of Versailles had carved out a new Europe, while electricity, the automobile, production lines, new mass media and aeroplanes were changing the world. England was in the grip of a depression, but science and technology promised a better future: a world where disease, drudgery and poverty might no longer exist. Very few writers were bold enough to challenge this naive optimism but in *Brave New World*, Huxley certainly did; now his work, adapted by Dawn King for the stage and premiering at Royal and Derngate, Northampton, challenges audiences to do the same.

One challenge for the adaptation would be to underscore how relevant Huxley is today and how he foresaw so many of the problems afflicting 21st-century society.

He predicted, for instance, the ways in which technology, in the control of powerful elites, can control our decision-making with social media, pornography, the commercialisation of sex, advertising and reality TV. He foresaw the ubiquitous prevalence of drugs, both legal and illegal, and how pharmaceuticals such as Ritalin would sedate growing numbers of children. Genetic engineering, euthanasia, a national lottery and even corruption at the top of world sport are all a part of his nightmare future.

Our *Brave New World* eschews the futuristic landscapes, flying machines and technical wizardry that much of sci-fi is obsessed with, and focuses instead upon a human story set in a ruthless totalitarian regime.

This is a world where people think they are always happy, always get what they want, and never want what they can't have. It is a place in which artifice rules, whether in scents, flavourings or fabrics. A world where life is created in test tubes and children are conditioned to prioritise consumerism, sexual pleasure, and unswerving dedication to a World State. Here real emotion and ideals are purged, concepts such as family, religion, empathy and honour are banned and "history is bunk".

Dawn has always believed that an adaptation of *Brave New World* must speak powerfully to a 21st-century world in which we have become enslaved by a compulsion for easy pleasure without accountability and where a banal popular culture opiates the masses.

#### **Q.19**

According to the passage, which of the following statement is definitely true?

- 1  Huxley's '*Brave New World*' is fundamentally a human story set in a ruthless totalitarian regime.
- 2  Huxley's '*Brave New World*' has some dystopian undertone.
- 3  Huxley was worried about the 21st century and its tendency to pursue easy pleasure.

- 4  Dawn predicted that technology, in the control of the powerful elites, would control humans.

**Solution:**

**Correct Answer : 2**

**Genre: Cultural Studies / Books and Theatre**

**Word Count# 385**

**Option 1 – It is true about the adaptation by Dawn and not about the original book.**

**Option 2 – It is correct as per the passage.**

**Option 3 – To say that he was worried about it can't be ascertained from the passage. He raised the issue.**

**Option 4 – Huxley predicted it, not Dawn.**

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Directions for questions (19 to 21): The passage below is accompanied by a set of three questions. Choose the best answer to each question.**

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#### **Q.20**

**As per the author, what is the significance of the line 'history is bunk'?**

- 1** It highlights the perils of the brave new world that we inhibit now.
- 2** It presents Dawn's vision of the ideal adaptation of Huxley's *Brave New World*.
- 3** It showcases the human side of the adaptation of Huxley's *Brave New World*.

- 4  It clarifies some tenets of the world in which Dawn's adaptation is set.

**Solution:**

**Correct Answer : 4**

**Genre: Cultural Studies / Books and Theatre**

**Word Count# 385**

**This question can be answered if we can relate the sentence to the main idea of the passage.**

**The sentence is mentioned with respect to the setting of Dawn's adaptation. So, options 1 and 3 are incorrect.**

**Option 2 – 'Ideal adaptation' is irrelevant.**

**So, option 4 is the correct answer.**

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Directions for questions (19 to 21): The passage below is accompanied by a set of three questions. Choose the best answer to each question.**

Aldous Huxley wrote *Brave New World* in 1931 in the shadow of the first world war, the Wall Street Crash and a devastating flu virus that had claimed millions of lives. The Treaty of Versailles had carved out a new Europe, while electricity, the automobile, production lines, new mass media and aeroplanes were changing the world. England was in the grip of a depression, but science and technology promised a better future: a world where disease, drudgery and poverty might no longer exist. Very few writers were bold enough to challenge this naive optimism but in *Brave New World*, Huxley certainly did; now his work, adapted by Dawn King for the stage and premiering at Royal and Derngate, Northampton, challenges audiences to do the same.

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#### **Q.21**

**Which of the following, as per the passage, was the main idea behind Huxley's *Brave New World*?**

- 1  To foresee the many afflictions of the 21st century
- 2  To criticise the scientific advancements of the 21st century
- 3  To challenge the overtly optimistic mood of his generation

#### 4 To expose the perils of being too optimistic about the future

**Solution:**

**Correct Answer : 3**

**Genre: Cultural Studies / Books and Theatre**

**Word Count# 385**

 **Bookmark**

 **Answer key/Solution**

Refer to the line with the phrase “this naive optimism but in Brave New World”. So, option 3 is correct.

**Option 1 – Huxley was not merely foreseeing the problems. He was criticizing his contemporaries.**

**Option 2 – He was not against scientific advancements.**

**Option 4 - It is too generic to be true. Huxley was not against being optimistic in general.**

**FeedBack**

**Directions for questions (22 to 24): The passage below is accompanied by a set of three questions. Choose the best answer to each question.**

A major part of decision-making involves the analysis of a finite set of alternatives described in terms of evaluative criteria. Then the task might be to rank these alternatives in terms of how attractive they are to the decision-maker(s) when all the criteria are considered simultaneously. Another task might be to find the best alternative or to determine the relative total priority of each alternative when all the criteria are considered simultaneously. Solving such problems is the focus of multiple-criteria decision analysis (MCDA). This area of decision-making, although very old, has attracted the interest of many researchers and practitioners and is still highly debated as there are many MCDA methods which may yield very different results when they are applied on exactly the same data. This leads to the formulation of a decision-making paradox.

Logical decision-making is an important part of all science-based professions, where specialists apply their knowledge in a given area to make informed decisions. But naturalistic decision-making research shows that in situations with higher time pressure, higher stakes, or increased ambiguities, experts may use intuitive decision-making rather than structured approaches. They may follow a recognition primed decision that fits their experience and arrive at a course of action without weighing alternatives.

The decision-maker's environment can play a part in the decision-making process. For example, environmental complexity is a factor that influences cognitive function. A complex environment is an environment with a large number of different possible states which come and go over time. Studies done at the University of Colorado have shown that more complex environments correlate with higher cognitive function, which means that a decision can be influenced by the location. One experiment measured complexity in a room by the number of small objects and appliances present; a simple room had less of those things. Cognitive function was greatly affected by the higher measure of environmental complexity making it easier to think about the situation and make a better decision.

**Q.22**

**Which of the following would not fall in the category of naturalistic decision making?**

- 1  **The Captain of a cricket team, deciding whether to bat or field first after winning the toss.**
- 2  **A driver deciding which route to take to reach his destination at the earliest.**
- 3  **An MBBS deciding the ranking of various medical institutes.**
- 4  **A surgeon deciding which type of surgery to perform on a patient.**

**Solution:**

**Correct Answer : 4**

**Genre: Management / Psychology**

**Word Count# 324**

 **Bookmark**

 **Answer key/Solution**

**Answer is 4. The decision as to which type of surgery is to be performed is by and large based on a structured approach. The surgeon will have to go by standard procedures.**

**Option 1 - The decision to bat or field, though based on some ground information, is by and large governed by instinct and different captains may take different decisions under the same circumstances.**

**Option 2 - A driver's decision as to which route to take is based mostly on the driver's instinct and there are no well-defined or structured approaches.**

**Option 3 - The ranking of any kind of institute is based on very subjective parameters and different people/agencies can come up with very different rankings.**

**FeedBack**

**Directions for questions (22 to 24): The passage below is accompanied by a set of three questions. Choose the best answer to each question.**

A major part of decision-making involves the analysis of a finite set of alternatives described in terms of evaluative criteria. Then the task might be to rank these alternatives in terms of how attractive they are to the decision-maker(s) when all the criteria are considered simultaneously. Another task might be to find the best alternative or to determine the relative total priority of each alternative when all the criteria are considered simultaneously. Solving such problems is the focus of multiple-criteria decision analysis (MCDA). This area of decision-making, although very old, has attracted the interest of many researchers and practitioners and is still highly debated as there are many MCDA methods which may yield very different results when they are applied on exactly the same data. This leads to the formulation of a decision-making paradox.

Logical decision-making is an important part of all science-based professions, where specialists apply their knowledge in a given area to make informed decisions. But naturalistic decision-making research shows that in situations with higher time pressure, higher stakes, or increased ambiguities, experts may use intuitive decision-making rather than structured approaches. They may follow a recognition primed decision that fits their experience and arrive at a course of action without weighing alternatives.

The decision-maker's environment can play a part in the decision-making process. For example, environmental complexity is a factor that influences cognitive function. A complex environment is an environment with a large number of different possible states which come and go over time. Studies done at the University of Colorado have shown that more complex environments correlate with higher cognitive function, which means that a decision can be influenced by the location. One experiment measured complexity in a room by the number of small objects and appliances present; a simple room had less of those things. Cognitive function was greatly affected by the higher measure of environmental complexity making it easier to think about the situation and make a better decision.

### Q.23

Which of the following leads to the decision making paradox mentioned in the last line of the 1st paragraph?

- 1  The multiplicity of methods, which makes it difficult to zero in on the optimum.
- 2  The same method may result in multiple outcomes when applied on the same data.
- 3  The multiplicity of results because of the multiplicity of methods when applied on the same data.
- 4  Many methods are there which yield the same result when applied on the same data.

**Solution:****Correct Answer : 2****Genre: Management / Psychology****Word Count# 324****Bookmark****Answer key/Solution**

The paradox stems from the fact there are many methods which yield different results, when applied on the same data. This makes option 2 the answer.

Option 1 - the paradox is not that there are many methods and it is difficult to choose the best among them.

Option 3 - This looks attractive but is flawed. There are multiple methods yielding different results but the multiplicity of results cannot be attributed to the multiplicity of methods.

Association of two events may not always imply causality.

Option 4 – It is factually incorrect. The various methods do not produce the same results.

**FeedBack**

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**Directions for questions (22 to 24):** The passage below is accompanied by a set of three questions. Choose the best answer to each question.

A major part of decision-making involves the analysis of a finite set of alternatives described in terms of evaluative criteria. Then the task might be to rank these alternatives in terms of how attractive they are to the decision-maker(s) when all the criteria are considered simultaneously. Another task might be to find the best alternative or to determine the relative total priority of each alternative when all the criteria are considered simultaneously. Solving such problems is the focus of multiple-criteria decision analysis (MCDA). This area of decision-making, although very old, has attracted the interest of many researchers and practitioners and is still highly debated as there are many MCDA methods which may yield very different results when they are applied on exactly the same data. This leads to the formulation of a decision-making paradox.

Logical decision-making is an important part of all science-based professions, where specialists apply their knowledge in a given area to make informed decisions. But naturalistic decision-making research shows that in situations with higher time pressure, higher stakes, or increased ambiguities, experts may use intuitive decision-making rather than structured approaches. They may follow a recognition primed decision that fits their experience and arrive at a course of action without weighing alternatives.

The decision-maker's environment can play a part in the decision-making process. For example, environmental complexity is a factor that influences cognitive function. A complex environment is an environment with a large number of different possible states which come and go over time. Studies done at the University of Colorado have shown that more complex environments correlate with higher cognitive function, which means that a decision can be influenced by the location. One experiment measured complexity in a room by the number of small objects and appliances present; a simple room had less of those things. Cognitive function was greatly affected by the higher measure of environmental complexity making it easier to think about the situation and make a better decision.

**Q.24**

Which of the following can be inferred from the passage?

- 1  Complex environments confuse people and hamper the decision making process.
- 2  The decision making process has very little to do with the environment.
- 3  The simpler the environment the better the decision making process.
- 4  People tend to make better decisions in complex environments.

**Solution:**

**Correct Answer : 4**

**Genre: Management / Psychology**

**Word Count# 324**



[Answer key/Solution](#)

The answer to this question lies in the last paragraph. Option 4 can be inferred from the last line of the passage - "Cognitive function was greatly affected by the higher measure of environmental complexity making it easier to think about the situation and make a better decision."

Option 1 – It is the opposite of what the passage says. The author states that complex environments make us better decision makers.

Option 2 – 'Very little to do' is incorrect.

Option 3 – Refer to option 1. The author states the opposite.

Option 4 – It is the correct answer.

[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.

That ruling was grounded in a revolutionary string of rulings by the United States Supreme Court, all of which have found that young people are “constitutionally different” from adults — their brains are still developing, their impulse control is weaker and their ability to change over time is greater. This means that they are less guilty than adults and that their punishment must be different, especially in the case of life sentences for those convicted of murder. The “imposition of a state’s most severe penalties on juvenile offenders cannot proceed as though they were not children,” the court said in 2012. They must be given “a meaningful opportunity” to get out; actual life sentences should be reserved for those few who exhibit “irretrievable depravity.”

1. The US Supreme Court has ruled that young people deserve second chances more than adults do.
2. The US Supreme Court has ruled that young people who have committed crimes should be given opportunities to reform as their brains are still in a developing process.
3. The US Supreme Court has exonerated young people from life sentences due to their biological lack of impulse control.
4. US Supreme Court is much more sensitive while treating a juvenile which is the reason why it has altered the criminal laws and decided to give meaningful opportunities to children.

**Solution:**

**Correct Answer : 2**

The given paragraph talks about a judgment passed the US Supreme Court regarding treating juveniles who have committed crimes. According to SC they should be treated differently compared to the adults who commit crimes. Only option 2 presents the correct summary. Option 4 is vague. Weak brain developments are not the only reason. Therefore options 1 and 3 can also be eliminated.

 **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.

African elephants are well-known to love bathing, spraying, and mud-wallowing. These behaviours are not just for fun. Indeed, African elephants lack the sweat and sebum glands that allow many other mammals to keep their skin moist and flexible. Furthermore, because of their huge body size, and their warm and dry habitat, African elephants can avoid over-heating only by losing calories through evaporation of the water they collect in and on their skin. By covering themselves with mud, African elephants also avoid the attacks of relentless parasites and the excessive exposure of their skin to solar radiations. Very close inspection of the African elephant skin indicates that, in addition to its characteristic well-visible wrinkling, the integument is deeply sculptured by an intricate network of minuscule interconnected crevices. This beautiful fine pattern of millions of channels prevents shedding of applied mud and allows spreading and retention of 5 to 10 times more water than on a flat surface.

1. African elephants cover their bodies with mud in order to keep their skin moist, avoid over-heating, and prevent the attacks of parasites and also excessive exposure to solar radiations.
2. African elephants cover their bodies with mud to retain moisture, lose calories through evaporation, and avoid exposure to solar radiation.
3. African elephants cover their bodies to keep their skin moist and flexible, and protect themselves from the attacks of parasites and exposure to the heat of the sun.
4. African elephants love bathing, spraying, and mud-wallowing because these behaviours help them to protect themselves from over-heating, parasite attacks and the sun.

**Solution:**

**Correct Answer : 1**

Option 1 summarizes the paragraph without leaving out any essential point. However, none of the three options is comprehensive enough to be used a summary of the given paragraph. Option 2 does say anything about the prevention of attacks of parasites and the avoidance of excessive exposure to solar radiation. Option 3 does not mention the over-heating and 'excessive' exposure to the solar radiation. Option 4 does not mention about the retention of moist. So, option 1 is the correct answer.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**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.

There is great debate among many people, and sometimes in the news, on whether global warming is real. But climate scientists looking at the data and facts agree the planet is warming. While many view the effects of global warming to be more substantial and more rapidly occurring than others do, the scientific consensus on climatic changes related to global warming is that the average temperature of the Earth has risen between 0.4 and 0.8 °C over the past 100 years. Scientists from the Intergovernmental Panel on Climate carrying out global warming research have recently predicted that average global temperatures could increase between 1.4 and 5.8 °C by the year 2100. Changes resulting from global warming may include rising sea levels due to the melting of the polar ice caps, as well as an increase in occurrence and severity of storms and other severe weather events.

1. Scientists believe that global temperatures could increase by up to 5.4 °C because of rising sea levels resulting from the melting of polar icecaps.
2. In the debate about whether global warming is real, scientists across the globe agree that a host of severe events could cause global temperatures to shoot up significantly.
3. In the debate about whether global warming is real, a group of researchers predict that a host of severe events could cause global temperatures to rise to significantly higher ranges from what they are already.
4. Scientists across the globe concur that a series of severe events could cause global temperatures to rise as high as up to 5.4 °C.

**Solution:**

**Correct Answer : 3**

Option 3 is the correct answer. Option 1 is an extremely general statement. In Options 2 and 4, it says scientists across the globe, which is incorrect.

 **Bookmark**

 **Answer key/Solution**

**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. Deputy assistant commissioner Dean Haydon, said: "At this point in our investigation, we believe the Skripals first came into contact with the nerve agent from their front door."
2. Officers continue to trawl through more than 5,000 hours of CCTV and examine more than 1,350 exhibits that have been seized.
3. And approximately 500 witnesses have been identified and hundreds of statements taken.
4. Public health experts are still working to establish whether the nerve agent attack presents a long term risks to Salisbury's residents, which will receive a £1m support package from central government to help recover.
5. About 250 counter-terrorism detectives continue to work around the clock on the investigation, supported by a full range of experts and partners.

**Solution:**

**Correct Answer : 41523**

1 and 5 make a mandatory pair. 1 introduces the investigation. 5 gives the details.

2 and 3 follow 5. 2 talks about the officers. With 'And' in 3, 523 make a mandatory sequence.

4 can only come at the beginning of the paragraph. So, 41523 is the correct sequence.

 **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. Four international women's conferences, a bunch of UN resolutions and two sets of global goals have all played their part.
2. Great strides have been made to reduce maternal and child deaths, increase access to family planning, and improve healthcare.
3. But it has, and continues to be, a battle to hold firm the ground gained.
4. It has been a journey of big leaps, small steps and setbacks.
5. Women have been joining forces to agitate for their right to a better life for centuries, but some of the most significant changes have occurred over the past four decades.

**Solution:****Correct Answer : 54123**

**3** has to come at the end of the paragraph. With 'But', it introduces a new perspective to the discussion.

**5** is the topic sentence as it introduces the topic.

**54** is a pair – 'It' in **4** refers to **5**.

**1** and **2** come next in the sequence. **1** introduces the conference. **2** explains the discussion. So, **54123** is the correct sequence.

 **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.** Rohingya people say they are descendants of Muslims, perhaps Persian and Arab traders, who came to Myanmar generations ago.
- 2.** They live predominately in Rakhine state, where they have co-existed uneasily alongside Buddhists for decades.
- 3.** Described as the world's most persecuted people, 1.1 million Rohingya people live in Myanmar.
- 4.** The Rohingya are reviled by many in Myanmar as illegal immigrants and they suffer from systematic discrimination.
- 5.** Perhaps that's why, unlike the Buddhist community, they speak a language similar to the Bengali dialect of Chittagong in Bangladesh.

**Solution:****Correct Answer : 32154**

The given paragraph if arranged sequentially describes the Rohingyas and the recent problems they have been facing.

Sentence **3** opens the paragraph forming a mandatory pair with **2**.

Both the sentences discuss the geographical location of the Rohingyas. It is followed by **1** which traces the origin of these people. It is followed by **5** which portrays the dialect of these people. It ends with sentence **4** describing the reason behind the recent problems they are facing.

 **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. Eradicating extreme poverty would lead to an 84% reduction in TB cases by 2035, according to a report published to coincide with World Tuberculosis Day on Saturday.
2. Programmes to tackle poverty could be just as effective in the fight against tuberculosis as medicines and vaccines, research has found.
3. Nine scientists and policymakers carried out research examining incidences of TB across 192 countries for a study that appears in.
4. Researchers then related this to the current levels of TB, projecting the associations forward 20 years.
5. The conclusions were reached by looking at the links between people living on less than \$1.90 a day and the coverage of various social programmes in each country.

**Solution:**

**Correct Answer : 21354**

The given paragraph if arranged logically talks about programmes to tackle poverty by which a deadly disease like TB can be reduced. Sentence 2 opens the paragraph. It is sequentially followed by 1 which justifies the opening sentence. Sentences 3 and 5 form a mandatory pair discussing the recent researches performed by the scientists. Sentence 4 ends the paragraph.

