



## Mock CAT – 01 2019

Scorecard (procreview.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:18:56 IST 2020&qsetId=ySUVuHjl4Qo=&qsetName=Mock CAT – 01 2019)

Accuracy (AccSelectGraph.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:18:56 IST 2020&qsetId=ySUVuHjl4Qo=&qsetName=Mock CAT – 01 2019)

Qs Analysis (QsAnalysis.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:18:56 IST 2020&qsetId=ySUVuHjl4Qo=&qsetName=Mock CAT – 01 2019)

Booster Analysis (BoosterAnalysis.jsp?sid=aaaacfmeUdDwo8biKQs\_wSat Jan 11 22:18:56 IST 2020&qsetId=ySUVuHjl4Qo=&qsetName=Mock CAT – 01 2019)

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VARC

LRDI

QA

## Sec 1

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

### Passage 1

Twenty years ago, phase changes such as those that turn grasshopper to locust were relatively unknown, and, outside of Botany anyway, rarely viewed as changes in gene expression. Now, sharp phenotype changes due to gene expression are 'everywhere'. They show up in gene-expression studies of plants, microbes, fish, wasps, bees, birds, and even people. The genome is continually surprising biologists with how fast and fluidly it can change gene expression — and thus phenotype.

These discoveries closely follow the recognition, during the 1980s, that gene-expression changes during very early development — such as in embryos or sprouting plant seeds — help to create differences between species. At around the same time, genome sequencing began to reveal the startling overlaps mentioned above between the genomes of starkly different creatures. (To repeat: you are 80 per cent cow.)

Gregory Wray, a biologist at Duke University in North Carolina who studies fruit flies, sees this flexibility of genomic interpretation as a short path to adaptive flexibility. When one game plan written in the book can't provide enough flexibility, fast changes in gene expression — a change in the book's reading — can provide another plan that better matches the prevailing environment.

'Different groups of animals succeed for different reasons,' says Wray. 'Primates, including humans, have succeeded because they're especially flexible. You could even say flexibility is the essence of being a primate.'

According to Wray, West-Eberhard and many others, this recognition of gene expression's power, along with other dynamics and processes unanticipated by mainstream genetic theory through the middle of last century, requires that we rethink and expand the way we view genes and evolution. For a century, the primary account of evolution has emphasised the gene's role as architect: a gene (or gene variant) creates a trait that either proves advantageous or not, and is thus selected for, changing a species for the better, or not. Thus, a genetic blueprint creates traits and drives evolution.

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But a number of biologists argue that we need to replace this gene-centric view with one that more heavily emphasises the role of more fluid, environmentally dependent factors such as gene expression and intra-genome complexity — that we need to see the gene less as an architect and more as a member of a collaborative remodelling and maintenance crew.

They ask for something like the rejection a century ago of the Victorian-era 'Great Man' model of history. This revolt among historians recast leaders not as masters of history, as Tolstoy put it, but as servants. Thus the Russian Revolution exploded not because Marx and Lenin were so clever, but because fed-up peasants created an impatience and an agenda that Marx articulated and Lenin ultimately hijacked. Likewise, D-Day succeeded not because

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It should. We are rapidly entering a genomic age. A couple of years ago, for instance, I became one of what is now almost a half-million 23andMe customers, paying the genetic-profiling company to identify hundreds of genetic variants that I carry. I now know 'genes of interest' that reveal my ancestry and help determine my health. Do I know how to make sense of them? Do they even make sense? Sometimes; sometimes not. They tell me, for instance, that I'm slightly more likely than most to develop Alzheimer's disease, which allows me to manage my health accordingly. But those genes also tell me I should expect to be short and bald, when in fact I'm 6'3" with a good head of hair.

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#### Q.1

Which of the following is true about the concept of genetic blueprint?

- 1  Its importance was not anticipated by the mainstream genetic theorists.
- 2  It revolutionized our understanding of genes and evolution.
- 3  It is the catalyst that endows one with distinctive attributes.
- 4  It is the primary account of the gene's role as the architect of social evolution.

**Solution:**

**Correct Answer : 3**

**Word Count: 550**

**Genre: Biology / Evolutionary Theory**

Refer to the paragraph: "According to Wray, West-Eberhard and many others,... a species for the better, or not. Thus, a genetic blueprint creates traits and drives evolution."

**Options 1 and 2 - These are true about the new understanding regarding gene expression. These may or may not be applicable to the concept of genetic blueprint.**

**Option 3 - This is the correct answer. Refer to the last line of the above-mentioned paragraph.**  
**Option 4 - 'Social evolution' is not mentioned in the passage.**

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

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## Q.2

**As per the passage, it can be inferred that 'sharp phenotype changes due to gene expression are 'everywhere" because:**

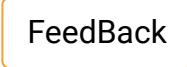
- 
- 1  the new age scientists have challenged the gene-centric world view in genetic studies.
  - 2  new research findings have consistently surprised biologists with their revelations.
  - 3  new research has proven that flexibility is the main trait that defines primates.
  - 4  new research have revealed more details about the role and scope of gene expressions.
-

**Solution:****Correct Answer : 4****Word Count: 550****Genre: Biology / Evolutionary Theory** **Bookmark** **Answer key/Solution**

This may look like a fact based question but this is, in fact, an idea based question. We need to understand why the author mentions this line in relation to the overall idea of the passage. The main idea of the passage is that new research has found more revealing data about genes, especially gene expression. So, option 4 is the correct answer.

**Option 1 –** This is mentioned in a different context. These scientists have asked for a revision of the Mendel theory. But that's not the reason why gene expression has become a popular area of study. It's because of the new data about gene expression, scientists have been able to challenge the gene-centric biological view. So, this is a twisted option.

**Options 2 and 3 –** These two are vague and bear no direct relationship with the question asked.

 **FeedBack**

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**Q.3**

As per the passage, what is the difference between gene expression and genome sequencing?

- 1  The former accounts for distinctiveness in species whereas the latter reveals their stark contrast.
- 2  The former is the differentiating factors between species whereas the latter explains the overlap between the same.
- 3  The former occurs during early developmental phases whereas the latter is revealed during late evolutionary cycles.
- 4  The former is the reason behind similar species whereas the latter is the catalyst behind species wise distinctions.

**Solution:**

**Correct Answer : 2**

**Word Count: 550**

**Genre: Biology / Evolutionary Theory**



[Answer key/Solution](#)

This is an easy fact based question. Refer to the lines: "These discoveries closely follow the recognition, during the 1980s, that gene-expression changes during very early development – such as in embryos or sprouting plant seeds – help to create differences between species. At around the same time, genome sequencing began to reveal the startling overlaps mentioned above between the genomes of starkly different creatures. (To repeat: you are 80 per cent cow.)" So, option 2 is the answer.

**Option 1 – This is distorted. Genome sequencing shows the similarities (overlap), not the contrast.**

**Option 3 – 'Late evolutionary cycles' is not defined in the passage.**

**Option 4 – This option reverses the attributes.**

[FeedBack](#)

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#### Q.4

**The author comes to the conclusion that 'Soon, it will be practical to buy my entire genome' by:**

- 1  giving additional data and examples to support his initial opinion on gene expression studies.
- 2  providing facts that mitigate the validity of a currently held view on the evolution of genes.
- 3  highlighting the contrast between gene centric world view and genome centric research work.
- 4  adopting an objective approach to undermine an initial assumption made on the future potential of genome studies.

**Solution:**

**Correct Answer : 1**

**Word Count: 550**

**Genre: Biology / Evolutionary Theory**

This is a logical structure question. First of all, the author is supportive of gene expression studies, but his approach is quite objective. The author never contradicts his initial point. So, option 1 is the correct answer.

Option 2 – The passage doesn't focus entirely on challenging the Mendel theory of evolution. The author mentions it in just one paragraph to focus on the importance of genome studies.

Option 3 – This option is too narrow. So, it doesn't match the main style of the author.

Option 4 – The author never changes his stance or contradicts himself. So, this is a wrong option.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

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#### Q.5

Which of the following best captures the main idea of the passage?

- 
- 1  In future, individuals will be able to put their genomes into more profitable use.
  - 2  The gene-centric worldview needs to be revised to accommodate broader understandings of gene expression.
  - 3  In the field of scientific research, no one is sacrosanct; even Mendel needs revising.
  - 4  Soon, it will be possible to treat diseases like Alzheimer's thanks to the rapid progression in our perception of gene expression.
-

**Solution:****Correct Answer : 2****Word Count: 550****Genre: Biology / Evolutionary Theory**

This is a main idea question. We need to keep in mind the ultimate aim of the author.

**Option 1 – It is an illogical conclusion, not the focus of the passage.**

**Option 3 – This is too narrow as it summarises only one paragraph of the passage.**

**Option 4 – This is a premature prediction based on some data given in the passage. The author says these researches will help find a cure. Nothing can be predicted with certainty regarding the timeline.**

**Option 2 – It is the correct choice. In the entire passage, the author says that the studies related to genes and the Mendel model of evolution needs revision. The author also mentions that these studies have revealed a lot of new information. However, the passage ends with a note on the need to continue with these studies.**

**FeedBack**

 **Bookmark**

 **Answer key/Solution**

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

## Passage 2

In many parts of the developing world formal collection is expanding. There are now some 6,000 community waste banks in Indonesia, where residents deposit recyclables in exchange for cash. Once rubbish makes it to the waste-management site, the systems can be relatively efficient. The problem is getting a nation's refuse to such sites in the first place, when door-to-door collection is still rare, and households and businesses seldom sort their garbage.

More than 14,000km from Jakarta, in San Jose, California, trash is arriving at the Newby Island waste-management plant. As in most developed nations, getting it there is not the problem. Domestic and commercial waste is collected from homes and offices efficiently. The difficulties start when the rubbish arrives. With labour costs high, there are no rag-pickers to sift through everything and work out what is worth recycling. The problem here is in the sorting. Aluminium cans are easy to deal with because they are all the same. But different types of plastics cannot be recycled together and machines do not have the sophistication to tell one type from another. So a lot goes to landfill or incineration, mixed with the remaining worthless waste. And now, suddenly, China has stopped accepting imports of low-grade plastic and paper, so Newby Island no longer has a place to send the mixed garbage that it lacks the hands to separate.

Both processes—in the developed and the developing world—are part of a global system that has improved substantially in recent decades as patterns of consumption, and therefore waste disposal, have changed. But both are under strain, as the volume of rubbish has increased with economic growth and as the global garbage industry has changed.

Numerous studies have shown that life in areas with patchy collection increases the risk of diseases as well as neurological conditions. In 2016 consultants at McKinsey calculated that burning, dumping or discharging a tonne of rubbish into waterways cost south Asian economies \$375 through pollution and disease, against \$50-100 required for basic systems to dispose of that same tonne properly.

In the poorest countries, especially in Africa, rubbish is still just dumped anywhere, and management is limited. But there is also comparatively little of it. A typical citizen of Lesotho produces 110 grams a day, one-fortieth as much as a typical citizen of Iceland (the country with the highest rubbish-generation rate per person). It is the economies that are booming that present the challenge. Many are now pouring money into dealing with trash. Narendra Modi's government has earmarked \$9.5bn for solid-waste management in its \$30bn Swachh Bharat (Clean India) Mission. Indonesia is ploughing \$1bn into its plastic-clean-up campaign. Authorities in Morocco believe that \$300m they have invested in new sanitary landfills has already averted \$440m in environmental damage. Many projects enjoy backing from the World Bank and other multilateral lenders. Others are promoted by grassroots organisations and entrepreneurs.

They are bearing fruit. Collection rates in low-income countries have nearly doubled to 39% between 2012 and 2018, even as the volume of waste rose by a third. In middle-income countries like China, they rose on average to 51%. Rates for industrial waste are also improving (in places that have industry), though they already tend to be high because factories produce large, predictable volumes of more homogeneous refuse that is often valuable (like metal scrap).

#### Q.6

As per the passage, which of the following is true about China?

- 1  It has suddenly stopped accepting imports of low grade materials.
- 2  It has shown improvement in the collection of waste materials.
- 3  It has poured more than a billion dollar into backing projects that improve the standards of waste disposal methods.
- 4  It has the backing of the World Bank when it comes to working towards a cleaner environment.

**Solution:****Correct Answer : 2****Your Answer : 1****Word Count: 555** **Bookmark** **Answer key/Solution****Genre: Environmental Studies / Ecology****This is a fact based question. So, we need to follow the method of elimination.****Option 1 – It looks close but the passage mentions that China has stopped accepting 'imports of low grade plastic and paper', not 'materials' which is a very broad description.****Option 2 – It can be found in the last paragraph. It gives the statistics of 51% increase in waste collection. So, it is true about China.****Option 3 – It is true for Indonesia, not China.****Option 4 – It is not mentioned in the passage. The passage does mention that the World Bank has backed certain projects in countries that are trying to improve their waste disposal process. It doesn't specifically mention China.****FeedBack****Direction for questions (1-24): Read the given passages and answer the questions that follow.****Passage 2**

In many parts of the developing world formal collection is expanding. There are now some 6,000 community waste banks in Indonesia, where residents deposit recyclables in exchange for cash. Once rubbish makes it to the waste-management site, the systems can be relatively efficient. The problem is getting a nation's refuse to such sites in the first place, when door-to-door collection is still rare, and households and businesses seldom sort their garbage.

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Both processes—in the developed and the developing world—are part of a global system that has improved substantially in recent decades as patterns of consumption, and therefore waste disposal, have changed. But both are under strain, as the volume of rubbish has increased with economic growth and as the global garbage industry has changed.

Numerous studies have shown that life in areas with patchy collection increases the risk of diseases as well as neurological conditions. In 2016 consultants at McKinsey calculated that burning, dumping or discharging a tonne of rubbish into waterways cost south Asian economies \$375 through pollution and disease, against \$50-100 required for basic systems to dispose of that same tonne properly.

In the poorest countries, especially in Africa, rubbish is still just dumped anywhere, and management is limited. But there is also comparatively little of it. A typical citizen of Lesotho produces 110 grams a day, one-fortieth as much as a typical citizen of Iceland (the country with the highest rubbish-generation rate per person). It is the economies that are booming that present the challenge. Many are now pouring money into dealing with trash. Narendra Modi's government has earmarked \$9.5bn for solid-waste management in its \$30bn Swachh Bharat (Clean India) Mission. Indonesia is ploughing \$1bn into its plastic-clean-up campaign. Authorities in Morocco believe that \$300m they have invested in new sanitary landfills has already averted \$440m in environmental damage. Many projects enjoy backing from the World Bank and other multilateral lenders. Others are promoted by grassroots organisations and entrepreneurs.

They are bearing fruit. Collection rates in low-income countries have nearly doubled to 39% between 2012 and 2018, even as the volume of waste rose by a third. In middle-income countries like China, they rose on average to 51%. Rates for industrial waste are also improving (in places that have industry), though they already tend to be high because factories produce large, predictable volumes of more homogeneous refuse that is often valuable (like metal scrap).

#### Q.7

Which of the following is the main difference between the developed nations and the developing nations with regards to garbage disposal?

- 1  The developed nations don't know what to do with their garbage disposal system whereas the developing ones don't know how to limit garbage production.
- 2  The developed nations have trouble disposing garbage whereas the developing ones don't have sufficient fund to research on more efficient garbage disposal systems.
- 3  The developed nations collect but can't sort through garbage efficiently whereas the developing ones face trouble in collecting garbage.
- 4  The developing nations don't have proper channels and manpower to collect garbage to take to the disposal sites.

**x**

**Solution:****Correct Answer : 3****Your Answer : 1****Word Count: 555** **Bookmark** **Answer key/Solution****Genre: Environmental Studies / Ecology****Refer to the first two paragraphs. Option 3 best describes the difference.****Option 1 is misleading as the passage clearly states that developing nations produce less garbage; refer to the example of Lesotho and Iceland.****Option 4 doesn't mention anything about the developed nations. So, it doesn't answer the question.****Option 2 is wrong as the lack of funding is not mentioned as a difference.****FeedBack****Direction for questions (1-24): Read the given passages and answer the questions that follow.****Passage 2**

In many parts of the developing world formal collection is expanding. There are now some 6,000 community waste banks in Indonesia, where residents deposit recyclables in exchange for cash. Once rubbish makes it to the waste-management site, the systems can be relatively efficient. The problem is getting a nation's refuse to such sites in the first place, when door-to-door collection is still rare, and households and businesses seldom sort their garbage.

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#### Q.8

Which of the following is not true according to the passage?

- 1  A citizen of Iceland produces around 440 grams of garbage per day.
- 2  India and Indonesia have taken steps to combat the problem of garbage.
- 3  An investment in proper garbage disposal process makes economic sense.
- 4  Not all of the cleanliness related projects are backed by world bodies.