 **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. Given the Aleppo example and the reality on the ground in Eastern Ghouta, the sooner the government forces and the armed gangs reach an agreement for evacuation, the better it will be for the hundreds of thousands of people in the enclave.
2. HTS militants will go to Idlib, a province in northwestern Syria run by the rebels, mainly the HTS.
3. Under the deal, the Jaish al-Islam, the main rebel group, will evacuate militants linked to the Hayat Tahrir al-Sham (HTS), formerly an al-Qaeda front, from Ghouta on the outskirts of Damascus.
4. The agreement reached between armed groups in Eastern Ghouta and a UN delegation to evacuate some militants from the besieged enclave is the first major concession the rebels have made since Syrian government attacks began a month ago.
5. Over the past month, the rebels had refused to strike any deal with the regime even after repeated bombardment.

**Solution:**

**Correct Answer : 1**

Other than 1, all other sentences if arranged sequentially talk about the “agreement reached between armed groups in Eastern Ghouta and a UN delegation to evacuate some militants from the besieged enclave...” Sentence 1 is related to the given paragraph but it talks about a different time frame where the agreement didn’t take place.

 **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. "It is an agricultural field for millets ploughed to sow the seeds.
2. But when he visited the site in Agrahara Medu in Kavasakottai, five kilometres east of T. Kallupatti, he was pleasantly surprised to see Tamil Brahmi script on potsherds and fish symbol engraved on broken mud pots.
3. When history professor C Manickaraj got a call from his friend C. Chellapandian of Peraiyur couple of days ago about objects belonging to ancient period strewn all over an agricultural field near T. Kallupatti, he went without any big expectation.
4. The potsherds and urns must have resurfaced when the plough made deep furrows on the ground," says Manickaraj, assistant professor, Department of History, Cardamom Planters' Association College, Bodi.
5. "The first rock art site discovered in Tamil Nadu is in Mallambadi in Krishnagiri district," says Gandhirajan.

**Solution:**

**Correct Answer : 5**

The given paragraph if arranged sequentially discusses an incident when a "...history professor C Manickaraj got a call from his friend C. Chellapandian of Peraiyur couple of days ago about objects belonging to ancient period strewn all over an agricultural field near T. Kallupatti...". Other than 5 all the sentences talk about the concerned incident.

 **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. While it may be rational to strive for the maximum, striving for more than what is possible is not rational.
2. Self-interest refers to the fact that rational agents only care about their own outcomes, and are indifferent concerning the outcomes of others.
3. In the psychological literature greed is often, and mistakenly, used interchangeably with self-interest.
4. But we believe that greed and self-loathing are exaggerated forms of maximizing, in which people not simply prefer to have more, but are also frustrated by not having it.
5. Greed is however related to the assumption of maximization, which states that agents always prefer to have more rather than less of a good.

**Solution:****Correct Answer : 4**

The correct sequence is 3251. 4 is the odd sentence out as this sentence is in the first person plural form, which cannot be linked to any other sentence. 3 is the opening sentence as it introduces the topic- the mistaken and interchangeable use of greed and self interest. 2 and 5 create a mandatory as both of them elaborate on self interest and greed respectively. 1 is a comment on the nature of 'greed'.

**Bookmark****Answer key/Solution****FeedBack****Sec 2**

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

CL Educate Ltd, on a recreational tour, took its employees to Dhauj where they planned some adventurous sports for its employees and decided that every employee has to participate in at least one of the events. They divided the employees in 3 groups of 100 employees each and each group participated in different kind of adventurous sports.

For group 1, the available activities were Rock climbing, Trekking and Cliff jumping.

For group 2, the available activities were Paragliding, Caving, Waterfall-trekking and Hot air balloon.

For group 3, the available activities were Abseiling, Bridge crossing and Bungee Jumping. In group 1, some of the employees who participated in rock climbing also participated in trekking. Also some of those who participated in trekking also participated in cliff jumping, but no one participated in both rock climbing and cliff jumping activities. Number of employees who did rock climbing was equal to those who did cliff jumping. Number of employees who did rock climbing and trekking were five less than that of those who did trekking and cliff jumping. Number of employees who did only rock climbing was 20 more than that of those who did rock climbing with one more activity. 20 people did only trekking. In group 2, some of the employees who participated in paragliding also participated in caving. Some who participated in caving also participated in at most one of paragliding or waterfall trekking. In addition to that, some employees who participated in waterfall trekking also participated in at most one out of caving or hot air balloon. Further no other combinations of activities, other than the mentioned, were done by the employees of group 2. The number of employees who participated in paragliding were twice the number of those who participated in hot air balloon. 60 employees participated in caving. The number of employees who participated in both caving and waterfall trekking is same as those who participated in both water fall trekking and hot balloon activity and that number is equals to zero. 15 people did waterfall trekking and 35 people participated in more than one event. In group 3, every employee participated in at least two activities and equal number of employees participated in every combination of exactly two activities. Further 10 people participated in all the three activities.

**Q.35**

**How many employees participated in exactly two activities, in their respective group?**

1  **60**

2  **90**

3  **150**

4  **115**

**Solution:**

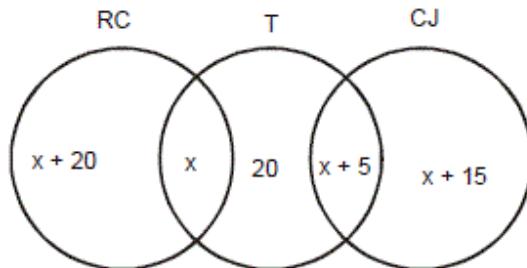
**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

For group 1:

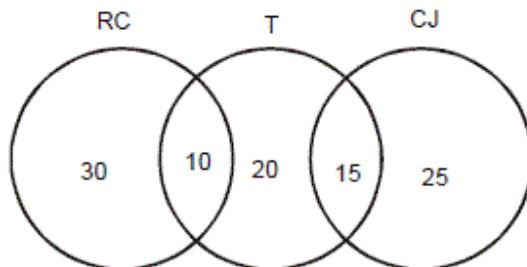
No one participated in all the three activities, as people who did rock climbing did not participated in cliff jumping activity. As number of those who did rock climbing and trekking (say  $x$ ) is five less than who did trekking and cliff jumping, the number in the three activities can be represented as shown below,



Since in every group there were total 100 employees, on solving this we get

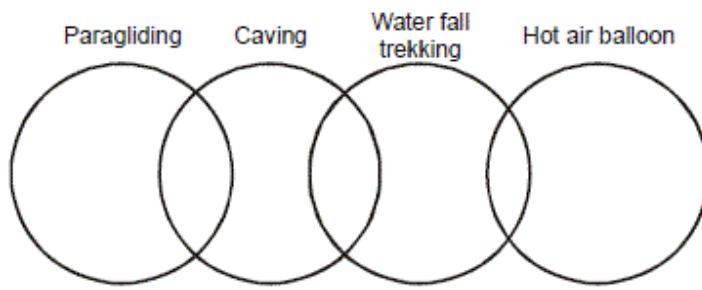
$$2x + 20 + 20 + 2x + 20 = 100$$

So values are



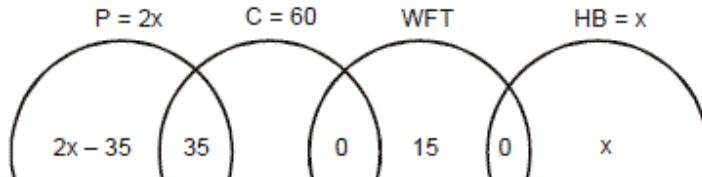
For group 2:

From the information about the possible combinations, following can be drawn



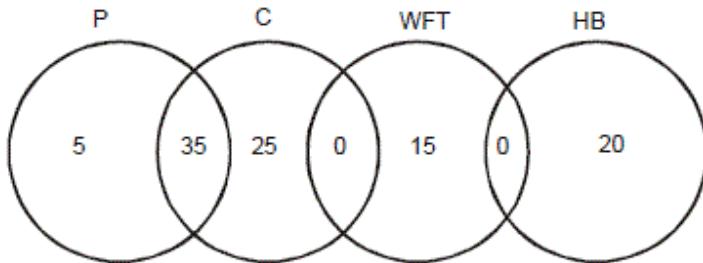
As it is mentioned that number of people who participated in Caving and water fall trekking = number of participants in water fall trekking and hot air balloon activity = 0

For this we can conclude,





On solving this we get the value of  $x = 20$

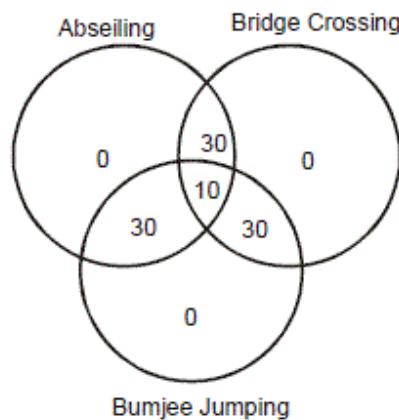


For group 3:

Everyone participated in at least 2 activities and 10 of them participated in 3 activities.

Further equal number of participant in exactly 2 categories.

So,



Employees in exactly 2 activities are  $= 25 + 35 + 90 = 150$

**FeedBack**

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

CL Educate Ltd, on a recreational tour, took its employees to Dhauj where they planned some adventurous sports for its employees and decided that every employee has to participate in at least one of the events. They divided the employees in 3 groups of 100 employees each and each group participated in different kind of adventurous sports.

For group 1, the available activities were Rock climbing, Trekking and Cliff jumping.

For group 2, the available activities were Paragliding, Caving, Waterfall-trekking and Hot air balloon.

For group 3, the available activities were Abseiling, Bridge crossing and Bungee Jumping.

In group 1, some of the employees who participated in rock climbing also participated in trekking. Also some of those who participated in trekking also participated in cliff jumping, but no one participated in both rock climbing and cliff jumping activities. Number of

employees who did rock climbing was equal to those who did cliff jumping. Number of employees who did rock climbing and trekking were five less than that of those who did trekking and cliff jumping. Number of employees who did only rock climbing was 20 more than that of those who did rock climbing with one more activity. 20 people did only trekking.

In group 2, some of the employees who participated in paragliding also participated in caving. Some who participated in caving also participated in at most one of paragliding or waterfall trekking. In addition to that, some employees who participated in waterfall trekking also participated in at most one out of caving or hot air balloon. Further no other combinations of activities, other than the mentioned, were done by the employees of group 2.

The number of employees who participated in paragliding were twice the number of those who participated in hot air balloon. 60 employees participated in caving. The number of employees who participated in both caving and waterfall trekking is same as those who participated in both water fall trekking and hot balloon activity and that number is equals to zero. 15 people did waterfall trekking and 35 people participated in more than one event.

In group 3, every employee participated in at least two activities and equal number of employees participated in every combination of exactly two activities. Further 10 people participated in all the three activities.

### Q.36

Find the number of employees who participated in trekking but not in cliff jumping from group 1.

1  30

2  20

3  40

4  35

**Solution:**

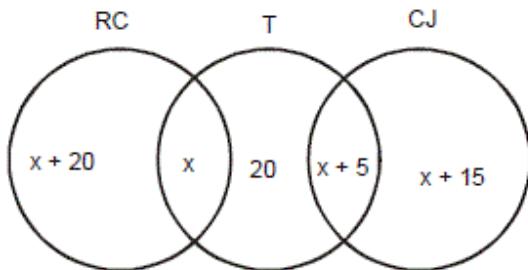
**Correct Answer : 1**

 **Bookmark**

 **Answer key/Solution**

For group 1:

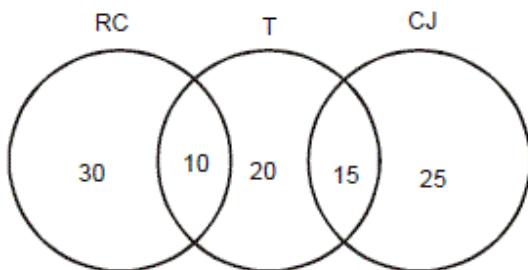
No one participated in all the three activities, as people who did rock climbing did not participate in cliff jumping activity. As number of those who did rock climbing and trekking (say  $x$ ) is five less than who did trekking and cliff jumping, the number in the three activities can be represented as shown below,



Since in every group there were total 100 employees, on solving this we get

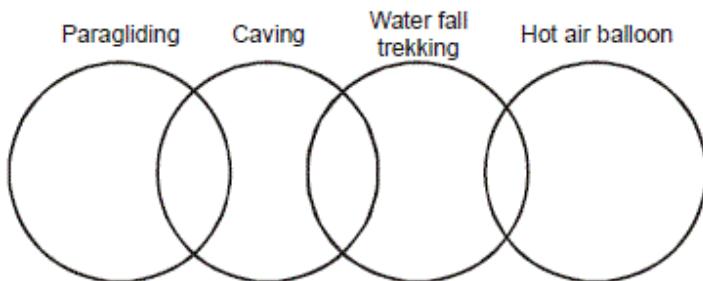
$$2x + 20 + 20 + 2x + 20 = 100$$

So values are



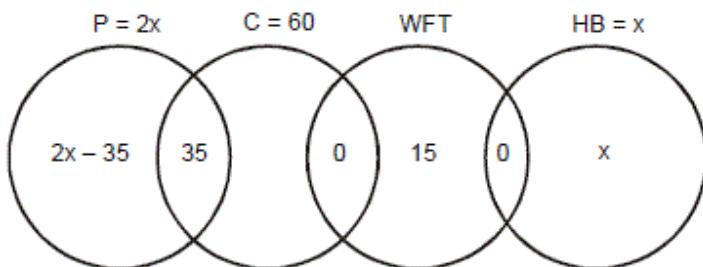
For group 2:

From the information about the possible combinations, following can be drawn

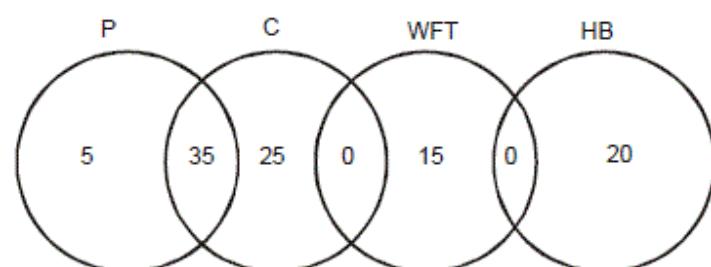


As it is mentioned that number of people who participated in Caving and water fall trekking = number of participants in water fall trekking and hot air balloon activity = 0

For this we can conclude,



On solving this we get the value of  $x = 20$

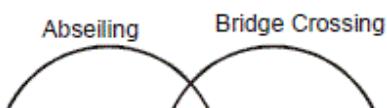


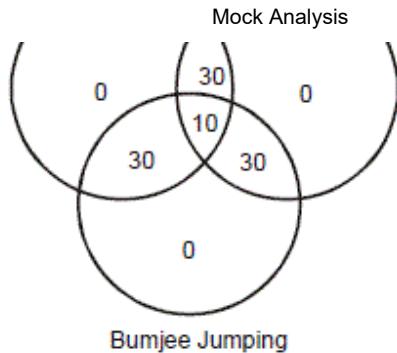
For group 3:

Everyone participated in at least 2 activities and 10 of them participated in 3 activities.

Further equal number of participant in exactly 2 categories.

So,





Required number =  $10 + 20 = 30$

**FeedBack**

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

CL Educate Ltd, on a recreational tour, took its employees to Dhauj where they planned some adventurous sports for its employees and decided that every employee has to participate in at least one of the events. They divided the employees in 3 groups of 100 employees each and each group participated in different kind of adventurous sports.

For group 1, the available activities were Rock climbing, Trekking and Cliff jumping.

For group 2, the available activities were Paragliding, Caving, Waterfall-trekking and Hot air balloon.

For group 3, the available activities were Abseiling, Bridge crossing and Bungee Jumping.

In group 1, some of the employees who participated in rock climbing also participated in trekking. Also some of those who participated in trekking also participated in cliff jumping, but no one participated in both rock climbing and cliff jumping activities. Number of employees who did rock climbing was equal to those who did cliff jumping. Number of employees who did rock climbing and trekking were five less than that of those who did trekking and cliff jumping. Number of employees who did only rock climbing was 20 more than that of those who did rock climbing with one more activity. 20 people did only trekking. In group 2, some of the employees who participated in paragliding also participated in caving. Some who participated in caving also participated in at most one of paragliding or waterfall trekking. In addition to that, some employees who participated in waterfall trekking also participated in at most one out of caving or hot air balloon. Further no other combinations of activities, other than the mentioned, were done by the employees of group 2. The number of employees who participated in paragliding were twice the number of those who participated in hot air balloon. 60 employees participated in caving. The number of employees who participated in both caving and waterfall trekking is same as those who participated in both water fall trekking and hot balloon activity and that number is equals to zero. 15 people did waterfall trekking and 35 people participated in more than one event. In group 3, every employee participated in at least two activities and equal number of employees participated in every combination of exactly two activities. Further 10 people participated in all the three activities.

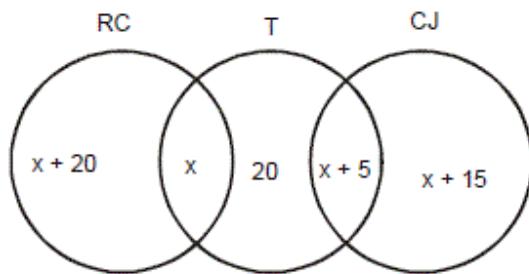
**Q.37**

**Find the number of employees who participated in paragliding but not in caving.**

1  302  253  204  5**Solution:****Correct Answer : 4** **Bookmark** **Answer key/Solution**

For group 1:

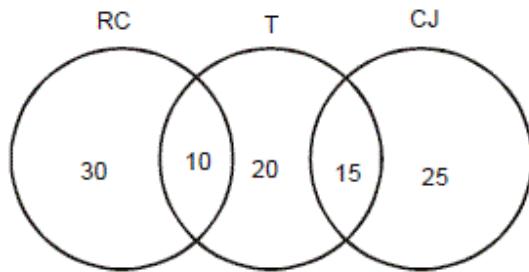
No one participated in all the three activities, as people who did rock climbing did not participate in cliff jumping activity. As number of those who did rock climbing and trekking (say  $x$ ) is five less than who did trekking and cliff jumping, the number in the three activities can be represented as shown below,



Since in every group there were total 100 employees, on solving this we get

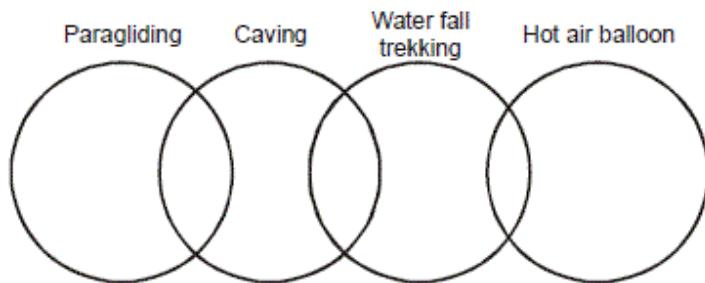
$$2x + 20 + 20 + 2x + 20 = 100$$

So values are



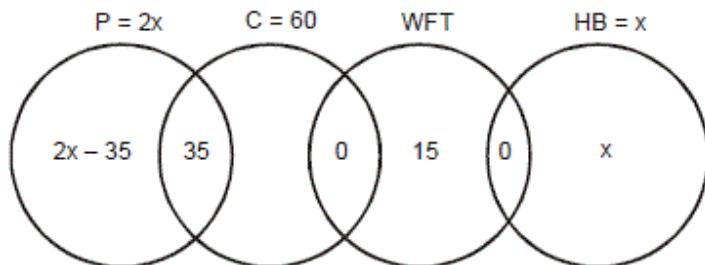
For group 2:

From the information about the possible combinations, following can be drawn

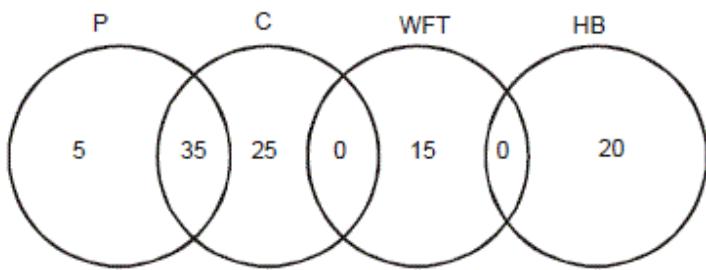


As it is mentioned that number of people who participated in Caving and water fall trekking = number of participants in water fall trekking and hot air balloon activity = 0

For this we can conclude,



On solving this we get the value of  $x = 20$

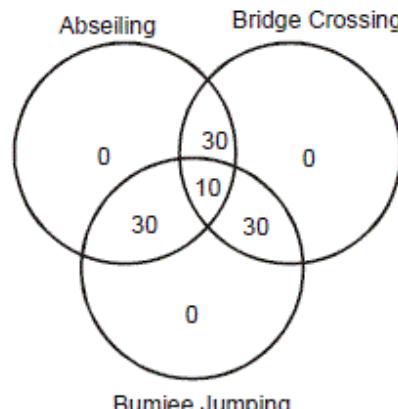


For group 3:

Everyone participated in at least 2 activities and 10 of them participated in 3 activities.