**x**

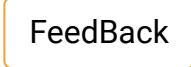
 Bookmark Answer key/Solution**Solution:****Correct Answer : 1****Your Answer : 4****Word Count: 555****Genre: Environmental Studies / Ecology**

**Option 1 – Refer to the line, “A typical citizen of Lesotho produces 110 grams a day, one-fortieth as much as a typical citizen of Iceland (the country with the highest rubbish-generation rate per person).” So, it should be 4.4 kg of waste, not 440 grams.**

**Option 2 – It is clearly mentioned in the penultimate paragraph.**

**Option 3 – Refer to the line, “In 2016 consultants at McKinsey calculated that burning, dumping or discharging a tonne of rubbish into waterways cost south Asian economies \$375 through pollution and disease, against \$50-100 required for basic systems to dispose of that same tonne properly.”**

**Option 4 – Refer to the line, “Many projects enjoy backing from the World Bank and other multilateral lenders. Others are promoted by grassroots organisations and entrepreneurs.”**

 FeedBack

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

## Passage 2

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#### Q.9

Why, according to the author, are the processes of garbage collection and disposal in the developing and developed countries under pressure?

- 1  Due to rapid economic growth
- 2  Due to change in waste consumption pattern
- 3  Due to change in waste disposal pattern
- 4  Due to increase in the volume of garbage



**Solution:****Correct Answer : 4****Your Answer : 4****Word Count: 555** **Bookmark** **Answer key/Solution****Genre: Environmental Studies / Ecology**

Refer to the lines: "Both processes—in the developed and the developing world—are part of a global system that has improved substantially in recent decades as patterns of consumption, and therefore waste disposal, have changed. But both are under strain, as the volume of rubbish has increased with economic growth and as the global garbage industry has changed." Option 4 is the clear answer.

 **FeedBack**

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**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

**Passage 2**

In many parts of the developing world formal collection is expanding. There are now some 6,000 community waste banks in Indonesia, where residents deposit recyclables in exchange for cash. Once rubbish makes it to the waste-management site, the systems can be relatively efficient. The problem is getting a nation's refuse to such sites in the first place, when door-to-door collection is still rare, and households and businesses seldom sort their garbage.

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#### Q.10

**Which of the following is the main idea of the author?**

- 1  Garbage collection is the main problem the world needs to tackle if it wants to have a cleaner environment.
- 2  The world is making some welcome progress when it comes to the issue of garbage collection and disposal processes.
- 3  We have a long way to go in our quest to save the planet from environmental degradation.
- 4  The world is now a better place than what it was two decades ago.

**x**

**Solution:****Correct Answer : 2****Your Answer : 1****Word Count: 555****Genre: Environmental Studies / Ecology****Option 4 is not hinted by any part of the paragraph.****The passage is about garbage collection and disposal. So, option 3, which talks about environment, is beyond the scope of the paragraph.****Option 1 only talks about garbage collection.****So, option 2 is the correct answer.** **Bookmark** **Answer key/Solution****FeedBack**

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

### Passage 3

Coffee, ambrosia of the capitalist and the creative alike, is many things: a fixture of social ritual, the product of a vast agricultural production steeped in colonialist history, and the most widely used psychoactive drug in the world. Entire economies rest upon its cultivation and its caffeine content. Its modern permutations go far beyond cream and sugar: fair-trade designations, additions of alternative milks such as soy or pea-protein, a preparation with butter and oil (for optimized biohacking), or simply with a piece of shortbread dunked in. It has inspired legal and moral crusades and “love is brewing” theme weddings. The latest installment in *The New Yorker’s Annals of Obsession* video series features a group of specialty-coffee experts and explores the fringes of the fascination.

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The U.S. Coffee Championships showcase the competitive side of appreciation. At the CoffeeChamps qualifying round, in Nashville, professionals demonstrate their ability to detect notes of heirloom tomato and toasted herbs. Cupping, the gold standard for tasting, is practiced by hunching over a series of different samples with a bowl-shaped spoon and slurping intently. (The tasters at revolving tables straddle traditional cupping spittoons.) Analyzing the flavor profile and body of a brew is a nuanced task. “The number of aromatic compounds present in roasted coffee is greater than that of wine,” Kaneshige says. “There’s, like, a thousand.” There’s a hint of younger-sibling rivalry in the way that coffee geeks refer to more established connoisseur cultures. “I can, like, relatively confidently say that if you were willing to spend somewhere around four to five dollars on a cup of coffee a day, you’re drinking the best coffee in the world,” Lance Schnorenberg, the co-owner of Sey Coffee, says. “You just can’t say that about wine or any of these other things that people get really obsessive about.” Other obsessives agree. “I don’t understand why we can’t put coffee on the same pedestal,” Sara Samplawska, a Sey Coffee regular, says. “More delicious than a thousand kisses, milder than muscatel wine,” Johann Sebastian Bach writes, in his “Coffee Cantata,” from the eighteenth century. “Coffee, I have to have coffee.”

**Q.11**

**Which of the following best expresses the purpose of writing the passage?**

- 1  To contrast the popularity and consumption pattern of coffee with that of wine
- 2  To censure the obsession of people for coffee and to look for a better alternative
- 3  To analyze the nuances behind the cultural significance of coffee and its consumption pattern
- 4  To highlight the economic significance of cultivation of coffee and its acceptance as a normal cultural norm

**Solution:**

**Correct Answer : 3**

**Word Count: 493**

**Genre: Culture / Popular Culture**



[Answer key/Solution](#)

The passage discusses the adaptations in the preparation and consumption process through different generations. It talks about use of soy, pea-protein, use of shortbread dunked in coffee etc. It outlines the modern practice like cupping and tasting in preparing coffee. So, option 3 is the best fit for the answer.

**Option1 –** It is not correct as the comparison with wine is mentioned only as an example, not the main focus.

**Option 2 –** It is incorrect as the tone of the author is not negative. The writer neither criticizes coffee users nor searches any alternative to coffee.

**Option 4 –** It is not correct because economic significance is not part of the main focus.

**Secondly,** the author doesn't define coffee as a 'normal cultural norm'. That's a misleading conclusion.

[FeedBack](#)

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

### Passage 3

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**Q.12**

**Which of the following statements is NOT TRUE?**

- 1  Diner coffee belongs to the first wave.
- 2  Coffee has admirers from diverse group of people.
- 3  Cupping is considered to be a method of tasting.
- 4  Wine is richer than coffee in terms of number of aromatic compounds.

**Solution:**

**Correct Answer : 4**

**Word Count: 493**

**Genre: Culture / Popular Culture**

Refer to the third paragraph. The statement "The number of aromatic compounds present in roasted coffee is greater than that of wine" indicates that coffee is richer than wine in terms of aromatic compounds.

**Option 1 is true.** Refer to the second paragraph.

**Option 2 is true.** Read the first line of the first paragraph.

**Option 3 is true.** Read the fifth line of the first paragraph.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

### Passage 3

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**Q.13**

**According to Lance Schnorenberg:**

- 1  one's love for coffee is a more cost effective pursuit than the obsession over wine.
- 2  what people expect of coffee is different than what they actually get.
- 3  coffee deserves to be honoured as a worthwhile drink.
- 4  one can't appreciate coffee if one has not drunk the best in the world.

**Solution:**

**Correct Answer : 1**

**Word Count: 493**

**Genre: Culture / Popular Culture**



**Q Answer key/Solution**

Lance Schnorenberg says, "You just can't say that about wine or any of these other things that people get really obsessive about". So he agrees that coffee is more cost effective. So, option 1 is the correct answer.

**Option 2 – This sentence can be interpreted in two ways. So, it's a vague option.**

**Option 3 – This is hinted in a different context. It doesn't talk about Lance Schnorenberg.**

**Option 4 – This is a twisted option. This is mentioned in a different context and it can't be taken too literally.**

**FeedBack**

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

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The U.S. Coffee Championships showcase the competitive side of appreciation. At the CoffeeChamps qualifying round, in Nashville, professionals demonstrate their ability to detect notes of heirloom tomato and toasted herbs. Cupping, the gold standard for tasting, is practiced by hunching over a series of different samples with a bowl-shaped spoon and slurping intently. (The tasters at revolving tables straddle traditional cupping spittoons.) Analyzing the flavor profile and body of a brew is a nuanced task. “The number of aromatic compounds present in roasted coffee is greater than that of wine,” Kaneshige says. “There’s, like, a thousand.” There’s a hint of younger-sibling rivalry in the way that coffee geeks refer to more established connoisseur cultures. “I can, like, relatively confidently say that if you were willing to spend somewhere around four to five dollars on a cup of coffee a day, you’re drinking the best coffee in the world,” Lance Schnorenberg, the co-owner of Sey Coffee, says. “You just can’t say that about wine or any of these other things that people get really obsessive about.” Other obsessives agree. “I don’t understand why we can’t put coffee on the same pedestal,” Sara Samplawska, a Sey Coffee regular, says. “More delicious than a thousand kisses, milder than muscatel wine,” Johann Sebastian Bach writes, in his “Coffee Cantata,” from the eighteenth century. “Coffee, I have to have coffee.”

#### Q.14

Which of the following is the correct progression of coffee variants from the first wave onwards?

- 
- 1  Instant coffee, Specialty era coffee, Gram scales coffee, and Ready-to-drink beverages
- 
- 2  Instant coffee, Gram scales coffee, Specialty era coffee, and Ready-to-drink beverages
- 
- 3  Instant coffee, Specialty era coffee, Ready-to-drink beverages, and Gram scales coffee
- 
- 4  Instant coffee, Gram scales coffee, Ready-to-drink beverages, and Specialty era coffee
- 

**Solution:**

**Correct Answer : 1**

**Word Count: 493**

**Genre: Culture / Popular Culture**

**Refer to the second paragraph which clearly mentions the variants of different generation coffee in chronological order. So, option 1 is the correct answer.**

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

### Passage 3

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**Q.15**

**Why does the author term coffee as ‘ambrosia’?**

- 1  Because of its rich colonial and historical heritage
- 2  Because of its ability to affect a multitude of things
- 3  Because of its status as a popular psychoactive drug
- 4  Because of its status as a trend-setter in the modern era

**Solution:**

**Correct Answer : 2**

**Word Count: 493**

**Genre: Culture / Popular Culture**



[Answer key/Solution](#)

This is mentioned at the beginning of the passage. The author never really clearly mentions the reason behind calling coffee ambrosia. So, the answer has to be inferred from the passage.

Options 1, 3, and 4 are all part of this narrative. So, none of them can be called the reason for this or rather all of them are part of the reason.

Hence, option 2, which in a way summarises the entire paragraph, is the correct choice.

[FeedBack](#)

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

#### **Passage 4**

The crude political act of renaming places in India has been, in essence, a delayed reaction against colonial impositions.

In 1995, Bombay turned into Mumbai – the first name, according to some theories, a corruption of the Portuguese “bom baim,” or “good little bay”; the second derived from the goddess of the local Koli community, Mumbadevi. In similar vein, Madras soon became Chennai, Trivandrum became

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In mid-August, though, the chief minister of West Bengal, Mamata Banerjee, announced that her state would now call itself Paschimbanga, though subject to Parliamentarian approval. One prosaic reason behind this move, reports said, was that West Bengal sat at the very end of the list of states in alphabetical order; by the time its representatives rise to speak at national conferences or meetings, their audience has melted away, having sat through the ramblings of 27 prior state delegates. If this is indeed the case, Uttar Pradesh and Uttarakhand must learn fast.

The choice of “Paschimbanga” has been puzzled over, since it is simply a near-direct translation of “West Bengal.” The name defines the state in opposition to an “East Bengal” that no longer exists, that is now the country of Bangladesh. In retaining this geopolitical marker, Paschimbanga appears to have validated, rather than reversed, a colonial decision: the halving of the state of Bengal, which occurred first not in 1947, during the partition of India, but in 1905.

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But Curzon’s decision to divide Bengal was more canny than pragmatic, and it flowed smoothly from the British Raj’s broader policies of divide-and-rule. In an official note in 1904, H. H. Risley, the home secretary in the Government of India and an ethnographer who had codified the caste system in the 1901 census, wrote:

*Bengal united is a power. Bengal divided will pull in several different ways. That is what the Congress leaders feel: their apprehensions are perfectly correct and they form one of the great merits of the scheme... One of our main objects is to split up and thereby weaken a solid body of opponents to our rule .*

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#### Q.16

Which of the following would weaken the reasoning behind renaming West Bengal?

- 1  In majority of the conferences, attendance is mandatory and delegates have to attend.
- 2  In majority of the conferences, the names of the representatives don’t matter.

3  In majority of the conferences, the delegates of the poorer states speak first.

4  In majority of the conferences, the order of the speakers is randomly decided.

**Solution:**

**Correct Answer : 4**

**Word Count: 625**

**Genre: Politics / History**

 **Bookmark**

 **Answer key/Solution**

We need to refer to the lines: "...was that West Bengal sat at the very end of the list of states in alphabetical order; by the time its representatives rise to speak at national conferences or meetings, their audience has melted away, having sat through the ramblings of 27 prior state delegates." This logic needs to be weakened.

Option 1 – It says nothing about the order of the speakers based on the name of the state. Attendance and remaining present throughout all the conferences are different things.

Option 2 – The name of the state, not those of the speakers, is under discussion here. So, this won't affect the reasoning.

Option 3 – It is not known if West Bengal is poor. So, this won't directly weaken the argument.

Option 4 – If the order of the speaker is randomly chosen, then the name of the state won't matter. So, this is the correct choice.

**FeedBack**

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#### **Passage 4**

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#### Q.17

In the context of this passage, what role does the first sentence play?

- 
- 1  It is a premise that argues in favour of the author’s stance.
-

- 2  It is a conclusion that iterates the author's main point.
- 3  It is a premise that subtly introduces the author's main assumption in the passage.
- 4  It is a conclusion that defines the author's main counter argument.

**X****Solution:****Correct Answer : 2****Your Answer : 3****Word Count: 625****Answer key/Solution****Genre: Politics / History**

It's a main idea question. The first sentence is very direct and it gives the author's conclusion. It doesn't hint at any subtlety. It doesn't argue or mention any reasoning. It simply states what the author explains in the subsequent argument. So, option 2 is the correct answer.

**Option 1 – It's not a premise.**

**Option 3 – It's a very direct point. The author doesn't show any subtlety. So, it can't be called an assumption.**

**Option 4 – It has not been countered in the passage. There is no counter argument.**

**FeedBack**

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#### Q.18

**What does the author term as an irony in the passage?**

- 1  The failure of the British government to suppress the spirit of the united Bengal province
- 2  The futility of the division of Bengal when the people of the divided provinces remained united in spirit
- 3  Bangladesh's adopting a song that celebrates the spirit of a united Bengal as its national anthem
- 4  The rejoining of Bengal in 1911 which lasted for only a few decades

**Solution:**

**Correct Answer : 3**

**Word Count: 625**

**Genre: Politics / History**

 **Bookmark**

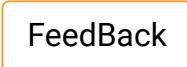
 **Answer key/Solution**

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**Option 1 –** The spirit here is not literal. The author doesn't say that these people remained united. This option doesn't capture the meaning of the word irony either.

**Option 2 –** This is the author's conclusion. The question asks us to find the reference, not the author's opinion.

**Option 4 –** This event was not ironic. It is mentioned in a different context.

 **FeedBack**

**Direction for questions (1-24):** Read the given passages and answer the questions that follow.

#### **Passage 4**

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**the first ten lines of *Amar Shonar Bangla*, a poem that is animated by the spirit of a united Bengal.**

**Q.19**

**Why does the author mention Uttar Pradesh and Uttarakhand in the passage?**

- 1  To highlight the stupidity of politicians in trying to gain some political points
- 2  To emphasize on the need to have a national naming policy which is non-discriminatory
- 3  To expose a flaw in the plan of the Indian Parliament to block the unnecessary renaming of West Bengal
- 4  To criticize the supposed rationale behind the West Bengal chief minister's announcement



**Solution:**

**Correct Answer : 4**

**Your Answer : 1**

**Word Count: 625**

**Genre: Politics / History**

The author gives any example to strengthen his main idea. Hence, option 4 is the correct answer.

**Option 1 –** The author doesn't attack politicians in general. The author simply questions the reasoning behind a certain political step.

**Option 2 –** This is too farfetched to be related to the passage.

**Option 3 –** This is out of scope too.

**Bookmark**

**Answer key/Solution**

**FeedBack**

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

#### **Passage 4**

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### Q.20

Which of the following is least likely to be true about Curzon as per the given passage?

- 1  He was a believer of the 'divide and rule' policy of his superiors.
- 2  He was sympathetic to the plight of the majority in the East Bengal province.
- 3  He was an advocate of creating administratively manageable size of states.
- 4  He was shrewd when it comes to devising a plan to divide the Bengal province.

**Solution:**

**Correct Answer : 2**

**Word Count: 625**

**Genre: Politics / History**

'Least likely' is the clue here. Options 1, 3, and 4 are directly mentioned in the passage. Option 2 may or may not be true. So, it is the correct answer.

 **Bookmark**

 **Answer key/Solution**

 **FeedBack**

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

### Passage 5

"WHEN your heart stops beating, you'll keep tweeting" is the reassuring slogan greeting visitors at the Web site for LivesOn, a soon-to-launch service that promises to tweet on your behalf even after you die. By analyzing your earlier tweets, the service would learn "about your likes, tastes, syntax" and add a personal touch to all those automatically composed scribblings from the world beyond.

LivesOn may yet prove to be a parody, or it may fizzle for any number of reasons, but as an idea it highlights the dominant ideology of Silicon Valley today: what could be disrupted should be disrupted — even death.