Further equal number of participant in exactly 2 categories.

So,



Total in Paragliding = 40, out of which 35 were participated in caving also.  
So, the required number = 5

FeedBack

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

CL Educate Ltd, on a recreational tour, took its employees to Dhauj where they planned some adventurous sports for its employees and decided that every employee has to participate in at least one of the events. They divided the employees in 3 groups of 100 employees each and each group participated in different kind of adventurous sports.

For group 1, the available activities were Rock climbing, Trekking and Cliff jumping.

For group 2, the available activities were Paragliding, Caving, Waterfall-trekking and Hot air balloon.

For group 3, the available activities were Abseiling, Bridge crossing and Bungee Jumping.

In group 1, some of the employees who participated in rock climbing also participated in trekking. Also some of those who participated in trekking also participated in cliff jumping, but no one participated in both rock climbing and cliff jumping activities. Number of

employees who did rock climbing was equal to those who did cliff jumping. Number of employees who did rock climbing and trekking were five less than that of those who did trekking and cliff jumping. Number of employees who did only rock climbing was 20 more than that of those who did rock climbing with one more activity. 20 people did only trekking.

In group 2, some of the employees who participated in paragliding also participated in caving. Some who participated in caving also participated in at most one of paragliding or waterfall trekking. In addition to that, some employees who participated in waterfall trekking also participated in at most one out of caving or hot air balloon. Further no other combinations of activities, other than the mentioned, were done by the employees of group 2.

The number of employees who participated in paragliding were twice the number of those who participated in hot air balloon. 60 employees participated in caving. The number of employees who participated in both caving and waterfall trekking is same as those who participated in both water fall trekking and hot balloon activity and that number is equals to zero. 15 people did waterfall trekking and 35 people participated in more than one event.

In group 3, every employee participated in at least two activities and equal number of employees participated in every combination of exactly two activities. Further 10 people participated in all the three activities.

### Q.38

If each activity costs Rs 400, then find the total cost (in Rs.) spent by the group who spent the maximum amount.

1  75000

2  84000

3  80000

4  96000

**Solution:**

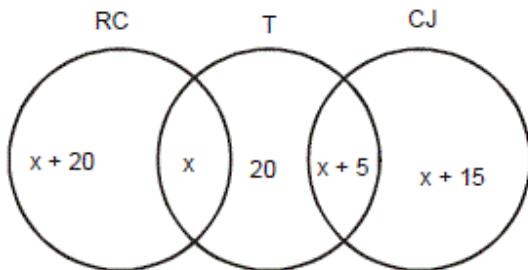
**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

For group 1:

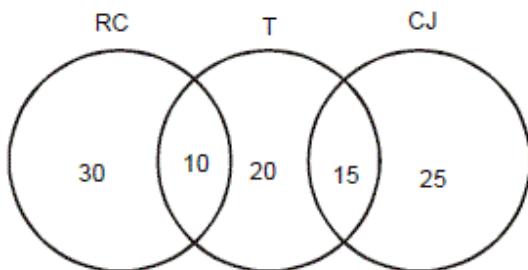
No one participated in all the three activities, as people who did rock climbing did not participate in cliff jumping activity. As number of those who did rock climbing and trekking (say  $x$ ) is five less than who did trekking and cliff jumping, the number in the three activities can be represented as shown below,



Since in every group there were total 100 employees, on solving this we get

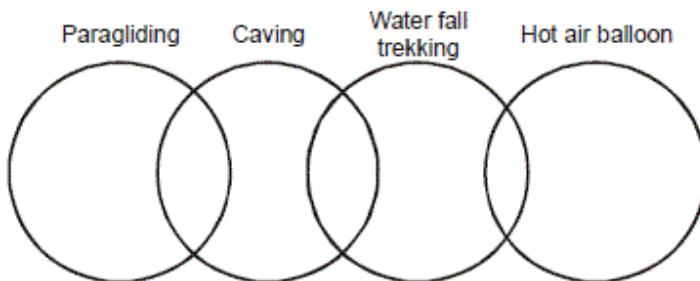
$$2x + 20 + 20 + 2x + 20 = 100$$

So values are



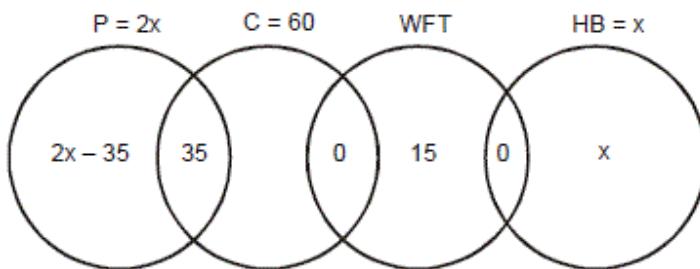
For group 2:

From the information about the possible combinations, following can be drawn

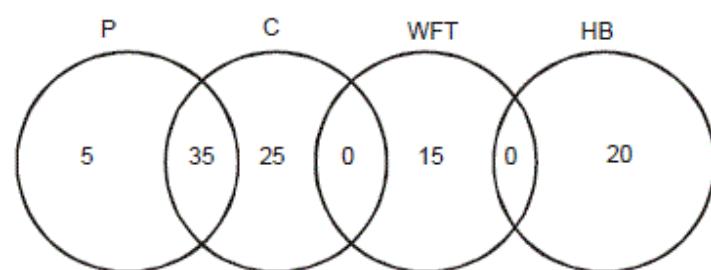


As it is mentioned that number of people who participated in Caving and water fall trekking = number of participants in water fall trekking and hot air balloon activity = 0

For this we can conclude,



On solving this we get the value of  $x = 20$

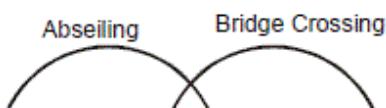


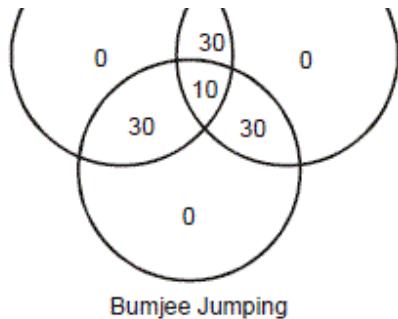
For group 3:

Everyone participated in at least 2 activities and 10 of them participated in 3 activities.

Further equal number of participant in exactly 2 categories.

So,





Cost for group 1 =  $30 \times 400 + 10 \times 800 + 20 \times 400 + 15 \times 800 + 25 \times 400 = 50,000$

Cost for group 2 =  $(5 + 25 + 15 + 20) \times 400 + (35 \times 800) = 54,000$

Cost for group 3 =  $90 \times 800 + 10 \times 1200 = 84,000$

**FeedBack**

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

A new restaurant is opened in a busy market of Delhi. As it was hugely advertised, it attracted a lot of repeated customers from day 2 onwards. Further the owner of the restaurant announced some lucrative offers to attract the repeated customers. So if a customer walked into the restaurant for 4 consecutive days, he will be eligible for 30% discount on every order he places from that day onwards. Further if a customer visited the restaurant for 5 consecutive days, he will be eligible for 35% discount on every order he places from that day onwards. Similarly, 45% discount for the customer visiting for 6 consecutive days and 50% discount for the customer visiting for 7 consecutive days. The maximum discount a customer can receive is 50%. The following table provides the information about the number of customers who visited the restaurant for first 8 days.

Days	People Visited
1st day	120
2nd day	272
3rd day	396
4th day	382
5th day	510
6th day	470
7th day	606
8th day	657

Further it is noted that 60% of the first time visitors of a day, visited the restaurant again on the next day. Also 30% of the first time visitors, visited the restaurant for the third time on 3rd consecutive day. Similarly, 15% of the first time visitors, visited for 4 consecutive days, 10% of the first time visitors, visited for 5 consecutive days and only 5% of first time visitors visited for 6 consecutive days. No customer availed the 50% discount offer. Also, the customers visited the restaurant again only on consecutive days.

**Q.39****How many people visited the restaurant for the first time on the 6th day?**1  **300**2  **180**3  **200**4  **350**

**Solution:****Correct Answer : 2****Bookmark****Answer key/Solution**

Lets say the number of new people joined on each day from 1 to 8 are as follows:

$$\text{Day 1} - 120 = a$$

$$\text{Day 2} - b$$

$$\text{Day 3} - c$$

$$\text{Day 4} - d$$

$$\text{Day 5} - e$$

$$\text{Day 6} - f$$

$$\text{Day 7} - g$$

$$\text{Day 8} - h$$

On Day 1 – All people who visited the restaurant were new customers.

$$\text{On Day 2} - \text{number of new visitors} = 120 \times \frac{60}{100} + b = 272 \Rightarrow b = 200 \text{ (because 60\% of day 1 customers visit again on day2)}$$

$$\text{On Day 3} - \text{number of new visitors} = 120 \times \frac{30}{100} + 200 \times \frac{60}{100} + c = 396 \Rightarrow c = 240$$

Following the same procedure, for new visitors 2nd, 3rd, 4th, 5th visits, we can calculate as

$$\text{On Day 4} - \text{number of new visitors} = 120 \times \frac{15}{100} + 200 \times \frac{30}{100} + 240 \times \frac{60}{100} + d = 382 \Rightarrow d = 160$$

$$\text{On Day 5} - \text{number of new visitors} = 120 \times \frac{10}{100} + 200 \times \frac{15}{100} + 240 \times \frac{30}{100} + 160 \times \frac{60}{100} + e = 510 \Rightarrow e = 300$$

$$\text{On Day 6} - \text{number of new visitors} = 120 \times \frac{5}{100} + 200 \times \frac{10}{100} + 240 \times \frac{15}{100} + 160 \times \frac{30}{100} + 300 \times \frac{60}{100} + f = 470 \Rightarrow f = 180$$

$$\text{On Day 7} - \text{number of new visitors} = 200 \times \frac{5}{100} + 240 \times \frac{10}{100} + 160 \times \frac{15}{100} + 300 \times \frac{30}{100} + 180 \times \frac{60}{100} + g = 606 \Rightarrow 350$$

$$\text{On Day 8} - \text{number of new visitors} = 240 \times \frac{5}{100} + 160 \times \frac{10}{100} + 300 \times \frac{15}{100} + 180 \times \frac{30}{100} + 350 \times \frac{60}{100} + h = 657 \Rightarrow h = 320$$

	Customers from day							
	1	2	3	4	5	6	7	8
Day 1	120							
Day 2	72	200						
Day 3	36	120	240					
Day 4	18	60	144	160				
Day 5	12	30	72	96	300			
Day 6	6	20	36	48	180	180		
Day 7	0	10	24	24	90	108	350	
Day 8	0	0	12	16	45	54	210	320

As from the above calculations, we can say 180 people visited for the first time on 6th day.

**FeedBack**

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

A new restaurant is opened in a busy market of Delhi. As it was hugely advertised, it attracted a lot of repeated customers from day 2 onwards. Further the owner of the restaurant announced some lucrative offers to attract the repeated customers. So if a customer walked into the restaurant for 4 consecutive days, he will be eligible for 30% discount on every order he places from that day onwards. Further if a customer visited the restaurant for 5 consecutive days, he will be eligible for 35% discount on every order he places from that day onwards. Similarly, 45% discount for the customer visiting for 6 consecutive days and 50% discount for the customer visiting for 7 consecutive days. The maximum discount a customer can receive is 50%. The following table provides the information about the number of customers who visited the restaurant for first 8 days.

Days	People Visited
1st day	120
2nd day	272
3rd day	396
4th day	382
5th day	510
6th day	470
7th day	606
8th day	657

Further it is noted that 60% of the first time visitors of a day, visited the restaurant again on the next day. Also 30% of the first time visitors, visited the restaurant for the third time on 3rd consecutive day. Similarly, 15% of the first time visitors, visited for 4 consecutive days, 10% of the first time visitors, visited for 5 consecutive days and only 5% of first time visitors visited for 6 consecutive days. No customer availed the 50% discount offer. Also, the customers visited the restaurant again only on consecutive days.

#### Q.40

On which of the following days maximum number of new customers visited the restaurants?

- 1  3rd
- 2  4th
- 3  7th
- 4  8th

**Solution:****Correct Answer : 3****Bookmark****Answer key/Solution**

Lets say the number of new people joined on each day from 1 to 8 are as follows:

$$\text{Day 1} - 120 = a$$

$$\text{Day 2} - b$$

$$\text{Day 3} - c$$

$$\text{Day 4} - d$$

$$\text{Day 5} - e$$

$$\text{Day 6} - f$$

$$\text{Day 7} - g$$

$$\text{Day 8} - h$$

On Day 1 – All people who visited the restaurant were new customers.

$$\text{On Day 2} - \text{number of new visitors} = 120 \times \frac{60}{100} + b = 272 \Rightarrow b = 200 \text{ (because 60\% of day 1 customers visit again on day2)}$$

$$\text{On Day 3} - \text{number of new visitors} = 120 \times \frac{30}{100} + 200 \times \frac{60}{100} + c = 396 \Rightarrow c = 240$$

Following the same procedure, for new visitors 2nd, 3rd, 4th, 5th visits, we can calculate as

$$\text{On Day 4} - \text{number of new visitors} = 120 \times \frac{15}{100} + 200 \times \frac{30}{100} + 240 \times \frac{60}{100} + d = 382 \Rightarrow d = 160$$

$$\text{On Day 5} - \text{number of new visitors} = 120 \times \frac{10}{100} + 200 \times \frac{15}{100} + 240 \times \frac{30}{100} + 160 \times \frac{60}{100} + e = 510 \Rightarrow e = 300$$

$$\text{On Day 6} - \text{number of new visitors} = 120 \times \frac{5}{100} + 200 \times \frac{10}{100} + 240 \times \frac{15}{100} + 160 \times \frac{30}{100} + 300 \times \frac{60}{100} + f = 470 \Rightarrow f = 180$$

$$\text{On Day 7} - \text{number of new visitors} = 200 \times \frac{5}{100} + 240 \times \frac{10}{100} + 160 \times \frac{15}{100} + 300 \times \frac{30}{100} + 180 \times \frac{60}{100} + g = 606 \Rightarrow 350$$

$$\text{On Day 8} - \text{number of new visitors} = 240 \times \frac{5}{100} + 160 \times \frac{10}{100} + 300 \times \frac{15}{100} + 180 \times \frac{30}{100} + 350 \times \frac{60}{100} + h = 657 \Rightarrow h = 320$$

	Customers from day							
	1	2	3	4	5	6	7	8
Day 1	120							
Day 2	72	200						
Day 3	36	120	240					
Day 4	18	60	144	160				
Day 5	12	30	72	96	300			
Day 6	6	20	36	48	180	180		
Day 7	0	10	24	24	90	108	350	
Day 8	0	0	12	16	45	54	210	320

On 7th day, maximum new customers visited.

**FeedBack**

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

A new restaurant is opened in a busy market of Delhi. As it was hugely advertised, it attracted a lot of repeated customers from day 2 onwards. Further the owner of the restaurant announced some lucrative offers to attract the repeated customers. So if a customer walked into the restaurant for 4 consecutive days, he will be eligible for 30% discount on every order he places from that day onwards. Further if a customer visited the restaurant for 5 consecutive days, he will be eligible for 35% discount on every order he places from that day onwards. Similarly, 45% discount for the customer visiting for 6 consecutive days and 50% discount for the customer visiting for 7 consecutive days. The maximum discount a customer can receive is 50%. The following table provides the information about the number of customers who visited the restaurant for first 8 days.

Days	People Visited
1st day	120
2nd day	272
3rd day	396
4th day	382
5th day	510
6th day	470
7th day	606
8th day	657

Further it is noted that 60% of the first time visitors of a day, visited the restaurant again on the next day. Also 30% of the first time visitors, visited the restaurant for the third time on 3rd consecutive day. Similarly, 15% of the first time visitors, visited for 4 consecutive days, 10% of the first time visitors, visited for 5 consecutive days and only 5% of first time visitors visited for 6 consecutive days. No customer availed the 50% discount offer. Also, the customers visited the restaurant again only on consecutive days.

#### Q.41

How many customers were eligible to avail exactly 30% discount till the end of 8th day?

1  72

2  153

3  81

4  66

**Solution:****Correct Answer : 2****Bookmark****Answer key/Solution**

Lets say the number of new people joined on each day from 1 to 8 are as follows:

$$\text{Day 1} - 120 = a$$

$$\text{Day 2} - b$$

$$\text{Day 3} - c$$

$$\text{Day 4} - d$$

$$\text{Day 5} - e$$

$$\text{Day 6} - f$$

$$\text{Day 7} - g$$

$$\text{Day 8} - h$$

On Day 1 – All people who visited the restaurant were new customers.

$$\text{On Day 2} - \text{number of new visitors} = 120 \times \frac{60}{100} + b = 272 \Rightarrow b = 200 \text{ (because 60\% of day 1 customers visit again on day2)}$$

$$\text{On Day 3} - \text{number of new visitors} = 120 \times \frac{30}{100} + 200 \times \frac{60}{100} + c = 396 \Rightarrow c = 240$$

Following the same procedure, for new visitors 2nd, 3rd, 4th, 5th visits, we can calculate as

$$\text{On Day 4} - \text{number of new visitors} = 120 \times \frac{15}{100} + 200 \times \frac{30}{100} + 240 \times \frac{60}{100} + d = 382 \Rightarrow d = 160$$

$$\text{On Day 5} - \text{number of new visitors} = 120 \times \frac{10}{100} + 200 \times \frac{15}{100} + 240 \times \frac{30}{100} + 160 \times \frac{60}{100} + e = 510 \Rightarrow e = 300$$

$$\text{On Day 6} - \text{number of new visitors} = 120 \times \frac{5}{100} + 200 \times \frac{10}{100} + 240 \times \frac{15}{100} + 160 \times \frac{30}{100} + 300 \times \frac{60}{100} + f = 470 \Rightarrow f = 180$$

$$\text{On Day 7} - \text{number of new visitors} = 200 \times \frac{5}{100} + 240 \times \frac{10}{100} + 160 \times \frac{15}{100} + 300 \times \frac{30}{100} + 180 \times \frac{60}{100} + g = 606 \Rightarrow 350$$

$$\text{On Day 8} - \text{number of new visitors} = 240 \times \frac{5}{100} + 160 \times \frac{10}{100} + 300 \times \frac{15}{100} + 180 \times \frac{30}{100} + 350 \times \frac{60}{100} + h = 657 \Rightarrow h = 320$$

	Customers from day							
	1	2	3	4	5	6	7	8
Day 1	120							
Day 2	72	200						
Day 3	36	120	240					
Day 4	18	60	144	160				
Day 5	12	30	72	96	300			
Day 6	6	20	36	48	180	180		
Day 7	0	10	24	24	90	108	350	
Day 8	0	0	12	16	45	54	210	320

People who visit for 4 consecutive days are eligible to get 30% discount on their 4th visit.

So, we need to look for the customers who came for 4 consecutive days.

So, from the above table, required number =  $18 + 30 + 36 + 24 + 45 = 153$

**FeedBack**

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

A new restaurant is opened in a busy market of Delhi. As it was hugely advertised, it attracted a lot of repeated customers from day 2 onwards. Further the owner of the restaurant announced some lucrative offers to attract the repeated customers. So if a customer walked into the restaurant for 4 consecutive days, he will be eligible for 30% discount on every order he places from that day onwards. Further if a customer visited the restaurant for 5 consecutive days, he will be eligible for 35% discount on every order he places from that day onwards. Similarly, 45% discount for the customer visiting for 6 consecutive days and 50% discount for the customer visiting for 7 consecutive days. The maximum discount a customer can receive is 50%. The following table provides the information about the number of customers who visited the restaurant for first 8 days.