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#### **Q.21**

**Which of the following is not a tone employed by the author in the passage?**

- 
- 1  Sarcastic
  - 2  Caustic
  - 3  Petulant
  - 4  Humorous
-

**Solution:****Correct Answer : 3****Word Count: 577****Genre: Science and Technology / Sociology**

The author is critical. Sometimes, he is very sarcastic and humorous. Petulant which means irritable is not an apt choice here as the author never loses his cool.

[FeedBack](#)
 **Bookmark**
 **Answer key/Solution**

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

### **Passage 5**

**"WHEN your heart stops beating, you'll keep tweeting"** is the reassuring slogan greeting visitors at the Web site for LivesOn, a soon-to-launch service that promises to tweet on your behalf even after you die. By analyzing your earlier tweets, the service would learn "about your likes, tastes, syntax" and add a personal touch to all those automatically composed scribblings from the world beyond.

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---

## **Q.22**

**Which of the following, if true, would strengthen the author's argument in the last paragraph?**

---

- 1  Pain has been unnecessarily romanticised by writers and intellectuals.**
  - 2  The correlation between pain and character building has been proven by many scientific studies.**
  - 3  In every civilized and progressive society, a highly respectable intellectual is revered, not discarded.**
  - 4  In the modern age, the relevance of an esteemed intellectual's teachings is priceless.**
-

**Solution:****Correct Answer : 2****Word Count: 577****Genre: Science and Technology / Sociology**

The argument in question here is that 'pain' brings about some positive character building strengths such as maturity. This has to be strengthened. Option 2 clearly strengthens this by giving another piece of information.

**Option 1 – This will weaken the argument.**

**Option 3 – This talks about intellectuals, not the concept of pain. The question talks about the last paragraph. So, the concept of pain is the main argument.**

**Option 4 – This again is an irrelevant argument.**

**Bookmark****Answer key/Solution****FeedBack**

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

**Passage 5**

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### **Q.23**

**From the way the author talks about inventions like LivesOn in the passage, which of the following can be inferred?**

- 
- 1  The author has nothing but contempt for new technological achievements.**
  - 2  The author deems new scientific inventions that make humans more comfortable as being counterproductive.**
  - 3  The author is quite harsh on researchers who claim to invent impractical and impossible apps.**
  - 4  The author is critical of inventions of services that seem impractical and unnecessary.**
-

Bookmark

Answer key/Solution

**Solution:****Correct Answer : 4****Word Count: 577****Genre: Science and Technology / Sociology**

The author doesn't show a positive inclination towards these apps or inventions. He is highly sarcastic and sceptical of their logic and aim. So, we need to find an inference that matches this tone.

**Option 1 –** This option is extreme. The author can't be said to be against any kind of technological achievements. This is the logical fallacy of generalising something based on limited facts. So, this option is wrong.

**Option 2 –** Following the same logic as above, this too is a logically extreme inference.

**Option 3 –** It looks close. But the clue here is 'impossible'. All the apps the author cites as being unnecessary have already been developed. So, 'unnecessary' in 4 makes it a better fit.

[FeedBack](#)

**Direction for questions (1-24): Read the given passages and answer the questions that follow.**

### Passage 5

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#### Q.24

Why does the author cite Jean Paul Sartre in the passage?

- 1  To strengthen his fight against scientific injustice
- 2  To strengthen his criticism of the silicon valley's ideology of vilifying pain
- 3  To further reiterate his basic criticism against the silicon valley
- 4  To counter argue in favour of human suffering which is being eradicated by the silicon valley

Bookmark

Answer key/Solution

**Solution:****Correct Answer : 2****Word Count: 577****Genre: Science and Technology / Sociology**

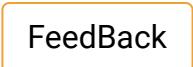
The author gives any example to strengthen the main idea. Here, Sartre has been mentioned in the last paragraph. So, we need to find the main idea of that paragraph. It is clear that the author mentions Sartre to highlight the fact that Silicon Valley has come up with too many apps to make life comfortable. In a way they have disregarded the value of pain as a positive influence. Sartre is used as a representative of this idea. So, the option which is closest to this idea is the answer.

**Option 1 – ‘Scientific injustice’ is both extreme and irrelevant.**

**Option 2 – It is close to the main idea related to pain. So, it is the correct answer.**

**Option 3 – The author is not against the Silicon Valley. He is against certain irrational inventions.**

**Option 4 – The eradication of human suffering won’t be opposed by the author. Talking about ‘too much comfort’ is not analogous to supporting suffering. Note the humorous tone of the author.**


 FeedBack
**Q.25**

**Directions for question (25): 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. Recognizing this necessity, the Ministry of Health and Family Welfare, Government of India, commissioned the National Mental Health Survey (NMHS) in the year 2014–15.
2. It aimed to identify current treatment gaps, existing patterns of health-care seeking, service utilization patterns, along with an understanding of the impact and disability due to these disorders.
3. Understanding the burden and pattern of mental disorders as well as mapping the existing resources for delivery of mental health services in India, has been a felt need over decades.
4. The NMHS of India (2015–16) is a unique representative survey which adopted a uniform and standardized methodology which sought to overcome limitations of previous surveys.
5. The NMHS aimed to estimate the prevalence and burden of mental health disorders in India.



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

The correct order is 3152. This question doesn't require one to arrange the other 4 sentences.

The main idea of the paragraph is that the NMHS was created in 2014 with certain aims. All the other sentences follow this time line (2014). The sentences describe the aim and the reasoning behind this programme.

Sentence 4 talks about a survey related to the same that was done in 2016. So, it doesn't fit the timeline of this paragraph. It may come later in the narrative.

**FeedBack****Bookmark****Answer key/Solution**

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

**Q.26**

Now, never losing sight of the object supremeness, of perfection, at all points, I asked myself- "Of all melancholy topics, what, according to the universal understanding of mankind, is the most melancholy?" Death – was the obvious reply. "And when," I said, "is this most melancholy of topics most poetical?" From what I have already explained at some length, the answer, here also, is obvious – "When it most closely allies itself to Beauty: the death, then, of a beautiful woman is, unquestionably, the most poetical topic in the world – and equally is it beyond doubt that the lips best suited for such topic are those of a bereaved lover."

- 1  Death is the most melancholic and supreme of all topics in literary discussions.
- 2  Death as a literary topic is empowered by its association with aesthetics.
- 3  When it comes to literature, even a melancholic topic like death can be made joyful.
- 4  The power of literature is such that a topic like death is glorified by its beautiful nature.

Bookmark

Answer key/Solution

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

This is a tough question. The idea of the paragraph looks incomplete and vague. Hence, the only way to solve this question is by the method of elimination.

The main points the author raises are:

1. As per universal understanding, death is the most melancholy of topics.
2. Death also is the most poetic.
3. Death becomes a thing of beauty in literature as it is the most effective in conveying a sense of melancholy in a beautiful manner.

So, the best answer should mention these three points.

**Option 1** – It talks about all literary ‘discussions’. And the phrase ‘most supreme’ is not what the author mentions. So, it is an extreme conclusion, not a summary.

**Option 2** – ‘Aesthetics’ is the study of beauty. The author doesn’t focus on this in the paragraph. Secondly, the author doesn’t say that death is empowered by aesthetics. The author simply says that death is both poetic and melancholic. It represents the idea of melancholy in a beautiful manner. So, the ‘cause-effect’ relationship is twisted here. So, this option is close but not correct.

**Option 3** – This option mentions the entire gamut of literature. It appears as if literature has the power to make any topic beautiful. Obviously, that’s not what the author has discussed. Secondly, it misses two main points of the paragraph.

**Option 4** – It looks close to option 3. But note that this option doesn’t talk about any literary topic. It says that literature has empowered death and death is associated with beauty. So, this is the best possible choice.


 FeedBack
**Q.27**

**Directions for question (27):** The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. Nevertheless, I raced through *The Mind Is Flat* fascinated.
2. But I was consistently engaged by Chater’s brazen points even if I was never quite sure they were right.
3. And so I was anxious to talk to Chater in person, see if I could get him to clear up some of my misgivings about his portrait of the unconscious.
4. I’ve encountered shades of Chater’s ideas in other recent books, notably *How Emotions Are Made* by Lisa Feldman Barrett.


 ×

**Solution:****Correct Answer : 1423****Your Answer : 4123**

**1** clearly opens the topic. It's an abrupt opening sentence as it has been probably taken from the middle of a larger narrative.

**14** is a pair (other recent books).

**42** is a pair (but contrasts **4**).

**23** is a pair ('and' adds to the idea mentioned in **2**). So, **1423** is the correct order.

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 **Bookmark**
 **Answer key/Solution**
**Q.28**

**Directions for question (28):** 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. But what's likely happening in grief is a breakdown in one's understanding of one's life.
2. This makes no sense, it makes the world seem completely purposeless.
3. And I think when people are trying to change – grief being a big, difficult hurdle – a lot of that is creative re-imagining.
4. I don't think there's a winning solution to addressing any of life's problems in a particularly straightforward way.
5. If you think of something really awful like the loss of a child or a partner, one of the things that makes getting that really hard is the sense that this was not supposed to happen.