Days	People Visited
1st day	120
2nd day	272
3rd day	396
4th day	382
5th day	510
6th day	470
7th day	606
8th day	657

Further it is noted that 60% of the first time visitors of a day, visited the restaurant again on the next day. Also 30% of the first time visitors, visited the restaurant for the third time on 3rd consecutive day. Similarly, 15% of the first time visitors, visited for 4 consecutive days, 10% of the first time visitors, visited for 5 consecutive days and only 5% of first time visitors visited for 6 consecutive days. No customer availed the 50% discount offer. Also, the customers visited the restaurant again only on consecutive days.

#### Q.42

If a customer has visited the restaurant for exactly 5 days, then find the value of the discount (in Rs.) the customer has availed till the end of the 5th day given that the total bill on each day, before discount, is Rs. 3000.

1  900

2  1050

3  1950

4  2150

**Solution:****Correct Answer : 3** **Bookmark** **Answer key/Solution**

Lets say the number of new people joined on each day from 1 to 8 are as follows:

$$\text{Day 1} - 120 = a$$

$$\text{Day 2} - b$$

$$\text{Day 3} - c$$

$$\text{Day 4} - d$$

$$\text{Day 5} - e$$

$$\text{Day 6} - f$$

$$\text{Day 7} - g$$

$$\text{Day 8} - h$$

On Day 1 – All people who visited the restaurant were new customers.

$$\text{On Day 2} - \text{number of new visitors} = 120 \times \frac{60}{100} + b = 272 \Rightarrow b = 200 \text{ (because 60\% of day 1 customers visit again on day2)}$$

$$\text{On Day 3} - \text{number of new visitors} = 120 \times \frac{30}{100} + 200 \times \frac{60}{100} + c = 396 \Rightarrow c = 240$$

Following the same procedure, for new visitors 2nd, 3rd, 4th, 5th visits, we can calculate as

$$\text{On Day 4} - \text{number of new visitors} = 120 \times \frac{15}{100} + 200 \times \frac{30}{100} + 240 \times \frac{60}{100} + d = 382 \Rightarrow d = 160$$

$$\text{On Day 5} - \text{number of new visitors} = 120 \times \frac{10}{100} + 200 \times \frac{15}{100} + 240 \times \frac{30}{100} + 160 \times \frac{60}{100} + e = 510 \Rightarrow e = 300$$

$$\text{On Day 6} - \text{number of new visitors} = 120 \times \frac{5}{100} + 200 \times \frac{10}{100} + 240 \times \frac{15}{100} + 160 \times \frac{30}{100} + 300 \times \frac{60}{100} + f = 470 \Rightarrow f = 180$$

$$\text{On Day 7} - \text{number of new visitors} = 200 \times \frac{5}{100} + 240 \times \frac{10}{100} + 160 \times \frac{15}{100} + 300 \times \frac{30}{100} + 180 \times \frac{60}{100} + g = 606 \Rightarrow 350$$

$$\text{On Day 8} - \text{number of new visitors} = 240 \times \frac{5}{100} + 160 \times \frac{10}{100} + 300 \times \frac{15}{100} + 180 \times \frac{30}{100} + 350 \times \frac{60}{100} + h = 657 \Rightarrow h = 320$$

	Customers from day							
	1	2	3	4	5	6	7	8
Day 1	120							
Day 2	72	200						
Day 3	36	120	240					
Day 4	18	60	144	160				
Day 5	12	30	72	96	300			
Day 6	6	20	36	48	180	180		
Day 7	0	10	24	24	90	108	350	
Day 8	0	0	12	16	45	54	210	320

$$\text{Discount availed by the customer on 4th day} = 3000 \times \frac{30}{100} = 900$$

$$\text{Discount availed on 5th day} = 3000 \times \frac{35}{100} = 1050$$

Therefore, total discount = Rs. 1950

**FeedBack**

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

In the upcoming Diwali festival sale, an online store, Flopkart is organising a sale for its customers. To create an excitement among its customers, Flopkart revealed the sale price of some of its articles but only partially. The partial prices for 1 unit of some of the articles are shown in the table given below:

	TV	Washing Machine	Mobile Phone	Fridge	Oven	Home Theatre
MRP (in Rs.)	24,999	18,999	32,999	43,999	8,999	20,999
Sale Price (in Rs.)	2_,999	1_,99_	_4_,99	3_,99	_9_9	_699

In place of each “\_” there will be a single digit, but no price can start with 0. Also, sale price is always less than the MRP.

#### Q.43

If a person buys one unit of each of the six articles during the festival sale, then what is the maximum possible amount (in Rs.) he needs to pay?

**Solution:**

**Correct Answer : 137683**

 **Bookmark**

 **Answer key/Solution**

The maximum and minimum possible sale price of the given articles can be

	TV	Washing Machine	Mobile Phone	Fridge	Oven	Home Theatre
MRP (in Rs.)	24,999	18,999	32,999	43,999	8,999	20,999
Sale Price (in Rs.)	2_,999	1_,99_	_4_,99	3_,99	_9_9	_699
Maximum	23,999	18,998	24,999	39,999	8,989	20,699
Minimum	20,999	10,990	14,099	30,099	1,909	10,699

1,37,683

Maximum amount paid is  $23,999 + 18,998 + 24,999 + 39,999 + 8,989 + 20,699 = 1,37,683$ .

**FeedBack**

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

In the upcoming Diwali festival sale, an online store, Flopkart is organising a sale for its customers. To create an excitement among its customers, Flopkart revealed the sale price of some of its articles but only partially. The partial prices for 1 unit of some of the articles are shown in the table given below:

	TV	Washing Machine	Mobile Phone	Fridge	Oven	Home Theatre
MRP (in Rs.)	24,999	18,999	32,999	43,999	8,999	20,999
Sale Price (in Rs.)	2_,999	1_,99_	_4_,99	3_,99	_9_9	_699

In place of each “\_” there will be a single digit, but no price can start with 0. Also, sale price is always less than the MRP.

#### Q.44

If a person buys one unit of each of the six articles during the festival sale, then what is the minimum possible amount (in Rs.) he needs to pay?

**Solution:**

**Correct Answer : 88795**

 **Bookmark**

 **Answer key/Solution**

The maximum and minimum possible sale price of the given articles can be

	TV	Washing Machine	Mobile Phone	Fridge	Oven	Home Theatre
MRP (in Rs.)	24,999	18,999	32,999	43,999	8,999	20,999
Sale Price (in Rs.)	2_,999	1_,99_	_4_,99	3_,99	_9_9	_699
Maximum	23,999	18,998	24,999	39,999	8,989	20,699
Minimum	20,999	10,990	14,099	30,099	1,909	10,699

88,795

Minimum amount paid is  $20,999+10,990+14,099+30,099+1,909+10,699 = 88,795$ .

**FeedBack**

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

In the upcoming Diwali festival sale, an online store, Flopkart is organising a sale for its customers. To create an excitement among its customers, Flopkart revealed the sale price of some of its articles but only partially. The partial prices for 1 unit of some of the articles are shown in the table given below:

	TV	Washing Machine	Mobile Phone	Fridge	Oven	Home Theatre
MRP (in Rs.)	24,999	18,999	32,999	43,999	8,999	20,999
Sale Price (in Rs.)	2_,999	1_,99_	_4_,99	3_,99	_9_9	_699

In place of each “\_” there will be a single digit, but no price can start with 0. Also, sale price is always less than the MRP.

#### Q.45

What can be the maximum difference (in Rs.) between the maximum possible and the minimum possible sale price of an article?

- 1  8008
- 2  10,900
- 3  9,900
- 4  10,000

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

The maximum and minimum possible sale price of the given articles can be

	TV	Washing Machine	Mobile Phone	Fridge	Oven	Home Theatre
MRP (in Rs.)	24,999	18,999	32,999	43,999	8,999	20,999
Sale Price (in Rs.)	2_,999	1_,99_	_4_,99	3_,99	_9_9	_699
Maximum	23,999	18,998	24,999	39,999	8,989	20,699
Minimum	20,999	10,990	14,099	30,099	1,909	10,699

The difference between maximum possible and minimum possible price of different articles is TV (3,000), Washing Machine (8,008), Mobile Phone (10,900), Fridge (9,900), Oven (7,080) and Home Theatre (10,000).

**FeedBack**

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

In the upcoming Diwali festival sale, an online store, Flopkart is organising a sale for its customers. To create an excitement among its customers, Flopkart revealed the sale price of some of its articles but only partially. The partial prices for 1 unit of some of the articles are shown in the table given below:

	TV	Washing Machine	Mobile Phone	Fridge	Oven	Home Theatre
MRP (in Rs.)	24,999	18,999	32,999	43,999	8,999	20,999
Sale Price (in Rs.)	2_,999	1_,99_	_4_,99	3_,99	_9_9	_699

In place of each “\_” there will be a single digit, but no price can start with 0. Also, sale price is always less than the MRP.

#### Q.46

The approximate percentage discount on any article, during the festival sale, is not more than

- 1  31.6%
- 2  49.1%
- 3  57.3%
- 4  78.8%

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

The maximum and minimum possible sale price of the given articles can be

	TV	Washing Machine	Mobile Phone	Fridge	Oven	Home Theatre
MRP (in Rs.)	24,999	18,999	32,999	43,999	8,999	20,999
Sale Price (in Rs.)	2_,999	1_,99_	_4_,99	3_,99	_9_9	_699
Maximum	23,999	18,998	24,999	39,999	8,989	20,699
Minimum	20,999	10,990	14,099	30,099	1,909	10,699

The maximum percentage discount is possible in case of Oven i.e.  $\frac{8999 - 1909}{8999} \times 100 = 78.8\%$ .

**FeedBack**

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

In a word square logic puzzle, Deepak formed a grid of 6 rows and 6 columns and started placing the letters of the word 'FIRST' in the format such that each letter occur only once in each row and each column. Also one of the places in each row in the grid should remain empty.

Deepak filled the letters of the word 'FIRST' subject to the following conditions:-

1. R occupies the maximum three positions out of the main diagonal positions and the last position in the 6th column was empty.
2. F is at the first position in column 1 and R is at the last position in 4th column.
3. I is immediately below R in column 1.
4. R is immediately above S and below S in column 2 and in column3 respectively.
5. F and T are at 5th and 6th positions in 2nd row.
6. S and R are adjacent to each other in 2nd row.
7. T is at the top and last positions in 4th and 5th column respectively.
8. S is not at 4th position in 5th row.
9. The third position in 5th column is empty.

#### Q.47

If T occupies the second position in 5th row, then find the position of 'I' in the third column.

1  1st

2  5th

3  6th

4  4th

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

By statement 1, last position in 6<sup>th</sup> column was empty.

By statement 2, F is at first position in column 1 and R is at the last position in 4<sup>th</sup> column.

Columns →	1	2	3	4	5	6
Rows ↓	1	F				
	2					
	3					
	4					
	5					
	6			R		X

X → Empty

By statement 1, R occupies 3 positions in main diagonal, and it is observed in above diagram that exactly three positions are left i.e., 2<sup>nd</sup> position in 2<sup>nd</sup> column, 3<sup>rd</sup> positions in 3<sup>rd</sup> column and 5<sup>th</sup> position in 5<sup>th</sup> column, since 4<sup>th</sup> column has R at last position. By statement 4, R is immediately above S in column 2 i.e., S in 3<sup>rd</sup> position of 2<sup>nd</sup> column and R is immediately below S in column 3 i.e., S is in 2<sup>nd</sup> position of 3<sup>rd</sup> column. Also fill the other positions accordingly.

	1	2	3	4	5	6
1	F					R
2		R	S			
3		S	R			
4	R					
5					R	
6			R		X	

By statement 3, I is immediately below R in column 1, i.e. I is in 5<sup>th</sup> position of column 1.

By statement 7, T is at the top and last positions in 4<sup>th</sup> and 5<sup>th</sup> column respectively and by statement 9, the 3<sup>rd</sup> position in 5<sup>th</sup> column is empty.

	1	2	3	4	5	6
1	F			T	S	R
2		R	S			
3		S	R		X	
4	R					
5	I				R	
6	S		R	T	X	

By statement 5, F and T are at 5<sup>th</sup> and 6<sup>th</sup> position in 2<sup>nd</sup> row respectively.

By statement 8, S is not at 4<sup>th</sup> position in 5<sup>th</sup> row therefore, S is at 4<sup>th</sup> position in 4<sup>th</sup> row.

	1	2	3	4	5	6
1	F			T	S	R
2	X	R	S	I	F	T
3	T	S	R	F	X	I
4	R			S	I	F
5	I			X	R	S
6	S		R	T	X	

If T occupies the second position in 5<sup>th</sup> row then the table will look like:

	1	2	3	4	5	6
1	F	I	X	T	S	R
2	X	R	S	I	F	T
3	T	S	R	F	X	I
4	R	X	T	S	I	F
5	I	T	F	X	R	S
6	S	F	(I)	R	T	X

The position of 'I' in the third column will be 6<sup>th</sup>.

FeedBack

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

In a word square logic puzzle, Deepak formed a grid of 6 rows and 6 columns and started placing the letters of the word 'FIRST' in the format such that each letter occur only once in each row and each column. Also one of the places in each row in the grid should remain empty.

Deepak filled the letters of the word 'FIRST' subject to the following conditions:-

1. R occupies the maximum three positions out of the main diagonal positions and the last position in the 6th column was empty.
2. F is at the first position in column 1 and R is at the last position in 4th column.
3. I is immediately below R in column 1.
4. R is immediately above S and below S in column 2 and in column3 respectively.
5. F and T are at 5th and 6th positions in 2nd row.
6. S and R are adjacent to each other in 2nd row.
7. T is at the top and last positions in 4th and 5th column respectively.
8. S is not at 4th position in 5th row.
9. The third position in 5th column is empty.

#### Q.48

If one of the empty grids is at 4th positions in the second column, then find the position of empty grid in 2nd row.

1  1st

2  2nd

3  3rd

4  4th

**Solution:**

**Correct Answer : 1**

 **Bookmark**

 **Answer key/Solution**

By statement 1, last position in 6<sup>th</sup> column was empty.

By statement 2, F is at first position in column 1 and R is at the last position in 4<sup>th</sup> column.

Columns →	1	2	3	4	5	6
Rows ↓	1	F				
	2					
	3					
	4					
	5					
	6			R		X

X → Empty

By statement 1, R occupies 3 positions in main diagonal, and it is observed in above diagram that exactly three positions are

left i.e., 2<sup>nd</sup> position in 2<sup>nd</sup> column, 3<sup>rd</sup> positions in 3<sup>rd</sup> column and 5<sup>th</sup> position in 5<sup>th</sup> column, since 4<sup>th</sup> column has R at last position. By statement 4, R is immediately above S in column 2 i.e., S in 3<sup>rd</sup> position of 2<sup>nd</sup> column and R is immediately below S in column 3 i.e., S is in 2<sup>nd</sup> position of 3<sup>rd</sup> column. Also fill the other positions accordingly.

	1	2	3	4	5	6
1	F					R
2		R	S			
3		S	R			
4	R					
5					R	
6			R		X	

By statement 3, I is immediately below R in column 1, i.e. I is in 5<sup>th</sup> position of column 1.

By statement 7, T is at the top and last positions in 4<sup>th</sup> and 5<sup>th</sup> column respectively and by statement 9, the 3<sup>rd</sup> position in 5<sup>th</sup> column is empty.

	1	2	3	4	5	6
1	F			T	S	R
2		R	S			
3		S	R		X	
4	R					
5	I				R	
6	S			R	T	X

By statement 5, F and T are at 5<sup>th</sup> and 6<sup>th</sup> position in 2<sup>nd</sup> row respectively.

By statement 8, S is not at 4<sup>th</sup> position in 5<sup>th</sup> row therefore, S is at 4<sup>th</sup> position in 4<sup>th</sup> row.

	1	2	3	4	5	6
1	F			T	S	R
2	X	R	S	I	F	T
3	T	S	R	F	X	I
4	R			S	I	F
5	I			X	R	S
6	S			R	T	X

If one of the empty grids is at 4<sup>th</sup> position in second column,

	1	2	3	4	5	6
1	F	I	X	T	S	R
2	X	R	S	I	F	T
3	T	S	R	F	X	I
4	R	X	T	S	I	F
5	I	T	F	X	R	S
6	S	F	(I)	R	T	X

then position of empty grid in 2<sup>nd</sup> row is 1<sup>st</sup>.

[FeedBack](#)

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

In a word square logic puzzle, Deepak formed a grid of 6 rows and 6 columns and started placing the letters of the word 'FIRST' in the format such that each letter occur only once in each row and each column. Also one of the places in each row in the grid should remain empty.

Deepak filled the letters of the word 'FIRST' subject to the following conditions:-

1. R occupies the maximum three positions out of the main diagonal positions and the last position in the 6th column was empty.
2. F is at the first position in column 1 and R is at the last position in 4th column.
3. I is immediately below R in column 1.
4. R is immediately above S and below S in column 2 and in column3 respectively.
5. F and T are at 5th and 6th positions in 2nd row.
6. S and R are adjacent to each other in 2nd row.
7. T is at the top and last positions in 4th and 5th column respectively.
8. S is not at 4th position in 5th row.
9. The third position in 5th column is empty.

#### Q.49

If I occupies the first position in the third column, then which letter will be at the position of 6th row and 2nd column?

1  I

2  T

3  R

4  S

**Solution:**

**Correct Answer : 1**

 [Bookmark](#)

 [Answer key/Solution](#)

By statement 1, last position in 6<sup>th</sup> column was empty.

By statement 2, F is at first position in column 1 and R is at the last position in 4<sup>th</sup> column.

Columns →	1	2	3	4	5	6
Rows ↓	1	F				
	2					
	3					
	4					
						X → Empty

o					
6			R		X

By statement 1, R occupies 3 positions in main diagonal, and it is observed in above diagram that exactly three positions are left i.e., 2<sup>nd</sup> position in 2<sup>nd</sup> column, 3<sup>rd</sup> positions in 3<sup>rd</sup> column and 5<sup>th</sup> position in 5<sup>th</sup> column, since 4<sup>th</sup> column has R at last position. By statement 4, R is immediately above S in column 2 i.e., S in 3<sup>rd</sup> position of 2<sup>nd</sup> column and R is immediately below S in column 3 i.e., S is in 2<sup>nd</sup> position of 3<sup>rd</sup> column. Also fill the other positions accordingly.

	1	2	3	4	5	6
1	F					R
2		R	S			
3		S	R			
4	R					
5					R	
6				R		X

By statement 3, I is immediately below R in column 1, i.e. I is in 5<sup>th</sup> position of column 1.

By statement 7, T is at the top and last positions in 4<sup>th</sup> and 5<sup>th</sup> column respectively and by statement 9, the 3<sup>rd</sup> position in 5<sup>th</sup> column is empty.

	1	2	3	4	5	6
1	F			T	S	R
2		R	S			
3		S	R		X	
4	R					
5	I				R	
6	S			R	T	X

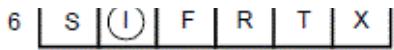
By statement 5, F and T are at 5<sup>th</sup> and 6<sup>th</sup> position in 2<sup>nd</sup> row respectively.

By statement 8, S is not at 4<sup>th</sup> position in 5<sup>th</sup> row therefore, S is at 4<sup>th</sup> position in 4<sup>th</sup> row.

	1	2	3	4	5	6
1	F			T	S	R
2	X	R	S	I	F	T
3	T	S	R	F	X	I
4	R			S	I	F
5	I			X	R	S
6	S			R	T	X

If I occupies the first position in third column, then

	1	2	3	4	5	6
1	F	X	I	T	S	R
2	X	R	S	I	F	T
3	T	S	R	F	X	I
4	R	T	X	S	I	F
5	I	F	T	X	R	S



I will be at the position of 6<sup>th</sup> and 2<sup>nd</sup> column.

**FeedBack**

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

In a word square logic puzzle, Deepak formed a grid of 6 rows and 6 columns and started placing the letters of the word 'FIRST' in the format such that each letter occur only once in each row and each column. Also one of the places in each row in the grid should remain empty.

Deepak filled the letters of the word 'FIRST' subject to the following conditions:-

1. R occupies the maximum three positions out of the main diagonal positions and the last position in the 6th column was empty.
2. F is at the first position in column 1 and R is at the last position in 4th column.
3. I is immediately below R in column 1.
4. R is immediately above S and below S in column 2 and in column3 respectively.
5. F and T are at 5th and 6th positions in 2nd row.
6. S and R are adjacent to each other in 2nd row.
7. T is at the top and last positions in 4th and 5th column respectively.
8. S is not at 4th position in 5th row.
9. The third position in 5th column is empty.

#### Q.50

Which letter will occupy the position in 2nd row and 4th column?

1  R

2  S

3  I

4  Empty grid.

**Solution:**

**Correct Answer : 3**

**Bookmark**

**Answer key/Solution**

By statement 1, last position in 6<sup>th</sup> column was empty.

By statement 2, F is at first position in column 1 and R is at the last position in 4<sup>th</sup> column.

Columns →	1	2	3	4	5	6
Rows ↓	1	F				
	2					
	3					
	.					

X → Empty

			R		X

By statement 1, R occupies 3 positions in main diagonal, and it is observed in above diagram that exactly three positions are left i.e., 2<sup>nd</sup> position in 2<sup>nd</sup> column, 3<sup>rd</sup> positions in 3<sup>rd</sup> column and 5<sup>th</sup> position in 5<sup>th</sup> column, since 4<sup>th</sup> column has R at last position. By statement 4, R is immediately above S in column 2 i.e., S in 3<sup>rd</sup> position of 2<sup>nd</sup> column and R is immediately below S in column 3 i.e., S is in 2<sup>nd</sup> position of 3<sup>rd</sup> column. Also fill the other positions accordingly.

	1	2	3	4	5	6
1	F					R
2		R	S			
3		S	R			
4	R					
5					R	
6				R		X

By statement 3, I is immediately below R in column 1, i.e. I is in 5<sup>th</sup> position of column 1.

By statement 7, T is at the top and last positions in 4<sup>th</sup> and 5<sup>th</sup> column respectively and by statement 9, the 3<sup>rd</sup> position in 5<sup>th</sup> column is empty.

	1	2	3	4	5	6
1	F			T	S	R
2		R	S			
3		S	R		X	
4	R					
5	I				R	
6	S			R	T	X

By statement 5, F and T are at 5<sup>th</sup> and 6<sup>th</sup> position in 2<sup>nd</sup> row respectively.

By statement 8, S is not at 4<sup>th</sup> position in 5<sup>th</sup> row therefore, S is at 4<sup>th</sup> position in 4<sup>th</sup> row.

	1	2	3	4	5	6
1	F			T	S	R
2	X	R	S	I	F	T
3	T	S	R	F	X	I
4	R			S	I	F
5	I			X	R	S
6	S			R	T	X

I will occupy the position in 2<sup>nd</sup> row and 4<sup>th</sup> column.

FeedBack

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

**Ten friends, A through J, sit on 11 chairs arranged in a line such that:**

- (i) They all face in the same direction.
- (ii) Exactly 5 persons sit between B and F and exactly 4 chairs are there between H and E.
- (iii) Exactly 4 chairs are there between H and G.
- (iv) The empty chair lies somewhere on the right hand side of D who happens to be the fourth person towards the right hand side of I.
- (v) J sits on the right of both G and F, and he is the only person who sits in between H and D.

**Q.51**

**How many of the friends sit on the left hand side of F?**

1  1

2  2

3  3

4  4

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

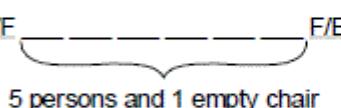
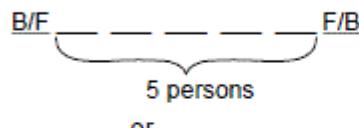
By statement (i), they all face in the same direction in particular take North direction.

By statement (ii), and (iii), H sits in the middle.

G/E \_ \_ \_ H \_ \_ E/G

and by statement (ii), 5 persons sit between B and F.

Case I:



By statement (v), J sits on the right of both G and F therefore, G is on the left extreme end.

By statement (v), J sits between H and D.

G \_ \_ D \_ H \_ D \_ \_ E

Case I:

If D sits on left hand side of H.

G \_ \_ **D** J H \_ \_ \_ E

Not possible since D is fourth person towards right hand side of I.

Case II:

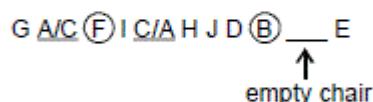
If D sits on right hand side of H.

G \_ \_ \_ H J **D** \_ \_ E

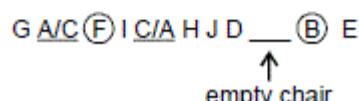
Since, J sits on the right of G and F and exactly 5 persons sit between B and F, therefore,

G \_ \_ I \_ H J **D** \_ \_ E

Subcase I:



Subcase II:



**2 friends sit on the left hand side of F.**

FeedBack

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

**Ten friends, A through J, sit on 11 chairs arranged in a line such that:**

(i) They all face in the same direction.

(ii) Exactly 5 persons sit between B and F and exactly 4 chairs are there between H and E.

(iii) Exactly 4 chairs are there between H and G.

(iv) The empty chair lies somewhere on the right hand side of D who happens to be the fourth person towards the right hand side of I.

(v) J sits on the right of both G and F, and he is the only person who sits in between H and D.

**Q.52**

**Who among the following can never sit on a chair adjacent to C's chair?**

1  D2  F3  G4  H**Solution:****Correct Answer : 1** **Bookmark** **Answer key/Solution**

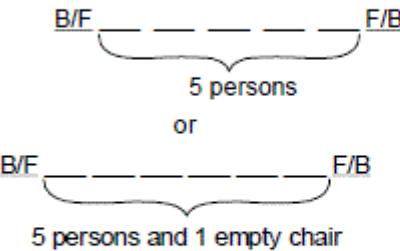
By statement (i), they all face in the same direction in particular take North direction.

By statement (ii), and (iii), H sits in the middle.

G/E \_\_\_\_ H \_\_\_\_ E/G

and by statement (ii), 5 persons sit between B and F.

**Case I:**



By statement (v), J sits on the right of both G and F therefore, G is on the left extreme end.

By statement (v), J sits between H and D.

G \_\_\_\_ D \_\_\_\_ H \_\_\_\_ D \_\_\_\_ E

**Case I:**

If D sits on left hand side of H.

G \_\_\_\_ D J H \_\_\_\_ \_\_\_\_ E

Not possible since D is fourth person towards right hand side of I.

**Case II:**

If D sits on right hand side of H.

G \_\_\_\_ \_\_\_\_ H J D \_\_\_\_ E

Since, J sits on the right of G and F and exactly 5 persons sit between B and F, therefore,

G \_\_\_\_ I \_\_\_\_ H J D \_\_\_\_ E

**Subcase I:**

G A/C F I C/A H J D B \_\_\_\_ E  
↑  
empty chair

**Subcase II:**

G A/C F I C/A H J D \_\_\_\_ B E  
↑  
empty chair

**D can never sit on a chair adjacent to C's chair.**

**FeedBack**

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

Ten friends, A through J, sit on 11 chairs arranged in a line such that:

- (i) They all face in the same direction.
- (ii) Exactly 5 persons sit between B and F and exactly 4 chairs are there between H and E.
- (iii) Exactly 4 chairs are there between H and G.
- (iv) The empty chair lies somewhere on the right hand side of D who happens to be the fourth person towards the right hand side of I.
- (v) J sits on the right of both G and F, and he is the only person who sits in between H and D.

**Q.53**

If G and H exchange their places then at most how many chairs can be there in between H and B?

1  4

2  6

3  7

4  8

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

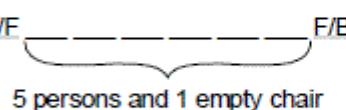
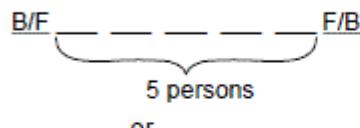
By statement (i), they all face in the same direction in particular take North direction.

By statement (ii), and (iii), H sits in the middle.

G/E        H        E/G

and by statement (ii), 5 persons sit between B and F.

Case I:



By statement (v), J sits on the right of both G and F therefore, G is on the left extreme end.

By statement (v), J sits between H and D.

G        D        H        D        E

Case I:

If D sits on left hand side of H.

G        D        J        H        D        E

Not possible since D is fourth person towards right hand side of I.

Case II:

If D sits on right hand side of H.

G        D        H        J        D        E

Since, J sits on the right of G and F and exactly 5 persons sit between B and F, therefore,

G        I        H        J        D        E

Subcase I:

G A/C F I C/A H J D B E  
↑  
empty chair

Subcase II:

G A/C F I C/A H J D B E  
↑  
empty chair

4 chairs.

FeedBack

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

**Ten friends, A through J, sit on 11 chairs arranged in a line such that:**

- (i) They all face in the same direction.
- (ii) Exactly 5 persons sit between B and F and exactly 4 chairs are there between H and E.
- (iii) Exactly 4 chairs are there between H and G.
- (iv) The empty chair lies somewhere on the right hand side of D who happens to be the fourth person towards the right hand side of I.
- (v) J sits on the right of both G and F, and he is the only person who sits in between H and D.

**Q.54**

If exactly 6 chairs happen to be there in between C and B then who among the following is an immediate neighbour of A?

1  G

2  F

3  I

4  B

**Solution:****Correct Answer : 3****Bookmark****Answer key/Solution**

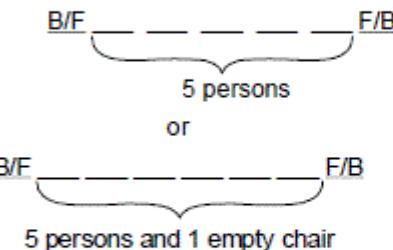
By statement (i), they all face in the same direction in particular take North direction.

By statement (ii), and (iii), H sits in the middle.

G/E \_\_\_\_\_ H \_\_\_\_\_ E/G

and by statement (ii), 5 persons sit between B and F.

**Case I:**



By statement (v), J sits on the right of both G and F therefore, G is on the left extreme end.

By statement (v), J sits between H and D.

G \_\_\_ D \_\_\_ H \_\_\_ D \_\_\_ E

**Case I:**

If D sits on left hand side of H.

G \_\_\_ D J H \_\_\_ \_\_\_ E

Not possible since D is fourth person towards right hand side of I.

**Case II:**

If D sits on right hand side of H.

G \_\_\_ \_\_\_ H J D \_\_\_ E

Since, J sits on the right of G and F and exactly 5 persons sit between B and F, therefore,

G \_\_\_ I \_\_\_ H J D \_\_\_ E

**Subcase I:**

G A/C F I C/A H J D B \_\_\_ E  
↑  
empty chair

**Subcase II:**

G A/C F I C/A H J D \_\_\_ B E  
↑  
empty chair

I will be an immediate neighbour of A.

**FeedBack**

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

ABC Ltd. has 5 departments - Finance, Marketing, Human Resources, Operations and Supply chain. The number of employees in these 5 departments on 1 April 2013 was 80, 60, 20, 40 and 50 respectively. In each of the years 2013, 2014, 2015 and 2016, the number of employees in each of these 5 departments increased or decreased by maximum 20 (there is a possibility of no change too). The number of employees in any year in any department is a multiple of 10 always. The total number of employees in each of the departments on 1 April 2017 was 120, 60, 60, 10 and 110 respectively. Assume that all employees who leave or join the company, do so on 31 December only and in each department, the number of employees increased in at least one of the given years.

All the given questions pertain to these 5 departments in these 4 years only.

#### Q.55

**What can be the maximum possible average of the number of employees in each department on 1 April, 2015?**

**Solution:**

**Correct Answer : 84**

 **Bookmark**

 **Answer key/Solution**

In Finance department, the number of employees increased by 40 from 30, December 2013 to 30, December 2016. Hence, the changes in the given years can be (+20, +20, 0, 0), (+20, +20, -20, +20), (+20, +20, -10, +10), or (+10, +10, +10, +10) in any order.

Similarly, in Marketing department, the number of employees remained same from December 2013 to December 2016. Hence the changes in the given years can be (+20, -10, -10, 0), (+20, +20, -20, +20), (+10, +10, -10, -10), (+10, +10, -20, 0), (+20, -20, 0, 0), (+10, -10, 0, 0) or (+10, -10, -20, +20) in any order. The change of (0, 0, 0, 0) is not possible as one of them must be an increase.

In HR department, the number of employees increased by 40 so the changes can be (+20, +20, 0, 0), (+20, +20, -20, +20), (+20, +20, -10, +10), or (+10, +10, +10, +10).

In operations department, the number of employees decreased by 30 so the changes can be (-20, 0, -10, 0), (-10, -10, -10, 0) or (+10, 0, -20, -20) only.

In Supply chain department, the number of employees increased by 60 so the possible change are (+20, +20, +20, 0) or (10, 10, 20, 20).

Total employees in 2013 is 250. Maximum possible in the next two years in the given departments is: Finance: +40, Marketing: +40, HR: +40, Operations: +10, Supply chain: +40.

$$\text{So maximum average in 2015} = \frac{250 + 40 + 40 + 40 + 10 + 40}{5} = 84.$$

**FeedBack**

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

ABC Ltd. has 5 departments - Finance, Marketing, Human Resources, Operations and Supply chain. The number of employees in these 5 departments on 1 April 2013 was 80, 60, 20, 40 and 50 respectively. In each of the years 2013, 2014, 2015 and 2016, the number of employees in each of these 5 departments increased or decreased by maximum 20 (there is a possibility of no change too). The number of employees in any year in any department is a multiple of 10 always. The total number of employees in each of the departments on 1 April 2017 was 120, 60, 60, 10 and 110 respectively. Assume that all employees who leave or join the company, do so on 31 December only and in each department, the number of employees increased in at least one of the given years.

All the given questions pertain to these 5 departments in these 4 years only.

#### Q.56

**What can be the minimum number of employees on 1 April, 2014?**

**Solution:**

**Correct Answer : 170**

 **Bookmark**

 **Answer key/Solution**

In Finance department, the number of employees increased by 40 from 30, december 2013 to 30, december 2016. Hence, the changes in the given years can be (+20, +20, 0, 0), (+20, +20, -20, +20), (+20, +20, -10, +10), or (+10, +10, +10, +10) in any order.

Similarly, in Marketing department, the number of employees remained same from decmeber, 2013 to december 2016. Hence the changes in the given years can be (+20, -10, -10, 0), (+20, +20, -20, +20), (+10, +10, -10, -10), (+10, +10, -20, 0), (+20, -20, 0, 0), (+10, -10, 0, 0) or (+10, -10, -20, +20) in any order. The change of (0, 0, 0, 0) is not possible as one of them must be an increase.

In HR department, the number of employees increased by 40 so the changes can be (+20, +20, 0, 0), (+20, +20, -20, +20), (+20, +20, -10, +10), or (+10, +10, +10, +10).

In operations department, the number of employees decreased by 30 so the changes can be (-20, 0, -10, 0), (-10, -10, -10, 0) or (+10, 0, -20, -20) only.

In Supply chain department, the number of employees increased by 60 so the possible change are (+20, +20, +20, 0) or (10, 10, 20, 20).

Minimum number of employees in 2014:  $250 - 20 - 20 - 20 - 20 + 0 = 170$ .

**FeedBack**

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

ABC Ltd. has 5 departments - Finance, Marketing, Human Resources, Operations and Supply chain. The number of employees in these 5 departments on 1 April 2013 was 80, 60, 20, 40 and 50 respectively. In each of the years 2013, 2014, 2015 and 2016, the number of employees in each of these 5 departments increased or decreased by maximum 20 (there is a possibility of no change too). The number of employees in any year in any department is a multiple of 10 always. The total number of employees in each of the departments on 1 April 2017 was 120, 60, 60, 10 and 110 respectively. Assume that all employees who leave or join the company, do so on 31 December only and in each department, the number of employees increased in at least one of the given years.

All the given questions pertain to these 5 departments in these 4 years only.

#### Q.57

The maximum number of employees left from which of the 5 departments from 1 April, 2013 to 1 April, 2015?

1  Marketing

2  HR

3  Either (1) or (2)

4  Cannot be determined

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

In Finance department, the number of employees increased by 40 from 30, december 2013 to 30, december 2016. Hence, the changes in the given years can be (+20, +20, 0, 0), (+20, +20, -20, +20), (+20, +20, -10, +10), or (+10, +10, +10, +10) in any order.

Similarly, in Marketing department, the number of employees remained same from decmeber, 2013 to december 2016. Hence the changes in the given years can be (+20, -10, -10, 0), (+20, +20, -20, +20), (+10, +10, -10, -10), (+10, +10, -20, 0), (+20, -20, 0, 0), (+10, -10, 0, 0) or (+10, -10, -20, +20) in any order. The change of (0, 0, 0, 0) is not possible as one of them must be an increase.

In HR department, the number of employees increased by 40 so the changes can be (+20, +20, 0, 0), (+20, +20, -20, +20), (+20, +20, -10, +10), or (+10, +10, +10, +10).

In operations department, the number of employees decreased by 30 so the changes can be (-20, 0, -10, 0), (-10, -10, -10, 0) or (+10, 0, -20, -20) only.

In Supply chain department, the number of employees increased by 60 so the possible change are (+20, +20, +20, 0) or (10, 10, 20, 20).

We just know the number of employees increased in a department i.e. number of employees joined – number of employees left. So, it cannot be determined how many people left.

**FeedBack**

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

ABC Ltd. has 5 departments - Finance, Marketing, Human Resources, Operations and Supply chain. The number of employees in these 5 departments on 1 April 2013 was 80, 60, 20, 40 and 50 respectively. In each of the years 2013, 2014, 2015 and 2016, the number of employees in each of these 5 departments increased or decreased by maximum 20 (there is a possibility of no change too). The number of employees in any year in any department is a multiple of 10 always. The total number of employees in each of the departments on 1 April 2017 was 120, 60, 60, 10 and 110 respectively. Assume that all employees who leave or join the company, do so on 31 December only and in each department, the number of employees increased in at least one of the given years.

All the given questions pertain to these 5 departments in these 4 years only.

#### Q.58

**What is the difference between the maximum and minimum average number of employees on 1 April, 2015?**

**Solution:**

**Correct Answer : 46**

 **Bookmark**

 **Answer key/Solution**

In Finance department, the number of employees increased by 40 from 30, December 2013 to 30, December 2016. Hence, the changes in the given years can be (+20, +20, 0, 0), (+20, +20, -20, +20), (+20, +20, -10, +10), or (+10, +10, +10, +10) in any order.

Similarly, in Marketing department, the number of employees remained same from December 2013 to December 2016. Hence the changes in the given years can be (+20, -10, -10, 0), (+20, +20, -20, +20), (+10, +10, -10, -10), (+10, +10, -20, 0), (+20, -20, 0, 0), (+10, -10, 0, 0) or (+10, -10, -20, +20) in any order. The change of (0, 0, 0, 0) is not possible as one of them must be an increase.

In HR department, the number of employees increased by 40 so the changes can be (+20, +20, 0, 0), (+20, +20, -20, +20), (+20, +20, -10, +10), or (+10, +10, +10, +10).

In operations department, the number of employees decreased by 30 so the changes can be (-20, 0, -10, 0), (-10, -10, -10, 0) or (+10, 0, -20, -20) only.

In Supply chain department, the number of employees increased by 60 so the possible change are (+20, +20, +20, 0) or (10, 10, 20, 20).

Maximum average in 2015 is 84 (as calculated in previous questions)

Similarly, Minimum average in 2015 is  $\frac{250 + 0 - 40 + 0 - 40 + 20}{5} = 38$ .

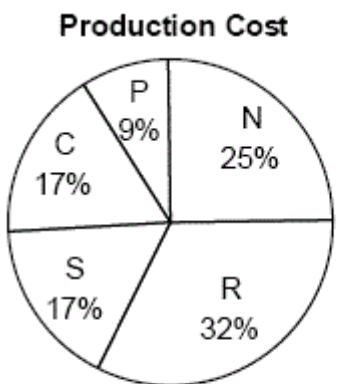
Difference in the averages is  $84 - 38 = 46$ .

**FeedBack**

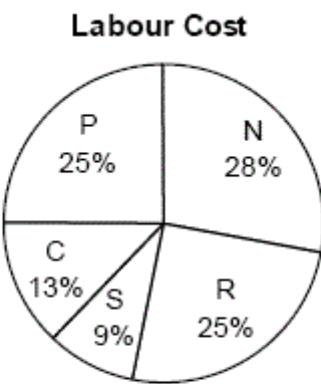
**Directions for questions 59 to 62:** Answer the questions on the basis of the information given below.