**Solution:****Correct Answer : 3**

The correct order is **4152**. To answer this question, we need to identify a few mandatory pairs.

**41** is a pair. **4** is a good opening sentence as it starts with the author's opinion of the topic. It also talks about the lack of 'a winning solution' to life's problems. **1** starts with 'but'. It means grief may not be a winning solution, but it does help to certain extent. So, **41** is a pair.

**5** explains this concept mentioned in **1**. Then 'this makes no sense' in **2** refers to the idea of loss mentioned in **5**. The paragraph is, thus, not complete. But the author focuses on introducing the purpose of grief in life. And the author has just started to define what grief is. If **3** follows **2**, it will be a very abrupt conclusion. **3** talks about 'creative re-imagining'. This needs some context. So, most likely, **3** will come later in the discussion.

[FeedBack](#)
 **Bookmark**
 **Answer key/Solution**

**Directions for question (29):** The passage given below is followed by four summaries. Choose the option that best captures the author's position.

**Q.29**

I think Benjamin is a wholly exceptional figure. It is difficult to find anyone else who was able to combine encyclopaedic erudition and a real gusto for accumulating material and ideas with the sophistication that more frequently goes with being an epigone (one tasked with concluding itineraries rather than opening up new ones) – and with his capacity to innovate, to read the world in a new light, to capture the first signs and elements of the momentous epochal changes that were to come. Those who revolutionise are not typically overly concerned with style – but rather with the need for rupture, destruction and re-invention unhampered by linguistic preoccupations.

- 
- 1  Benjamin was an exceptional writer because he could read the world in a new light.
  - 2  Benjamin was a revolutionary as he was concerned with style and substance, not linguistic brilliance.
  - 3  The real achievement of Benjamin was that he could overcome linguistic preoccupations and showcase his talent with gusto.
  - 4  Benjamin had the ability to foresee changes which were signs of his erudition and linguistic brilliance.
- 

**Solution:****Correct Answer : 4****Your Answer : 1**

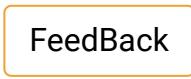
The main idea is that Benjamin was an exceptional figure. The author gives a few reasons for this. Note the last line. The author says that Benjamin had the ability to foresee changes ("...of the momentous epochal changes that were to come."). It also notes that normally revolutionaries don't think about linguistic constraints. However, whether Benjamin belongs to this or not is questionable. So, option 4 is the most appropriate answer.

**Answer key/Solution**

Option 1 – This is too literal an interpretation and it is narrow in its scope. It misses the point about Benjamin's erudition.

Option 2 – This is not mentioned anywhere in the passage. So, it is actually an incorrect answer.

Option 3 – Nowhere is it mentioned that Benjamin overcame any difficulty. So, it is a twisted option.

**FeedBack**

**Q.30**

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

1. To have been suspended at all, one needs a kind of sky-hook.
2. But the accumulative power of all these vague gestures towards the idea of suspension is considerable.
3. The suspension that was there in those paradisal days has gone.
4. Even if we have fallen, the hook was once there.



**Solution:**

**Correct Answer :** 3214

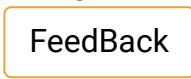
**Your Answer :** 3412

This is clearly a vague paragraph. It doesn't have a solid opening or closing sentence. So, we need to focus on the pairs.

32 is a pair. The 'but' in 2 contrasts with 3.

14 is a pair. 'Sky-hook' in 1 is mentioned also in 4. 'The hook' in 4 is the key.

Now we need to find the opening sentence. Being the broadest sentence, 3 is a better opening sentence than 1. So, 3214 is the answer.

 **Bookmark** **Answer key/Solution** **FeedBack****Q.31**

**Directions for question (31):** 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. Many people visualize their 'network' as a list of names they can utilize to achieve an end goal.
2. The help you provide others defines your impact and your life.
3. The relationships you build germinate over the years and come back to help you in unexpected ways.
4. This is the only way to build real and lasting relationships.
5. When you take this approach, something fascinating happens.



**Solution:****Correct Answer : 1****Your Answer : 5**

This is an easy question. The correct order is 4253. However, we don't have to arrange the remaining sentences.

1 is the odd one out as it will come later in the discussion. 'Visualising' one's network has not been discussed in this paragraph.

[FeedBack](#) [Bookmark](#) [Answer key/Solution](#)

**Directions for question (32): The passage given below is followed by four summaries. Choose the option that best captures the author's position.**

**Q.32**

Although Archaeopteryx specimens have been thoroughly studied since the initial discovery of the genus, the new specimen shows valuable new anatomical details, such as the close association of the jugal and postorbital bones (two bones that form part of the orbit) and the convexity of the posterior articular surface of the cervical vertebrae. However, more Archaeopteryx specimens, with various states of preservation and fragmentation became known over the years, scientists started to observe variation in skeletal characters within the group of specimens collectively referred to as Archaeopteryx. In parallel, our knowledge of the anatomy of small avian and non-avian theropods has increased tremendously over the last decades. It is time to ask the million dollar question: what, if anything, is an Archaeopteryx?

- 1  A new specimen has redefined who's in and who's out of the Archaeopteryx genus – and poses questions about other theropod dinosaurs.
- 2  A new specimen has raised questions about our understanding of the group called Archaeopteryx and its anatomical exclusivity.
- 3  A newly discovered specimen has radically changed the understanding and working of Palaeontologists.
- 4  The concept of Archaeopteryx genus has been questioned by new discovery which showcases its anatomical features.

**Solution:****Correct Answer : 2**

This can be answered by the method of elimination. The main point of the author in the paragraph is that some new study has raised questions about a long held assumption. Option 2 is the apt summary because of the part 'understanding of the group'.

**Option 1 – It is distorted.** The new research has not defined anything. And it doesn't question in a generic manner.

**Option 3 – It is too generic as it talks about the profession in a generic sense.**

**Option 4 – It misses the point about the anatomical difference.** So, it is incomplete.

[FeedBack](#)
 **Bookmark**
 **Answer key/Solution**
**Q.33**

**Directions for question (33):** The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

1. Even in Victorian times when you came to "call", tapping on the window, you terrified the hypochondriacs.
2. In the darker reaches of the wood, as in the medieval imagination, you were more or less sacred.
3. Now, singing louder at night to compensate for the growling ambient noise of human life, and burdened with "cuteness", your call is greeted with patronising sentimentality.
4. Where have you come from, *Erithacus rubecula* ?

**Solution:****Correct Answer : 4213**

There are two significant themes in the paragraph: the bird's song was considered sacred (mentioned in sentences 2 and 1), the bird's song is now considered sentimental (sentence 3). This shift in the perception gives the clue to the arrangement of the sentences. 'Medieval' – 'Victorian'- 'Now'- This clearly makes 213 a sequence.

 **Bookmark**
 **Answer key/Solution**

The question asked in sentence 4 is not rhetoric in nature. It is a question which has been answered by the following sentences. So, it acts as the topic sentence of the paragraph. Hence, 4213 is the correct sequence.

[FeedBack](#)

**Q.34**

**Directions for question (34): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.**

1. During the Dark Ages in Europe, pain was seen as a punishment for sins, a spiritual and emotional experience alleviated through prayers rather than prescriptions.
2. It was no longer a passion to be endured but a sensation to be quashed.
3. The ancient Greeks considered pain a passion — an emotion rather than a sensation like touch or smell.
4. In the 19th century, the secularization of Western society led to the secularization of pain.

**X**

**Solution:**

**Correct Answer : 3142**

**Your Answer : 4123**

This is a very easy question. The paragraph follows a narrative pattern with a defined timeline. A little bit of prior knowledge is required though.

The time line here is – Ancient Greek – Dark Ages in Europe – 19th century

This leaves with a clear sequence of 314. Sentence 2 comes at the end as it describes what is ‘secularization of pain’. (Mentioned in 4)

So, the correct sequence is 3142.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Sec 2**

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

In a grid of dimension  $m \times n$ , where  $m$  is the number of rows and  $n$  is the number of columns, the neighbouring cells to any cell ' $a_{ij}$ ' are those which have at least a side or a corner common to the cell  $a_{ij}$ . Each of the cells of the grid needs to be filled by Amit with a distinct natural number among  $1, 2, \dots, mn$ , keeping the following restrictions in mind:

- i) He must start filling with number 1, then number 2 and so on till number  $mn$ .
- ii) No two neighbouring cells can have consecutive natural numbers. Also, all the cells in the odd numbered columns must be filled with the odd natural numbers.
- iii) While filling any number, he must choose a cell in such a way that the maximum possible cells are ruled out for the next natural number.
- iv) Number 1 can be filled randomly in any cell without necessarily satisfying the above point.
- v) If there are more than one possible cells with the maximum number of neighbours, then he can randomly choose any of them.