Launcher motors is an automobile company which has 5 plants, located one each at SDA, Pitampura, North Campus, Connaught Place and Rajouri Garden. The total cost incurred at each of the 5 plants in any year can be divided into 3 components – production cost, labour cost and operation cost the first pie chart given below provides the production cost of each plant as a percentage of the total production cost of the 5 plants, for the year 2010. While the 2nd and the 3rd pie charts provide similar percentage break-ups for the labour cost and the operation cost respectively for 2010.

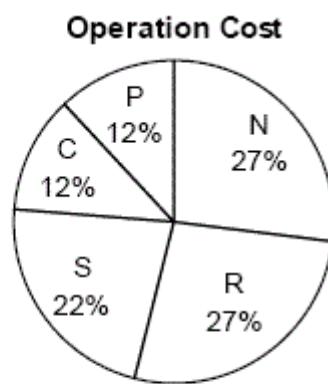
All the questions that follow are related to the costs of the 5 plants in the year 2010.



S → SDA Plant  
N → North Campus Plant  
R → Rajouri Garden Plant



P → Pitampura Plant  
C → Connaught Place Plant



**Additional information for questions 59 and 60:** The total cost was the same for exactly 3 of the 5 plants during 2010.

**Q.59**

For which of the following cost is the sum of that cost of all the 5 plants least?

1  Production cost

2  Labour cost

3  Operation cost

4  Cannot be determined

**Solution:****Correct Answer : 3****Bookmark****Answer key/Solution**

Let total production cost, total labour cost and total operation cost of all the 5 plants be  $100x$ ,  $100y$  and  $100z$  respectively.

Plant	Production cost	Labour cost	Operation cost
N	$25x$	$28y$	$27z$
R	$32x$	$25y$	$27z$
S	$17x$	$9y$	$22z$
C	$17x$	$13y$	$12z$
P	$9x$	$25y$	$12z$

If the total cost of 3 Plants were same, than those 3 plants could be SDA, Pitampura and Connaught

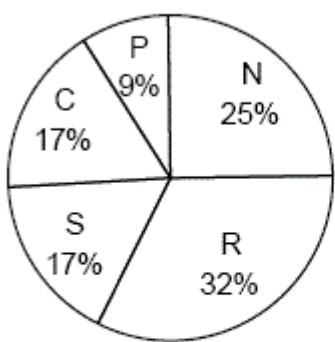
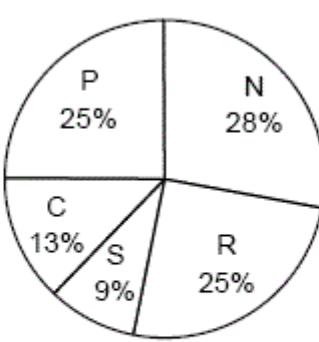
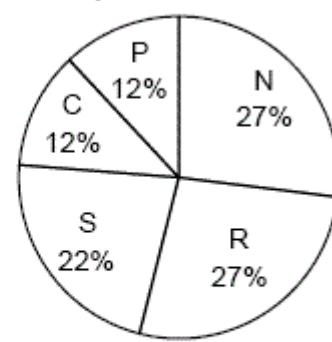
Place Equating the total cost of the 3 plants, we get  $x : y : z = 15 : 10 : 4$ .

**FeedBack**

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

Launcher motors is an automobile company which has 5 plants, located one each at SDA, Pitampura, North Campus, Connaught Place and Rajouri Garden. The total cost incurred at each of the 5 plants in any year can be divided into 3 components – production cost, labour cost and operation cost the first pie chart given below provides the production cost of each plant as a percentage of the total production cost of the 5 plants, for the year 2010. While the 2nd and the 3rd pie charts provide similar percentage break-ups for the labour cost and the operation cost respectively for 2010.

All the questions that follow are related to the costs of the 5 plants in the year 2010.

**Production Cost****Labour Cost****Operation Cost**

S → SDA Plant

N → North Campus Plant

R → Rajouri Garden Plant

P → Pitampura Plant

C → Connaught Place Plant

**Additional information for questions 59 and 60: The total cost was the same for exactly 3 of the 5 plants during 2010.**

**Q.60**

**How many of the 5 plants have a production cost that is lesser than the operation cost of North Campus Plant?**

1  1

2  3

3  0

4  Cannot be determined

**Solution:**

**Correct Answer : 3**

 **Bookmark**

 **Answer key/Solution**

Let total production cost, total labour cost and total operation cost of all the 5 plants be  $100x$ ,  $100y$  and  $100z$  respectively.

Plant	Production cost	Labour cost	Operation cost
N	$25x$	$28y$	$27z$
R	$32x$	$25y$	$27z$
S	$17x$	$9y$	$22z$
C	$17x$	$13y$	$12z$
P	$9x$	$25y$	$12z$

If the total cost of 3 Plants were same, than those 3 plants could be SDA, Pitampura and Connaught

Place Equating the total cost of the 3 plants, we get  $x : y : z = 15 : 10 : 4$ .

Taking  $x = 15$  and  $z = 4$

operation cost of North Campus Plant

$\Rightarrow 27 \times 4 = 108$

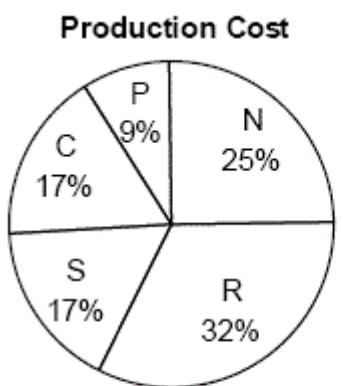
Minimum production cost is of Pitampura Plant, which is ( $\Rightarrow 9 \times 15 = 135$ ) more than the operation cost of North Campus Plant

**FeedBack**

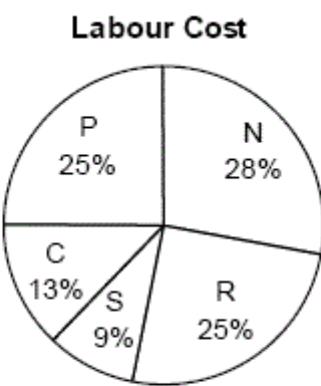
**Directions for questions 59 to 62:** Answer the questions on the basis of the information given below.

Launcher motors is an automobile company which has 5 plants, located one each at SDA, Pitampura, North Campus, Connaught Place and Rajouri Garden. The total cost incurred at each of the 5 plants in any year can be divided into 3 components – production cost, labour cost and operation cost. The first pie chart given below provides the production cost of each plant as a percentage of the total production cost of the 5 plants, for the year 2010. While the 2nd and the 3rd pie charts provide similar percentage break-ups for the labour cost and the operation cost respectively for 2010.

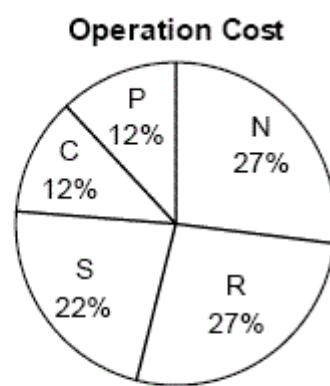
All the questions that follow are related to the costs of the 5 plants in the year 2010.



S → SDA Plant  
N → North Campus Plant  
R → Rajouri Garden Plant



P → Pitampura Plant  
C → Connaught Place Plant



**Additional information for questions 61 and 62:** The total cost for SDA plant is not same as the total cost for Pitampura Plant. There are exactly 2 pairs of plant with equal total cost such that the total cost of one pair is not as the total cost of the other pair.

### Q.61

Which of the following is definitely true?

- (i) The sum of the labour cost of the 5 plants is more than twice the sum of the production cost of the 5 plants.
- (ii) Of the 3 components of the total cost, the operation cost for the SDA plant is greater than its labour cost.
- (iii) Of the 3 components of the total cost, the contribution of the labour cost to the total cost is not the highest, as far as Connaught Place Plant is concerned.

1  Only (i)

2  Both (i) and (ii)

3  Only (iii)

4  None of these

**Solution:****Correct Answer : 1** **Bookmark** **Answer key/Solution**

Let total production cost, total labour cost and total operation cost of all the 5 plants be  $100x$ ,  $100y$  and  $100z$  respectively.

Plant	Production cost	Labour cost	Operation cost
N	$25x$	$28y$	$27z$
R	$32x$	$25y$	$27z$
S	$17x$	$9y$	$22z$
C	$17x$	$13y$	$12z$
P	$9x$	$25y$	$12z$

For 2 pairs of plants to have equal total cost and the total cost of one pair is not same as the other pair, then one such pair must be (N and R) and the other pair is one of the two – either (S and C) or (C and P)

For North Campus Plant and Rajouri Garden Plant to have equal total cost,

$$\Rightarrow 25x + 28y + 25y$$

$$\Rightarrow x : y = 3 : 7$$

Case I: For SDA Plant and Connaught Place Plant to have equal total cost,

$$\Rightarrow 9y + 22z = 13y + 12z$$

$$\Rightarrow y : z = 5 : 2$$

Case II: For Cannought Place Plant and Pitampura Plant to have equal total cost,

$$\Rightarrow 17x + 13y = 9x + 25y$$

$$\Rightarrow x : y = 3 : 2$$

which contradicts the ratio  $x : y = 3 : 7$ . Hence case II is ruled out

So, total cost of North Campus Plant = total cost of Rajouri Garden Plant and total cost of SDA Plant = total cost of Connaught Place Plant,

We have  $x : y = 3 : 7$  and  $y : z = 5 : 2$

$$\Rightarrow x : y : z = 15 : 35 : 14$$

(i) Since  $y > 2x$ , hence true.

(ii) SDA Plant: Operation cost =  $22z$

Labour cost =  $9y$

Taking  $y = 35$  and  $z = 14$ , we get,  $9y > 22z$ .

Hence, this statement is false.

(iii) Similarly check by taking  $x = 15$ ,  $y = 35$  and  $z = 14$ .

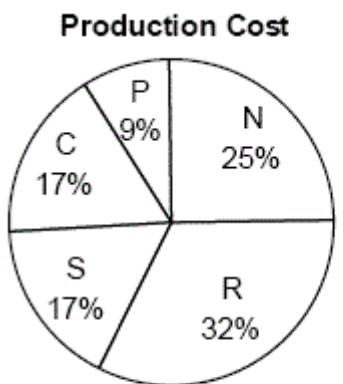
Labour cost contribution to the total cost for Connaught Place Plant is the highest. Hence, this statement is false.

**FeedBack**

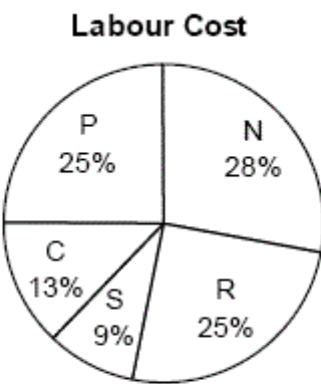
**Directions for questions 59 to 62:** Answer the questions on the basis of the information given below.

Launcher motors is an automobile company which has 5 plants, located one each at SDA, Pitampura, North Campus, Connaught Place and Rajouri Garden. The total cost incurred at each of the 5 plants in any year can be divided into 3 components – production cost, labour cost and operation cost. The first pie chart given below provides the production cost of each plant as a percentage of the total production cost of the 5 plants, for the year 2010. While the 2nd and the 3rd pie charts provide similar percentage break-ups for the labour cost and the operation cost respectively for 2010.

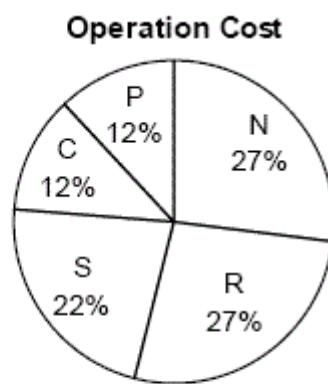
All the questions that follow are related to the costs of the 5 plants in the year 2010.



S → SDA Plant  
N → North Campus Plant  
R → Rajouri Garden Plant



P → Pitampura Plant  
C → Connaught Place Plant



**Additional information for questions 61 and 62:** The total cost for SDA plant is not same as the total cost for Pitampura Plant. There are exactly 2 pairs of plant with equal total cost such that the total cost of one pair is not as the total cost of the other pair.

### Q.62

Which among the following is the least?

- 1  Labour cost for SDA Plant
- 2  Operation cost for Connaught Place Plant
- 3  Production cost for SDA Plant
- 4  Cannot be determined

**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

Let total production cost, total labour cost and total operation cost of all the 5 plants be  $100x$ ,  $100y$  and  $100z$  respectively.

Plant	Production cost	Labour cost	Operation cost
N	$25x$	$28y$	$27z$
R	$32x$	$25y$	$27z$
S	$17x$	$9y$	$22z$
C	$17x$	$13y$	$12z$
P	$9x$	$25y$	$12z$

For 2 pairs of plants to have equal total cost and the total cost of one pair is not same as the other pair, then one such pair must be (N and R) and the other pair is one of the two – either (S and C) or (C and P)

For North Campus Plant and Rajouri Garden Plant to have equal total cost,

$$\Rightarrow 25x + 28y + 25y$$

$$\Rightarrow x : y = 3 : 7$$

Case I: For SDA Plant and Connaught Place Plant to have equal total cost,

$$\Rightarrow 9y + 22z = 13y + 12z$$

$$\Rightarrow y : z = 5 : 2$$

Case II: For Cannought Place Plant and Pitampura Plant to have equal total cost,

$$\Rightarrow 17x + 13y = 9x + 25y$$

$$\Rightarrow x : y = 3 : 2$$

which contradicts the ratio  $x : y = 3 : 7$ . Hence case II is ruled out

So, total cost of North Campus Plant = total cost of Rajouri Garden Plant and total cost of SDA Plant = total cost of Connaught Place Plant,

We have  $x : y = 3 : 7$  and  $y : z = 5 : 2$

$$\Rightarrow x : y : z = 15 : 35 : 14$$

Take  $x = 15$ ,  $y = 35$  and  $z = 14$ . Then,

Labour cost for SDA plant =  $9y = 9 \times 35 = 315$

Operation cost for Connaught Place plant =  $12z = 12 \times 14 = 168$

Production cost for SDA plant =  $17x = 17 \times 15 = 255$ .

**FeedBack**

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

Three football teams, Juve, Barca and Napoli from the same college play against each other frequently. During a particular year, the 3 teams played 60 matches each such that Juve played 30 matches each against the other two teams.

The following additional information is given.

- (i) In all the matches involving Barca, the number of goals scored in any match was at most 4 and the number of goals scored by Barca in any match was atleast 1.
- (ii) In all the matches involving Juve, the number of goals scored in any match was atmost 5 and the number of goals scored by Juve and Napoli in any match was atleast 2 each.
- (iii) The number of matches between Napoli and Juve that ended as a draw was the same as the average of the number of matches won by the goal difference of exactly 1 between the two teams.
- (iv) The number of matches between Juve and Barca that ended as a draw is a multiple of 5.
- (v) In matches involving both Barca and Juve, the number of matches won by Juve with a goal difference of atleast 2 is one-third of the number of matches won by Juve with a goal different of atleast 1.
- (vi) The number of matches in which Napoli scored exactly 2 goals is same as the number of matches won by Napoli.
- (vii) The number of matches involving Juve that ended as a draw is half the number of matches in which Juve scored exactly 2 goals.
- (viii) The number of matches in which Napoli scored atmost 2 goals is 7 more than the number of matches played between Napoli and Barca.

#### Q.63

How many matches ended in a draw.

**Solution:**

**Correct Answer : 33**

 **Bookmark**

 **Answer key/Solution**

Using points (i) and (ii), we can draw a table of possible score lines of the teams given,

Tearms	Scoreline	Number of matches
Juve Vs Napoli	→ 2 – 2 →	a
Juve Vs Napoli	→ 2 – 3 →	b
Juve Vs Napoli	→ 3 – 2 →	c
Juve Vs Barca	→ 2 – 1 →	d
Juve Vs Barca	→ 2 – 2 →	e
Juve Vs Barca	→ 3 – 1 →	f
Napoli Vs Barca	→ 2 – 1 →	g
Napoli Vs Barca	→ 2 – 2 →	h
Napoli Vs Barca	→ 3 – 1 →	i

$$\text{where } a + b + c = 30 \quad \dots (1)$$

$$d + e + f = 30 \quad \dots (2)$$

$$g + h + i = 30 \quad \dots (3)$$

using point (iii) and equation (1), we get

$$a = \frac{b + c}{2}, \text{ therefore, } a = 10 \text{ and } b + c = 20 \quad \dots (4)$$

using point (v) we get

$$f = \frac{1}{3}(d + f) \Rightarrow d = 2f \quad \dots (5)$$

using point (iv) and equation (5) and (2), we get

$$e = 15, d = 10, f = 5$$

using point (vii), we get

$$a + e = \frac{1}{2}(a + b + d + e)$$

putting  $a = 10, d = 10, e = 15$ , in the above equation, we get

$$b = 15$$

and from equation (4), we get

$$c = 5$$

using point (vi), we get

$$a + c + g + h = b + g + i \\ \Rightarrow h = i \quad \dots (6)$$

using point (viii) and equation (3), we get

$$a + c + g + h = 7 + 30$$

$$\Rightarrow g + h = 22$$

Hence,  $i = 30 - (g + h) = 8 = h$  using equation (6)

$$\text{and } g = 14$$

Matches that ended in a draw i.e.  $(a + e + h) = 33$ .

FeedBack

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

Three football teams, Juve, Barca and Napoli from the same college play against each other frequently. During a particular year, the 3 teams played 60 matches each such that Juve played 30 matches each against the other two teams.

The following additional information is given.

- (i) In all the matches involving Barca, the number of goals scored in any match was at most 4 and the number of goals scored by Barca in any match was atleast 1.
- (ii) In all the matches involving Juve, the number of goals scored in any match was atmost 5 and the number of goals scored by Juve and Napoli in any match was atleast 2 each.
- (iii) The number of matches between Napoli and Juve that ended as a draw was the same as the average of the number of matches won by the goal difference of exactly 1 between the two teams.
- (iv) The number of matches between Juve and Barca that ended as a draw is a multiple of 5.
- (v) In matches involving both Barca and Juve, the number of matches won by Juve with a goal difference of atleast 2 is one-third of the number of matches won by Juve with a goal different of atleast 1.
- (vi) The number of matches in which Napoli scored exactly 2 goals is same as the number of matches won by Napoli.
- (vii) The number of matches involving Juve that ended as a draw is half the number of matches in which Juve scored exactly 2 goals.
- (viii) The number of matches in which Napoli scored atmost 2 goals is 7 more than the number of matches played between Napoli and Barca.

#### Q.64

How many goals did Napoli scored in all the matches that it won?

**Solution:**

**Correct Answer : 97**

 **Bookmark**

 **Answer key/Solution**

Using points (i) and (ii), we can draw a table of possible score lines of the teams given,

Tearms	Scoreline	Number of matches
Juve Vs Napoli	→ 2 – 2 →	a
Juve Vs Napoli	→ 2 – 3 →	b
Juve Vs Napoli	→ 3 – 2 →	c
Juve Vs Barca	→ 2 – 1 →	d
Juve Vs Barca	→ 2 – 2 →	e
Juve Vs Barca	→ 3 – 1 →	f
Napoli Vs Barca	→ 2 – 1 →	g
Napoli Vs Barca	→ 2 – 2 →	h
Napoli Vs Barca	→ 3 – 1 →	i

$$\text{where } a + b + c = 30 \quad \dots (1)$$

$$d + e + f = 30 \quad \dots (2)$$

$$g + h + i = 30 \quad \dots (3)$$

using point (iii) and equation (1), we get

$$a = \frac{b + c}{2}, \text{ therefore, } a = 10 \text{ and } b + c = 20 \quad \dots (4)$$

using point (v) we get

$$f = \frac{1}{3}(d + f) \Rightarrow d = 2f \quad \dots (5)$$

using point (iv) and equation (5) and (2), we get

$$e = 15, d = 10, f = 5$$

using point (vii), we get

$$a + e = \frac{1}{2}(a + b + d + e)$$

putting  $a = 10, d = 10, e = 15$ , in the above equation, we get

$$b = 15$$

and from equation (4), we get

$$c = 5$$

using point (vi), we get

$$a + c + g + h = b + g + i \\ \Rightarrow h = i \quad \dots (6)$$

using point (viii) and equation (3), we get

$$a + c + g + h = 7 + 30$$

$$\Rightarrow g + h = 22$$

Hence,  $i = 30 - (g + h) = 8 = h$  using equation (6)

$$\text{and } g = 14$$

Goals Napoli scored in matches that it won are  $3 \times b + 2 \times g + 3 \times i = 3 \times 15 + 2 \times 14 + 3 \times 8 = 97$ .