**Example:** In the grid shown below, number 3 can be filled either in 1st row and 1st column or in 3rd row and 1st column, as in both the cases it will eliminate 2 places for '4' which is the maximum possible.

1			2

### Q.35

If number '1' is blindly filled by Amit in the 1st row and 1st column of a  $4 \times 4$  grid, then in how many ways can he fill the remaining grid?

**Solution:****Correct Answer : 4**
 **Bookmark**
 **Answer key/Solution**

Let the 4 rows are A, B, C and D and the 4 columns are P, Q, R and S. So AP means the cell in row A and column P. Now 2 must be in CQ as it eliminates 6 places for 3. Now 3 must be AR as it is the only place available for it. Now 4 must be in DQ as it eliminates four places for 5. Now 5 can come in the cell BP or BR. If 5 is in the cell BP, then it eliminates two places for 6. If 5 is in the cell BR, then it eliminates five places for 6. So 5 comes in the cell BR. Therefore, 6 can only come in the cell DS. Similarly, 7, 8, 9 and 10 can be filled. Now 11 can be put in DP as well as DR.

**Case 1:** If 11 is put in DP, 12 must be put in BQ. Now 13 can only be put in DR. 14 and 16 can be put in row A in 2 ways now and 15 can only be put in CR.

	P	Q	R	S
A	1	14/16	3	16/14
B	7	12	5	10
C	9	2	15	8
D	11	4	13	6

**Case 2:** If 11 is put in DR, 12 must be put in BQ. 13 can only be put in DP now and 14 and 16 will again come in row A in any order whereas 15 will come in CR.

	P	Q	R	S
A	1	14/16	3	16/14
B	7	12	5	10
C	9	2	15	8
D	13	4	11	6

Hence, there are total 4 possible ways to fill a  $4 \times 4$  grid.

 **FeedBack**

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

In a grid of dimension  $m \times n$ , where  $m$  is the number of rows and  $n$  is the number of columns, the neighbouring cells to any cell ' $a_{ij}$ ' are those which have at least a side or a corner common to the cell  $a_{ij}$ . Each of the cells of the grid needs to be filled by Amit with a distinct natural number among  $1, 2, \dots, mn$ , keeping the following restrictions in mind:

- i) He must start filling with number 1, then number 2 and so on till number  $mn$ .
- ii) No two neighbouring cells can have consecutive natural numbers. Also, all the cells in the odd numbered columns must be filled with the odd natural numbers.
- iii) While filling any number, he must choose a cell in such a way that the maximum possible cells are ruled out for the next natural number.
- iv) Number 1 can be filled randomly in any cell without necessarily satisfying the above point.
- v) If there are more than one possible cells with the maximum number of neighbours, then he can randomly choose any of them.

**Example:** In the grid shown below, number 3 can be filled either in 1st row and 1st column or in 3rd row and 1st column, as in both the cases it will eliminate 2 places for '4' which is the maximum possible.

1			2

### Q.36

If number '1' is blindly filled by Amit in the 1st row and 1st column of a  $4 \times 4$  grid, then what is the difference between the sum of all the numbers in row 1 and that in row 4?

1  0

2  4

3  6

4  Cannot be determined

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

Let the 4 rows are A, B, C and D and the 4 columns are P, Q, R and S. So AP means the cell in row A and column P. Now 2 must be in CQ as it eliminates 6 places for 3. Now 3 must be AR as it is the only place available for it. Now 4 must be in DQ as it eliminates four places for 5. Now 5 can come in the cell BP or BR. If 5 is in the cell BP, then it eliminates two places for 6. If 5 is in the cell BR, then it eliminates five places for 6. So 5 comes in the cell BR. Therefore, 6 can only come in the cell DS. Similarly, 7, 8, 9 and 10 can be filled. Now 11 can be put in DP as well as DR.

**Case 1:** If 11 is put in DP, 12 must be put in BQ. Now 13 can only be put in DR. 14 and 16 can be put in row A in 2 ways now and 15 can only be put in CR.

	P	Q	R	S
A	1	14/16	3	16/14
B	7	12	5	10
C	9	2	15	8
D	11	4	13	6

**Case 2:** If 11 is put in DR, 12 must be put in BQ. 13 can only be put in DP now and 14 and 16 will again come in row A in any order whereas 15 will come in CR.

	P	Q	R	S
A	1	14/16	3	16/14
B	7	12	5	10
C	9	2	15	8
D	13	4	11	6

Sum of all the numbers of row 1 =  $1 + 16 + 3 + 14 = 34$ .

Sum of all the numbers of row 4 =  $13 + 4 + 11 + 6 = 34$

Difference = 0.

**FeedBack**

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

In a grid of dimension  $m \times n$ , where  $m$  is the number of rows and  $n$  is the number of columns, the neighbouring cells to any cell ' $a_{ij}$ ' are those which have at least a side or a corner common to the cell  $a_{ij}$ . Each of the cells of the grid needs to be filled by Amit with a distinct natural number among  $1, 2, \dots, mn$ , keeping the following restrictions in mind:

- i) He must start filling with number 1, then number 2 and so on till number  $mn$ .
- ii) No two neighbouring cells can have consecutive natural numbers. Also, all the cells in the odd numbered columns must be filled with the odd natural numbers.
- iii) While filling any number, he must choose a cell in such a way that the maximum possible cells are ruled out for the next natural number.
- iv) Number 1 can be filled randomly in any cell without necessarily satisfying the above point.
- v) If there are more than one possible cells with the maximum number of neighbours, then he can randomly choose any of them.

**Example:** In the grid shown below, number 3 can be filled either in 1st row and 1st column or in 3rd row and 1st column, as in both the cases it will eliminate 2 places for '4' which is the maximum possible.

1			2

### Q.37

If number '1' is blindly filled by Amit in the 1st row and 1st column of a  $4 \times 4$  grid, then which natural number can be written in the cell just above the cell having number '12' written in it?

1  14

2  16

3  10

4  Either 14 or 16

**Solution:****Correct Answer : 4** **Bookmark** **Answer key/Solution**

Let the 4 rows are A, B, C and D and the 4 columns are P, Q, R and S. So AP means the cell in row A and column P. Now 2 must be in CQ as it eliminates 6 places for 3. Now 3 must be AR as it is the only place available for it. Now 4 must be in DQ as it eliminates four places for 5. Now 5 can come in the cell BP or BR. If 5 is in the cell BP, then it eliminates two places for 6. If 5 is in the cell BR, then it eliminates five places for 6. So 5 comes in the cell BR. Therefore, 6 can only come in the cell DS. Similarly, 7, 8, 9 and 10 can be filled. Now 11 can be put in DP as well as DR.

**Case 1:** If 11 is put in DP, 12 must be put in BQ. Now 13 can only be put in DR. 14 and 16 can be put in row A in 2 ways now and 15 can only be put in CR.

	P	Q	R	S
A	1	14/16	3	16/14
B	7	12	5	10
C	9	2	15	8
D	11	4	13	6

**Case 2:** If 11 is put in DR, 12 must be put in BQ. 13 can only be put in DP now and 14 and 16 will again come in row A in any order whereas 15 will come in CR.

	P	Q	R	S
A	1	14/16	3	16/14
B	7	12	5	10
C	9	2	15	8
D	13	4	11	6

Either 14 or 16 can be in the cell just above the cell having number '12' written in it.

**FeedBack**

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

In a grid of dimension  $m \times n$ , where  $m$  is the number of rows and  $n$  is the number of columns, the neighbouring cells to any cell ' $a_{ij}$ ' are those which have at least a side or a corner common to the cell  $a_{ij}$ . Each of the cells of the grid needs to be filled by Amit with a distinct natural number among  $1, 2, \dots, mn$ , keeping the following restrictions in mind:

- i) He must start filling with number 1, then number 2 and so on till number  $mn$ .
- ii) No two neighbouring cells can have consecutive natural numbers. Also, all the cells in the odd numbered columns must be filled with the odd natural numbers.
- iii) While filling any number, he must choose a cell in such a way that the maximum possible cells are ruled out for the next natural number.
- iv) Number 1 can be filled randomly in any cell without necessarily satisfying the above point.
- v) If there are more than one possible cells with the maximum number of neighbours, then he can randomly choose any of them.

**Example:** In the grid shown below, number 3 can be filled either in 1st row and 1st column or in 3rd row and 1st column, as in both the cases it will eliminate 2 places for '4' which is the maximum possible.

1			2

### Q.38

In how many ways can a  $3 \times 4$  grid be filled?