FeedBack

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

Three football teams, Juve, Barca and Napoli from the same college play against each other frequently. During a particular year, the 3 teams played 60 matches each such that Juve played 30 matches each against the other two teams.

The following additional information is given.

- (i) In all the matches involving Barca, the number of goals scored in any match was at most 4 and the number of goals scored by Barca in any match was atleast 1.
- (ii) In all the matches involving Juve, the number of goals scored in any match was atmost 5 and the number of goals scored by Juve and Napoli in any match was atleast 2 each.
- (iii) The number of matches between Napoli and Juve that ended as a draw was the same as the average of the number of matches won by the goal difference of exactly 1 between the two teams.
- (iv) The number of matches between Juve and Barca that ended as a draw is a multiple of 5.
- (v) In matches involving both Barca and Juve, the number of matches won by Juve with a goal difference of atleast 2 is one-third of the number of matches won by Juve with a goal different of atleast 1.
- (vi) The number of matches in which Napoli scored exactly 2 goals is same as the number of matches won by Napoli.
- (vii) The number of matches involving Juve that ended as a draw is half the number of matches in which Juve scored exactly 2 goals.
- (viii) The number of matches in which Napoli scored atmost 2 goals is 7 more than the number of matches played between Napoli and Barca.

#### Q.65

What is the goal difference of Juve for all the matches that it played against Barca?

(Goal difference = Goals scored – Goals conceded)

**Solution:**

**Correct Answer : 20**

 **Bookmark**

 **Answer key/Solution**

Using points (i) and (ii), we can draw a table of possible score lines of the teams given,

Tearms	Scoreline	Number of matches
Juve Vs Napoli	→ 2 – 2 →	a
Juve Vs Napoli	→ 2 – 3 →	b
Juve Vs Napoli	→ 3 – 2 →	c
Juve Vs Barca	→ 2 – 1 →	d
Juve Vs Barca	→ 2 – 2 →	e
Juve Vs Barca	→ 3 – 1 →	f
Napoli Vs Barca	→ 2 – 1 →	g
Napoli Vs Barca	→ 2 – 2 →	h
Napoli Vs Barca	→ 3 – 1 →	i

$$\text{where } a + b + c = 30 \quad \dots (1)$$

$$d + e + f = 30 \quad \dots (2)$$

$$g + h + i = 30 \quad \dots (3)$$

using point (iii) and equation (1), we get

$$a = \frac{b + c}{2}, \text{ therefore, } a = 10 \text{ and } b + c = 20 \quad \dots (4)$$

using point (v) we get

$$f = \frac{1}{3}(d + f) \Rightarrow d = 2f \quad \dots (5)$$

using point (iv) and equation (5) and (2), we get

$$e = 15, d = 10, f = 5$$

using point (vii), we get

$$a + e = \frac{1}{2}(a + b + d + e)$$

putting  $a = 10, d = 10, e = 15$ , in the above equation, we get

$$b = 15$$

and from equation (4), we get

$$c = 5$$

using point (vi), we get

$$\begin{aligned} a + c + g + h &= b + g + i \\ \Rightarrow h &= i \quad \dots (6) \end{aligned}$$

using point (viii) and equation (3), we get

$$a + c + g + h = 7 + 30$$

$$\Rightarrow g + h = 22$$

Hence,  $i = 30 - (g + h) = 8 = h$  using equation (6)

$$\text{and } g = 14$$

10 matches it won with 2 – 1 and 5 matches it won with 3 – 1

$$\text{i.e. } 1 \times 10 + 2 \times 5$$

FeedBack

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

Three football teams, Juve, Barca and Napoli from the same college play against each other frequently. During a particular year, the 3 teams played 60 matches each such that Juve played 30 matches each against the other two teams.

The following additional information is given.

- (i) In all the matches involving Barca, the number of goals scored in any match was at most 4 and the number of goals scored by Barca in any match was atleast 1.
- (ii) In all the matches involving Juve, the number of goals scored in any match was atmost 5 and the number of goals scored by Juve and Napoli in any match was atleast 2 each.
- (iii) The number of matches between Napoli and Juve that ended as a draw was the same as the average of the number of matches won by the goal difference of exactly 1 between the two teams.
- (iv) The number of matches between Juve and Barca that ended as a draw is a multiple of 5.
- (v) In matches involving both Barca and Juve, the number of matches won by Juve with a goal difference of atleast 2 is one-third of the number of matches won by Juve with a goal different of atleast 1.
- (vi) The number of matches in which Napoli scored exactly 2 goals is same as the number of matches won by Napoli.
- (vii) The number of matches involving Juve that ended as a draw is half the number of matches in which Juve scored exactly 2 goals.
- (viii) The number of matches in which Napoli scored atmost 2 goals is 7 more than the number of matches played between Napoli and Barca.

#### Q.66

Which team(s) won more than 20 matches?

1  Napoli

2  Juve and Napoli

3  Juve

4  All 3 teams

**Solution:****Correct Answer : 1****Bookmark****Answer key/Solution**

Using points (i) and (ii), we can draw a table of possible score lines of the teams given,

Tearms	Scoreline	Number of matches
Juve Vs Napoli	→ 2 – 2 →	a
Juve Vs Napoli	→ 2 – 3 →	b
Juve Vs Napoli	→ 3 – 2 →	c
Juve Vs Barca	→ 2 – 1 →	d
Juve Vs Barca	→ 2 – 2 →	e
Juve Vs Barca	→ 3 – 1 →	f
Napoli Vs Barca	→ 2 – 1 →	g
Napoli Vs Barca	→ 2 – 2 →	h
Napoli Vs Barca	→ 3 – 1 →	i

$$\begin{aligned} \text{where } a + b + c &= 30 & \dots (1) \\ d + e + f &= 30 & \dots (2) \\ g + h + i &= 30 & \dots (3) \end{aligned}$$

using point (iii) and equation (1), we get

$$a = \frac{b + c}{2}, \text{ therefore, } a = 10 \text{ and } b + c = 20 \dots (4)$$

using point (v) we get

$$f = \frac{1}{3}(d + f) \Rightarrow d = 2f \dots (5)$$

using point (iv) and equation (5) and (2), we get

$$e = 15, d = 10, f = 5$$

using point (vii), we get

$$a + e = \frac{1}{2}(a + b + d + e)$$

putting  $a = 10, d = 10, e = 15$ , in the above equation, we get

$$b = 15$$

and from equation (4), we get

$$c = 5$$

using point (vi), we get

$$\begin{aligned} a + c + g + h &= b + g + i \\ \Rightarrow h &= i & \dots (6) \end{aligned}$$

using point (viii) and equation (3), we get

$$a + c + g + h = 7 + 30$$

$$\Rightarrow g + h = 22$$

Hence,  $i = 30 - (g + h) = 8 = h$  using equation (6)

$$\text{and } g = 14$$

Napoli won a total of 37 matches i.e. 15 against Juve and 22 against Barca.

Juve won a total of 20 matches only

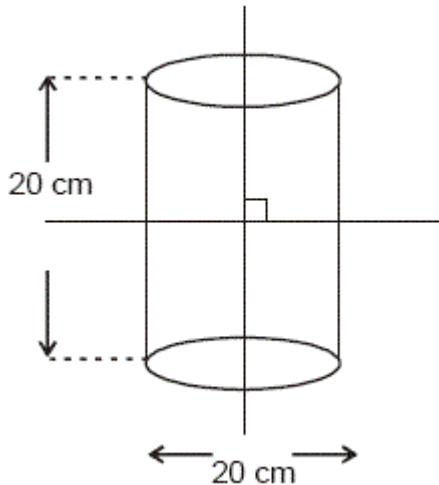
i.e. 5 against Napoli and 15 against Barca.

**FeedBack**

## Sec 3

**Q.67**

A solid cylinder of height 20 cm and radius 10 cm is cut into 4 identical pieces by 2 perpendicular cuts as shown in the figure given below. By what percentage is the combined total surface areas of the 4 pieces more than the total surface area of the original cylinder?



1   $\frac{50}{3\pi}(\pi + 4)$

2   $\frac{100}{3\pi}(\pi + 4)$

3   $\frac{200}{3\pi}(\pi + 4)$

4  None of these

**Solution:**

**Correct Answer : 2**

**Bookmark**

**Answer key/Solution**

Combined total surface area of the 4 pieces after cut is

$$= 2\pi r(r + h) + 2\pi r^2 + 2 \times (2r) \times h$$

$$= 2 \times \pi \times 10 (10 + 20) + 2\pi (10)^2 + 2 \times 20 \times 20$$

$$= 600\pi + 200\pi + 800 = 800\pi + 800 = 800(\pi + 1)$$

$$\text{Surface area of the cylinder before cut} = 2\pi r(r + h) = 2\pi \times 10 (10 + 20) = 600\pi$$

$$\% \text{ increase in surface area} = \left[ \frac{800(\pi + 1) - 600\pi}{600\pi} \right] \times 100 = \frac{200\pi + 800}{6\pi} = \frac{100}{3\pi}(\pi + 4)$$

**FeedBack**

**Q.68**

For all 'x',  $x^2 + 2px + (10 - 3p) > 0$ , then the interval in which 'p' lies is

1   $p < -5$

2   $2 < p < 5$

3   $p > 5$

4   $-5 < p < 2$

### Solution:

**Correct Answer : 4**

$x^2 + 2px + (10 - 3p) > 0$  and coefficient of  $x^2$  is positive.

$$\therefore D < 0$$

$$(2p)^2 - 4 \times 1 \times (10 - 3p) < 0$$

$$4p^2 - 40 + 12p < 0$$

$$(p - 2)(p + 5) < 0 \Rightarrow -5 < p < 2.$$

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

### Q.69

If  $ab : bc : ac = 3 : 4 : 5$ , then find  $a^2 : b^2 : c^2$ .

1   $9 : 16 : 25$

2   $81 : 256 : 625$

3   $225 : 144 : 400$

4   $144 : 225 : 400$

### Solution:

**Correct Answer : 3**

$a : c = 3 : 4$  and  $b : a = 4 : 5$  then  $a : b : c = 15 : 12 : 20$

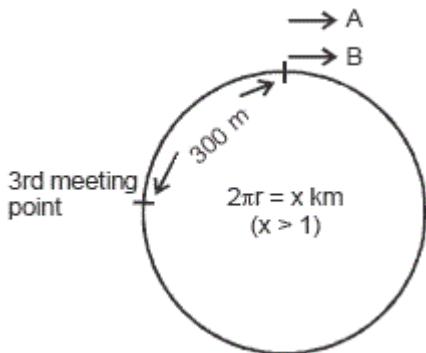
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 **Answer key/Solution**

**FeedBack**

**Q.70**

**A and B started at the same time from the same point in the same direction as shown below.**



**How many of the following statements are true regarding the 1st meeting point of A and B from the starting point?**

- I. 100 meters less than one-third of a complete round.
- II. 100 meters less than two-third of a complete round.
- III. 100 meters less than one complete round.

**Solution:**

**Correct Answer : 3**

**Bookmark**

**Answer key/Solution**

Distance covered till 3rd meeting should be 3 times of the distance covered till 1st meeting.

Looking at various possible scenarios

Distance covered by      3rd meeting

1st meeting

$$\text{1 A} \quad x - 300 \quad \frac{x}{3} - 100$$

$$\text{OR 2 A} \quad x + (x - 300) \quad \frac{2x}{3} - 100$$

$$\text{OR 3 A} \quad 2x + (x - 300) \quad x - 100$$

$$\text{OR 4 A} \quad 3x + (x - 300) \quad x + \left(\frac{x}{3} - 100\right) \rightarrow \text{Same as case (1)}$$

So, there are 3 different possibilities;  
Hence, all the three statements are true.

**FeedBack**

**Q.71**

**Two boxes contain 6 and 14 balls respectively. Two balls in the first box and six balls in the second are black. If a box is chosen randomly and two balls are drawn at random from it, what is the probability that at least one ball is black?**

1  **42/65**

2  **19/65**

3  **14/95**4  **81/95****Solution:****Correct Answer : 1** **Bookmark** **Answer key/Solution**

$$\text{Probability (at least 1 black ball)} = 1 - \text{Probability (no black ball)} = 1 - \left[ \frac{1}{2} \times \frac{4C_2}{6C_2} + \frac{1}{2} \times \frac{8C_2}{14C_2} \right]$$

$$\text{Probability of selecting the box 1} = \text{Probability of selecting box 2} = 1 - \left[ \frac{1}{2} \times \frac{2}{5} + \frac{1}{2} \times \frac{4}{13} \right] = 1 - \frac{23}{65} = \frac{42}{65}$$

 **FeedBack****Q.72****Find the remainder when M is divided by 500 where  $M = (1!)^3 + (2!)^3 + (3!)^3 + \dots + (50!)^3$** **Solution:****Correct Answer : 49** **Bookmark** **Answer key/Solution**

$$500 = 5^3 \times 2^2$$

$$(5!)^3 = 5^3 \times 2^9 \times 3^3$$

So all the terms from  $(5!)^3$  onwards would be divisible by 500; we need to check for first 4 terms only.

$$(1!)^3 + (2!)^3 + (3!)^3 + (4!)^3 = 1 + 8 + 216 + 324 = 549$$

On dividing it by 500, we get the remainder 49.

 **FeedBack****Q.73**

**A 4-digit number when successively divided by 9, 8 & 6 leaves remainder of 4, 3, & 2 respectively. What could be the remainder when the number is divided by 20?**

1  **19**2  **11**3  **15**4  **All of the above**

**Solution:****Correct Answer : 4**

Number should be of the form =  $[9\{8(6K+2)+3\}+4]$

where K = 0, 1, 2, 3, ...

$$\Rightarrow 432K + 175$$

On division by 20 the remainder can be 7 when K = 1

19 when K = 2

11 when K = 3

3 when K = 4

15 when K = 5

 **Bookmark**
 **Answer key/Solution**
 **FeedBack**
**Q.74**

**The average of 'n' consecutive natural numbers is x. Find the average of the next 'n' natural numbers.**

1   $x + n$

2   $x + 2n$

3   $x + \frac{n}{2}$

4  **None of these**

**Solution:****Correct Answer : 1**
 **Bookmark**
 **Answer key/Solution**

If to the set of 'n' consecutive natural number, next number is added then the average increases by 0.5. So, on including the next 'n' natural numbers the average becomes  $\left(x + \frac{n}{2}\right)$ . Now, if from the set of 'n' consecutive natural numbers the smallest number is removed the average again increases by 0.5. So the average of the next 'n' natural numbers becomes  $\left[\left(x + \frac{n}{2}\right) + \frac{n}{2}\right]$ , i.e. we have to remove the previous 'n' consecutive natural numbers.

 **FeedBack**
**Q.75**

$x$  &  $y$  are non-zero integers such that  $\frac{7}{x} + \frac{6}{y} = -1$ , for how many values of  $(x, y)$ , is  $(x + y)$  positive?

**Solution:****Correct Answer : 6** **Bookmark** **Answer key/Solution**

$$\frac{7}{x} + \frac{6}{y} = -1 \Rightarrow 7y + 6x + xy = 0$$

$$\Rightarrow (y+6)(x+7) = 42$$

$$= 42 \times 1$$

$$= 21 \times 2$$

$$= 14 \times 3$$

$$= 7 \times 6$$

Hence possible values of  $(x, y)$  are  $(-6, 36), (35, -5)$

(putting  $y+6 = 42$  &  $x+7 = 1$  and then  $y+6 = 1$  &  $x+7 = 42$ )

Similarly 2 solutions with 21 & 2 and 2 solutions with 14 & 3.

Solutions with 7 and 6 will not give positive values of  $(x+y)$ . Hence, 6 values are possible.

**FeedBack****Q.76**

**In an arithmetic progression with 35 terms, the sum of first 4 terms is 122 and the sum of last 4 terms is 286. Find the sum of all the terms of the progression.**

1  **1785**2  **2240**3  **1284**4  **1936****Solution:****Correct Answer : 1** **Bookmark** **Answer key/Solution**

Let the first term of the A.P. be 'a' and the common difference be 'd';

Sum of the first 4 terms =  $4a + 6d = 122$  ... (1)

Sum of the last 4 terms =  $4a + 130d = 286$  ... (2)

Adding (1) & (2) we get

$$8a + 136d = 408$$

$$\Rightarrow 2a + 34d = 102$$

$$\text{Sum of all 35 terms} = \frac{35}{2} [2a + 34d] = \frac{35}{2} \times 102 = 1785$$

**FeedBack****Q.77**

**The amount with Arti is Rs. 80 more than that with Bhargavi, Chandani has Rs. 50 less than Bhargavi, Divya has Rs. 120 more than the sum of amount with Bhargavi and Chandani, The money with them is in the denominations of Rs. 10 and Rs. 20 only and they have a total amount of Rs. 500. Find the least number of notes of Rs. 10.**

**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

Let the amount with Bhargavi be  $x$

$\therefore$  Arti has  $= x + 80$ , Chandini has  $= x - 50$ , Divya has  $= 2x + 70$

$$\therefore x + x + 80 + x - 50 + 2x + 70 = 500 \Rightarrow x = 80$$

$\therefore$  Amount are Rs. 160, Rs. 80, Rs.30, Rs.230.

So, amounts with Chandini & Divya are not multiple of 20, each will have at least 1 note of Rs. 10.

Therefore, minimum number of notes of Rs. 10 is 2.

**FeedBack****Q.78**

**Tap P, which can fill a tank in 60 minutes is opened at 6:00 pm, tap Q which can fill the tank in 30 minutes is opened at 6 : 10 pm and tap R which can fill in 20 minutes is opened at 6 : 20 pm. At what time will the tank be filled?**

1  **6 : 22 pm**2  **6 : 23 : 20 pm**3  **6 : 23 : 40 pm**4  **8 : 24 : 30 pm****Solution:****Correct Answer : 2**

Time for which R is open be  $x$  min

$\therefore$  By 6:20 pm tap P would have filled  $\left(\frac{x+20}{60}\right)$ th part of the tank

Tap Q would fill  $\left(\frac{x+10}{30}\right)$ th part of the tank

Tap R would fill  $\left(\frac{x}{20}\right)$ th part of the tank.

$$\therefore \frac{x+20}{60} + \frac{x+10}{30} + \frac{x}{20} = 1 \Rightarrow x = \frac{10}{3} \text{ min}$$

$\therefore$  Time at which the tank will be filled is 6 : 23 : 20 p.m.

**Bookmark** **Answer key/Solution****FeedBack****Q.79**

**How many real roots are possible for the equation  $x^2 + 7|x| + 12 = 0$ ?**

**Solution:****Correct Answer : 0**

**Three positive terms can never add up to 0. Hence, no real roots are possible.**

 **Bookmark**
 **Answer key/Solution**

**Q.80**

**If a merchant offers a discount of 40% on the marked price of his goods and thus ends up selling at the cost price, what was the mark up percentage?**

- 1  **28.57%**
- 2  **40%**
- 3  **66.66%**
- 4  **58.33%**

**Solution:****Correct Answer : 3**
 **Bookmark**
 **Answer key/Solution**

If the merchant offers a discount of 40% on the marked price, then the goods are sold at 60% of the marked price. The question further states that when the discount offered is 40%, the merchant sells at cost price. Therefore, selling at 40% discount = 60% of marked price (M) = cost price (C)

$$\text{i.e., } \frac{60}{100} M = C$$

$$\text{or } M = \frac{100}{60} C \text{ or } M = 1.6666C$$

$$\text{Mark up} = 66.66\%$$

**Q.81**

**A college has 10 basketball players. A 5-member team and a captain will be selected out of these 10 players. How many different selections can be made?**

- 1  **1260**
- 2  **210**
- 3   **$10C_6 \times 6!$**

4  10C5 × 6

**Solution:**

**Correct Answer : 1**

 **Bookmark**

 **Answer key/Solution**

A team of 6 members has to be selected from the 10 players. This can be done in  ${}^{10}C_6$  or 210 ways.

Now, the captain can be selected from these 6 players in 6 ways.

Therefore, the total number of ways of the selection is  $210 \times 6 = 1260$ .

**Alternatively:**

We can select the 5 member team out of the 10 in  ${}^{10}C_5$  ways = 252 ways.

The captain can be selected from amongst the remaining 5 players in 5 ways.

Therefore, the total number of ways of the selection of 5 players and a captain =  $252 \times 5 = 1260$ .

**FeedBack**

### Q.82

**Three workers A, B and C divides Rs. 432 among them such that 8 times of A's share is equal to 12 times of B's share which is equal to 6 times of C's share. How much (in Rs.) does A get?**

**Solution:**

**Correct Answer : 144**

 **Bookmark**

 **Answer key/Solution**

8 times A's share = 12 times B's share = 6 times C's share.

Note that this is not the same as the ratio of their wages being 8 : 12 : 6

In this case, find out the L.C.M of 8, 12 and 6 and divide the L.C.M by each of the above numbers to get the ratio of their respective shares.

L.C.M of 8, 12 and 6 is 24. Therefore, the ratio A : B : C ::  $\frac{24}{8} : \frac{24}{12} : \frac{24}{6}$

$\Rightarrow A : B : C :: 3 : 2 : 4$

The sum of the total wages =  $3x + 2x + 4x = 432 \Rightarrow 9x = 432$  or  $x = 48$ . Hence, A who gets  $3x$  will get  $3 \times 48 = \text{Rs.}144$ .

**FeedBack**

### Q.83

**In a class of 12 students, the average marks scored by the students is 60. Average marks scored by the 5 students, who scored the lowest in class, is 55. If every student scored distinct integral marks, then find the maximum possible marks scored by the topper in the class.**

1  99

2  100

3  **93**

4  **82**

**Solution:**

**Correct Answer : 4**

As the total marks scored by student is 720 and by bottom 5 students is  $55 \times 5 = 275$ .

 **Bookmark**

 **Answer key/Solution**

Also, each student has scored the distinct marks and we need to maximise the score of one individual candidate i.e. the topper so, we need to minimise the score of the other students.

Score of the bottom 5 students will be (53, 54, 55, 56, 57)

Score of the rest of the students will be (58, 59, 60, 61, 62, 63 and 82).

So, 4th option.

**FeedBack**

#### **Q.84**

A merchant has three varieties of rice having cost Rs.20/kg, Rs.24/kg and Rs.30/kg. He mixes them in some ratio such that on selling the mixture at Rs. 30/kg he earns a profit of 20%. If the mixture contains 2 kg of the third variety of rice and has integer number of kilograms of other two varieties also, then how many kilograms of the second variety can be there in the mixture ?

1  **1**

2  **5**

3  **3**

4  **6**

**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

Compute cost price of 1 kg of mixture.

The selling price of mixture is Rs.30/kg and the merchant makes a profit of 20%.

If the cost of 1 kg of the mixture is  $c$ ,  $c + 20\% \text{ of } c = 1.2c = \text{selling price}$

$\therefore$  The cost price of the mixture,  $c = \text{Rs.}25/\text{kg}$ .

The three variants are mixed to obtain a mixture that costs Rs.25 /kg.

Variant A costs Rs.20/kg, variant B costs Rs.24/kg and variant C costs Rs.30/kg.

Let the mixture contains  $x$  kg of the first variety,  $y$  kg of the second variety and 2 kg of the third variety.

$$\therefore \frac{20x + 24y + 30 \times 2}{x + y + 2} = 25 \Rightarrow 5x + y = 10$$

As both  $x$  and  $y$  are integers so, among the options, only option (2) i.e.  $y = 5$  will give the integer value of  $x$  i.e.  $x = 1$ .

**FeedBack****Q.85**

**P and Q could do a piece of work in 15 days and 21 days respectively. Initially Q started working and P joined him after some days. If the total work got completed in 14 days, then after how many days did P join Q?**

1  82  93  64  7**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

LCM of 15, 21 is 105, which is the total work.

$\therefore$  In 1 day, P can do  $= \frac{105}{15} = 7$  units of work.

In 1 day, Q can do  $= \frac{105}{21} = 5$  units of work.

As P joins Q after some days, this implies that Q has worked for all 14 days.

$\therefore$  Q has done  $= 5 \times 14 = 70$  units of work in total.

$\therefore$  Remaining work  $= 105 - 70 = 35$  units have been done by P only.

Hence, number of days taken by P to complete these 35 units of work  $= \frac{35}{7} = 5$  days.

$\therefore$  P joined Q after  $14 - 5 = 9$  days.

**FeedBack**

**Q.86**

Find the unit digit of  $687^{567}$ .

1  7

2  3

3  9

4  1

**Solution:**

**Correct Answer : 2**

Cyclicity of 7 is 4. So, on dividing the power 567 by 4, we get the remainder as 3. i.e.

$$7 \times 1 = \underline{7}$$

$$7 \times 7 = \underline{4}9$$

$$\boxed{9 \times 7 = \underline{6}3}$$

$$3 \times 7 = \underline{2}1$$

Hence, the unit digit of  $(687)^{567}$  is 3.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Q.87**

P borrowed a certain amount of money from a bank at a certain rate of compound interest, compounded annually. Q borrowed the equal amount from another bank at some rate of simple interest. The interest on the sum borrowed by P from the third year is equal to the interest on the sum borrowed by Q in 3 years. If P and Q repaid the loans at the end of 5 years, then the interest paid by P is

1  More than the interest paid by Q

2  Equal to the interest paid by Q

3  Less than the interest paid by Q

4  Either (1) or (2)

**Solution:****Correct Answer : 1**

$$\begin{aligned}
 C_l &= l_1 < l_5 - l_3 \\
 l_3 - l_1 &< l_5 - l_3 \\
 2l_3 &< l_1 + l_5 \quad \dots \text{(ii)} \\
 \text{By } l_3 - l_2 &< l_4 - l_3 \\
 2l_3 &< l_2 + l_4 \quad \dots \text{(iii)} \\
 \text{Add (ii) and (iii)} \\
 2l_3 + 2l_3 &< l_1 + l_5 + l_2 + l_4 \\
 \text{Add } l_1 \text{ to both sides} \\
 5l_3 &< l_1 + l_2 + l_3 + l_4 + l_5 \\
 \therefore 5l_3 &< Cl
 \end{aligned}$$

Also,  $Sl = 5l$  and  $l_3 = l$   
 $\therefore Sl < Cl$

**Bookmark****Answer key/Solution****FeedBack****Q.88**

$$\begin{aligned}
 \text{If } S_1 &= 1(30) + 2(29) + 3(28) + \dots + 30(1) \\
 S_2 &= 1(60) + 2(59) + 3(58) + \dots + 60(1)
 \end{aligned}$$

then  $2 \times \frac{S_2}{S_1}$  is

1  **31/8**2  **31/4**3  **61/8**4  **61/4****Solution:****Correct Answer : 4****Bookmark****Answer key/Solution**

$$\text{For } S_1 = \sum_{n=1}^{30} n(31-n) = \sum_{n=1}^{30} (31n - n^2) = 31 \sum_{n=1}^{30} n - \sum_{n=1}^{30} n^2 = \frac{(31)(30)(31)}{2} - \frac{30(31)(61)}{6} = \frac{30 \times 31 \times 32}{6}$$

$$S_2 = \sum_{n=1}^{60} n(61-n) = \sum_{n=1}^{60} (61n - n^2) = 61 \sum_{n=1}^{60} n - \sum_{n=1}^{60} n^2 = \frac{60(61) \times 62}{6}$$

$$\therefore \frac{2S_2}{S_1} = 2 \frac{60(61)(62)}{30(31)(32)} = \frac{61}{4}$$

**FeedBack**

**Q.89**

**A, B and C are 3 distinct natural numbers such that their product is 6!. If X is the minimum possible sum of A, B and C, then find the value of (4X - 5).**

**Solution:**

**Correct Answer : 103**

**Bookmark**

**Answer key/Solution**

$$A \cdot B \cdot C = 6! = 2 \times 3 \times 4 \times 5 \times 6$$

For  $(A + B + C)$  to be minimum, the 3 numbers should be as close as possible therefore we try to write  $6!$  as the product of 3 numbers which are as close to each other as possible

$$6! = \underline{2} \times 2 \times 3 \times 5 \times 2 \times 2 \times 3$$

$$\text{Therefore, } A \cdot B \cdot C = 8 \times 9 \times 10$$

$$\text{Minimum of } (A + B + C) \text{ i.e. } X = 8 + 9 + 10 = 27$$

$$\therefore 4X - 5 = 4 \times 27 - 5 = 103.$$

Ans : **103**

**FeedBack**

**Q.90**

**If a and b are 2 non-zero real numbers such that  $a^2 > b^2$  and  $1/a > 1/b$ , then which of the following is always true?**

- 1  a and b both are positive.
- 2  a and b both are negative.
- 3  One of a and b is positive and the other is negative.
- 4  None of these

**Solution:****Correct Answer : 4** **Bookmark** **Answer key/Solution**For  $a^2 > b^2$ 

$$\downarrow \\ |a| > |b|$$

and for

$$\frac{1}{a} > \frac{1}{b}$$

$$\downarrow \\ \text{either } a < b \text{ or} \\ a \rightarrow (+)\text{ive} \& b \rightarrow (-)\text{ive}$$

For both to be true, either a & b both are (-) ve OR a is (+)ve & b (-) ve with  $|a| > |b|$ .**FeedBack****Q.91**

**When 1 is added to the product of 2 prime numbers, the result obtained is a perfect square.  
How many such pairs of prime numbers exist among the first 15 prime numbers?**

**Solution:****Correct Answer : 6** **Bookmark** **Answer key/Solution**Let  $P_1$  &  $P_2$  be two prime numbers and K be a natural number.

$$\Rightarrow P_1 \times P_2 + 1 = K^2$$

$$\Rightarrow P_1 P_2 = (K^2 - 1) = (K - 1) \times (K + 1)$$

We have to find the pairs of prime numbers having a difference of 2 i.e the difference between  $(K - 1)$  &  $(K + 1)$ .

So, we have (3, 5), (5, 7), (11, 13), (17, 19), (29, 31), (41, 43) i.e 6 pairs.

(∴ There are 15 prime numbers less than 50, so we need to check for prime numbers less than 50 only).

**FeedBack****Q.92****If  $|4x - 6| \leq 14$  and  $|2y - 7| \leq 13$ , then what is the maximum value of  $|x| - |y|$ ?****Solution:****Correct Answer : 5**

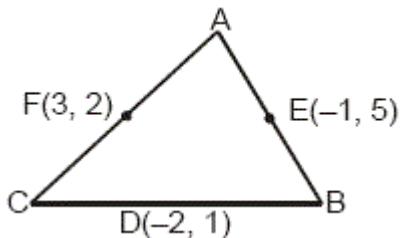
$$|4x - 6| \leq 14 \Rightarrow -2 \leq x \leq 5$$

$$\& |2y - 7| \leq 13 \Rightarrow -3 \leq y \leq 10$$

Maximum value of  $|x| - |y| = 5$  (Putting  $x = 5$  &  $y = 0$ ) **Bookmark** **Answer key/Solution****FeedBack**

**Q.93**

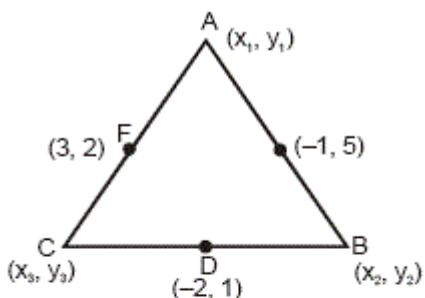
In triangle ABC, D, E and F are the mid points of sides BC, AB and CA as shown below. Find the co-ordinates of vertices A, B and C respectively.



- 1  (4, 6), (-6, 4), (2, -2)
- 2  (-6, 4), (4, 6), (2, -2)
- 3  (2, -2), (4, 6), (-6, 4)
- 4  (-2, 2), (4, -6), (4, 6)

**Solution:**

**Correct Answer : 1**



**Bookmark**

**Answer key/Solution**

Clearly using mid-point formula,

$$\frac{x_1 + x_2}{2} = -1$$

$$\Rightarrow x_1 + x_2 = -2$$

Similarly,

$$y_1 + y_2 = 10$$

$$x_2 + x_3 = -4$$

$$y_2 + y_3 = 2$$

$$x_1 + x_3 = 6$$

$$y_1 + y_3 = 4$$

Solving all these equations, we get

$$x_1 = 4, x_2 = -6, x_3 = 2$$

$$y_1 = 6, y_2 = 4, y_3 = -2$$

∴ Co-ordinates of vertices A, B and C are (4, 6), (-6, 4) and (2, -2) respectively.

**Feedback**

**Q.94**

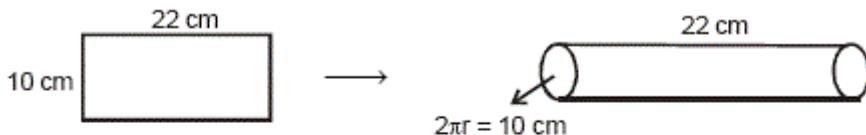
**Maximum how many squares of side 6 cm can be cut out from a rectangle having its length and breadth as 45 cm and 16 cm respectively?**

1  **20**2  **30**3  **18**4  **14****Solution:****Correct Answer : 4**

**On the length side we can accommodate 7 squares and on width side, 2 squares. So answer is  $2 \times 7 = 14$**

**Bookmark****Answer key/Solution****FeedBack****Q.95**

**A rectangle piece of paper is 22 cm long and 10 cm wide. A hollow cylinder is formed by rolling the paper along its width. Find the volume (in  $\text{cm}^3$ ) of the cylinder?**

1  **158**2  **175**3  **186**4  **148****Solution:****Correct Answer : 2****Bookmark****Answer key/Solution**So,  $2\pi r = 10$ 

$$r = \frac{5}{\pi}$$

$$\therefore \text{Volume of the cylinder} = \pi \times \frac{5}{\pi} \times \frac{5}{\pi} \times 22 = 175 \text{ cm}^3.$$

**FeedBack****Q.96**

**A real valued function is defined as  $f(x + y) = f(xy)$  for all real values of  $x$  and  $y$ . If  $f(-5) = 5$ , then the value of  $f(-25) + f(25)$  is**

**Solution:****Correct Answer : 10**

Let us assume  $f(0) = K$ , where 'K' is a constant.

Then,  $f(0+y) = f(0,y) = f(0) = K$  and  $f(x+0) = f(x,0) = f(0) = K$ .

This proves that the function is a constant function.

So, the value of  $f(-25) = f(-5) = 5$ .

So,  $f(-25) + f(25) = 10$ .

 **Bookmark**
 **Answer key/Solution**

**Q.97**

If  $\log_x \left( \frac{1}{2} + \frac{1}{5} + \frac{1}{9} + \frac{1}{14} + \dots + \text{infinitely many terms} \right)^2 = 2$  and  $x > 0$ , then find the value of  $x$ .

1  **11/9**

2  **9/11**

3  **18/5**

4  **12/7**

**Solution:****Correct Answer : 1**

Given that

$$\log_x \left( \frac{1}{2} + \frac{1}{5} + \frac{1}{9} + \frac{1}{14} + \dots + \text{infinitely many terms} \right)^2 = 2$$

Now let

$$\frac{1}{2} + \frac{1}{5} + \frac{1}{9} + \frac{1}{14} + \dots + \text{infinitely many terms} = P$$

$$\Rightarrow \frac{1}{1 \times 2} + \frac{1}{1 \times 5} + \frac{1}{3 \times 3} + \frac{1}{2 \times 7} + \dots + \text{infinitely many terms} = P \dots (i)$$

Dividing both sides by 2, we get

$$\frac{1}{1 \times 4} + \frac{1}{2 \times 5} + \frac{1}{3 \times 6} + \frac{1}{4 \times 7} + \dots + \text{infinitely many terms} = \frac{P}{2} \dots (ii)$$

$$\Rightarrow \frac{1}{3} \left[ \left( 1 - \frac{1}{4} \right) + \left( \frac{1}{2} - \frac{1}{5} \right) + \left( \frac{1}{3} - \frac{1}{6} \right) + \left( \frac{1}{4} - \frac{1}{7} \right) + \dots + \text{infinitely many terms} \right] = \frac{P}{2}$$

$$\Rightarrow \frac{3P}{2} = \left( 1 + \frac{1}{2} + \frac{1}{3} \right) \Rightarrow P = \frac{11}{9}$$

Therefore, from the given equation, we get

$$\left( \frac{11}{2} \right)^2 = x^2 \Rightarrow x = \frac{11}{9}$$

 **Bookmark**
 **Answer key/Solution**

**Q.98**

Aman can row a boat upstream from A to B taking 4 minutes more than he took to row the same distance downstream. If the distance between A and B is 240 meters and the speed of the stream is 4 m/sec, then find the speed (in m/sec) of the boat.

1  21

2   $\sqrt{30}$

3  20

4   $\sqrt{24}$

**Solution:**

**Correct Answer : 4**

Let the speed of the boat be  $u$  km/hr.

∴ According to the question,

$$\frac{240}{u-4} - \frac{240}{u+4} = 4 \times 60$$

$$240 \left( \frac{u+4-u+4}{u^2-16} \right) = 4 \times 60$$

$$\Rightarrow u^2 - 16 = 8$$

$$u^2 = 24$$

$$u = \sqrt{24} \text{ m/sec}$$

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Q.99**

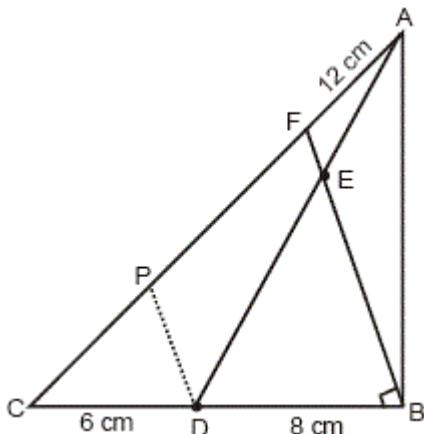
In a right angled triangle ABC, right angled at B, D is a point on BC such that  $BD = 8 \text{ cm}$  and  $DC = 6 \text{ cm}$ . E is a point on AD such that  $AE : ED = 3 : 4$ . If F is a point on AC in such a way that  $AF = 12 \text{ cm}$  and B, E and F are collinear, then find the length (in cm) of AC.

1  40

2  28

3  38

4  44

**Solution:****Correct Answer : 1** **Bookmark** **Answer key/Solution**

Draw a line DP parallel to BF.

$$\Rightarrow DP \parallel EF$$

$$\therefore \triangle AFE \sim \triangle APD$$

So,  $AE : ED = 3 : 4$  (given)

$$\Rightarrow AF : FP = 3 : 4$$

and  $AF = 12 \text{ cm}$  (given)

$$\Rightarrow FP = 16 \text{ cm}$$

Now,  $\triangle ACD \sim \triangle BCF$  ( $\because DP \parallel BF$ )

$$CD : DB = 3 : 4$$

$$\Rightarrow CP : FP = 3 : 4 \quad (\text{As ratio of corresponding sides of similar triangles are equal})$$

As  $FP = 16 \text{ cm}$ 

$$\Rightarrow CP = 12 \text{ cm}$$

$$\text{So, } AC = 12 + 16 + 12 = 40 \text{ cm.}$$

**FeedBack****Q.100**

Last year, I bought an old flat, having cost Rs. 5 lacs, at a discount of Rs. 1 lac. This year, the price of the same kind of a new flat is Rs. 12 lacs.

If I spend Rs. 2 lacs on its maintenance, I will be able to sell it at the rate 10% lower than the current market price as its an old flat.

Without maintenance, I will be able to sell it at 50% of the current market price. Which of the following statements is true?

- 1  The percentage point difference of profit, with maintenance and without maintenance, is 40%
- 2  Maximum profit earned could be 4.8 lacs after the maintenance.
- 3  I can earn a minimum profit of 60%
- 4  All the above statements are true.

**Solution:****Correct Answer : 2** **Bookmark** **Answer key/Solution**

The cost price of flat = 4 lacs

Cost of maintenance = 2 lacs

Total cost after maintenance = 6 lacs

Selling price without maintenance = 6 lacs (50% of the current market price)

Selling price with maintenance = 10.8 lacs. (10% lower than the current market price)

$$\text{Profit \% without maintenance} = \frac{2}{4} \times 100 = 50\%$$

$$\text{Profit \% with maintenance} = \frac{4.8}{6} \times 100 = 80\%$$

So statement 1 is not true as percentage point difference is 30%.

Statement 2 is true as profit earned after maintenance is 4.8 lacs.

Statement 3 is not true as minimum profit earned is 50%.

Correct answer is option 2.

 **FeedBack**