**Solution:**

**Correct Answer : 0**

 **Bookmark**

 **Answer key/Solution**

Let the 4 rows are A, B, C and D and the 4 columns are P, Q, R and S. So AP means the cell in row A and column P. Now 2 must be in CQ as it eliminates 6 places for 3. Now 3 must be AR as it is the only place available for it. Now 4 must be in DQ as it eliminates four places for 5. Now 5 can come in the cell BP or BR. If 5 is in the cell BP, then it eliminates two places for 6. If 5 is in the cell BR, then it eliminates five places for 6. So 5 comes in the cell BR. Therefore, 6 can only come in the cell DS. Similarly, 7, 8, 9 and 10 can be filled. Now 11 can be put in DP as well as DR.

**Case 1:** If 11 is put in DP, 12 must be put in BQ. Now 13 can only be put in DR. 14 and 16 can be put in row A in 2 ways now and 15 can only be put in CR.

	P	Q	R	S
A	1	14/16	3	16/14
B	7	12	5	10
C	9	2	15	8
D	11	4	13	6

**Case 2:** If 11 is put in DR, 12 must be put in BQ. 13 can only be put in DP now and 14 and 16 will again come in row A in any order whereas 15 will come in CR.

	P	Q	R	S
A	1	14/16	3	16/14
B	7	12	5	10
C	9	2	15	8
D	13	4	11	6

For a  $3 \times 4$  grid, number 1 can be filled randomly in any cell. Then number 2 will come in even column and it will be best placed in CQ as it eliminates 4 places for number 3. So, the only cell left for number 3 is AR. So, accordingly, the cell where 4 can be put is CS.

	P	Q	R	S
A	1		3	
B				
C		2		4

Now, number 5 can be placed in BP or CP. If we place 5 in the cell BP, it will eliminate two places for the number 6 whereas if we place number 5 in the cell CP, it will only eliminate one place for the number 6. So, we will place the number 5 in BP. Similarly, number 6 is placed in BS cell as it will eliminate maximum two cells for the number 7. So, the only place where we can put number 7 is CP.

Now, we can place number 8 in AQ or AS as in both cases it will eliminate one place for the number 9. So, the only cell left for the number 9 is CR. Then, the number 10 can be placed in AQ or AS depending on the place where number 8 will be placed. So, the grid till now will be as follows:

	P	Q	R	S
A	1	8/10	3	10/8
B	5			6
C	7	2	9	4

Hence, the only cell left for number 11 is BR but it contradicts the given information in the question as BR is one of the neighbouring cells of the number 10.

Hence, a  $3 \times 4$  grid is filled in zero ways.

**FeedBack**

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

In Pune, there are 2 housing societies - Galaxy Apartment (GA) and Gokuldham Society (GS). Some people residing there are extremely fond of junk food and prefer to order their food from 3 famous franchisees - KFC, McDonalds (M), and Dominos (D). 60 people living in GA order from M and 116 order from D, while in GS, 55 people order from M.

Further the following information is also known:

- Number of people living in GA, who order their food from all 3 franchisees, is thrice the number of people of GS who order their food from all 3 of them.
- Number of people of GS who order from KFC only is 8.33% more than the number of people of GA who order from D only.
- Number of people of GS ordering their food from M and D only is 16.66 % of the number of people of GA ordering their food from D only.
- Number of people of GA ordering their food from KFC only is 14.28% of the number of people of GS ordering food from M only.
- Number of people of GA ordering food from KFC and D only and number of people in GS ordering food from M and D only are in the ratio of 1 : 2.
- Number of people in GA ordering food from KFC and M only is 25% of the number of people in GA who order their food from D only.
- Number of people in GS ordering food from D only is 4 times the number of people in GA ordering from KFC only.
- Number of people in GA ordering food from both KFC and D is equal to the number of people in GS ordering from both M and D.
- Number of people in GS ordering food from KFC and M only, and KFC and D only are zero and same is true for the number of people in GA ordering food from M and D only.

### Q.39

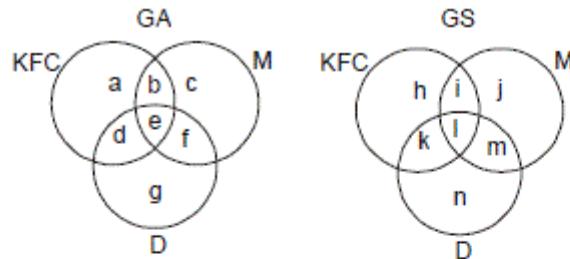
How many people from Gokuldham Society order their food from Dominos?

**Solution:**

**Correct Answer : 40**

 **Bookmark**

 **Answer key/Solution**



From statement (5),  $m = 2d$  ... (i)

From statement (3),  $m = \frac{g}{6} \Rightarrow g = 12d$  ... (ii)

From statement (6),  $b = \frac{g}{4} \Rightarrow b = 3d$  ... (iii)

From statement (2),  $h = \frac{13}{12}g \Rightarrow h = 13d$  ... (iv)

From statement (1),  $e = 3l$  ... (v)

From statement (8),  $d + e = l + m$

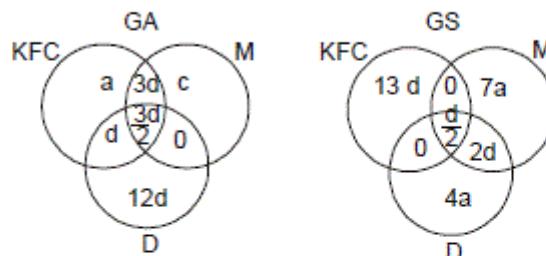
$\Rightarrow d + 3l = l + 2d$  (from (i) and (v))

$\Rightarrow d = 2l \Rightarrow l = \frac{d}{2}$  ... (vi)

From statement (4) and (7),  $j = 7a$  and  $n = 4a$  ... (vii)

From statement (9),  $k = i = f = 0$  ... (viii)

So, final venn diagrams are



$\therefore 12d + d + \frac{3d}{2} = 116$  (Since 116 people order from D in GA)

$\Rightarrow d = 8$

and,  $7a + \frac{d}{2} + 2d = 55$  (Since 55 people order from M in GS)

$\Rightarrow a = 5$

People from Gokuldham Society who order their food from Dominoz =  $4a + \frac{d}{2} + 2d = 4a + \frac{5d}{2} = 20 + 20 = 40$ .

FeedBack

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

In Pune, there are 2 housing societies - Galaxy Apartment (GA) and Gokuldham Society (GS). Some people residing there are extremely fond of junk food and prefer to order their food from 3 famous franchisees - KFC, McDonalds (M), and Dominos (D). 60 people living in GA order from M and 116 order from D, while in GS, 55 people order from M.

Further the following information is also known:

- Number of people living in GA, who order their food from all 3 franchisees, is thrice the number of people of GS who order their food from all 3 of them.
- Number of people of GS who order from KFC only is 8.33% more than the number of people of GA who order from D only.
- Number of people of GS ordering their food from M and D only is 16.66 % of the number of people of GA ordering their food from D only.
- Number of people of GA ordering their food from KFC only is 14.28% of the number of people of GS ordering food from M only.
- Number of people of GA ordering food from KFC and D only and number of people in GS ordering food from M and D only are in the ratio of 1 : 2.
- Number of people in GA ordering food from KFC and M only is 25% of the number of people in GA who order their food from D only.
- Number of people in GS ordering food from D only is 4 times the number of people in GA ordering from KFC only.
- Number of people in GA ordering food from both KFC and D is equal to the number of people in GS ordering from both M and D.
- Number of people in GS ordering food from KFC and M only, and KFC and D only are zero and same is true for the number of people in GA ordering food from M and D only.

#### Q.40

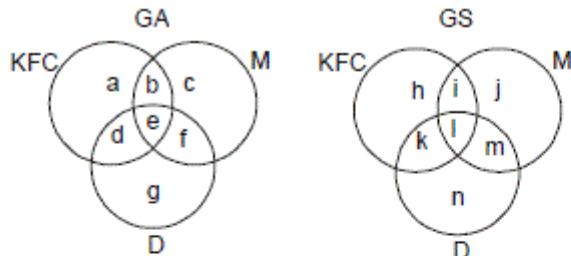
How many people from Galaxy Apartment order their food from exactly two of these franchisees?

**Solution:**

**Correct Answer : 32**

 **Bookmark**

 **Answer key/Solution**



From statement (5),  $m = 2d$  ... (i)

From statement (3),  $m = \frac{g}{6} \Rightarrow g = 12d$  ... (ii)

From statement (6),  $b = \frac{g}{4} \Rightarrow b = 3d$  ... (iii)

From statement (2),  $h = \frac{13}{12}g \Rightarrow h = 13d$  ... (iv)

From statement (1),  $e = 3l$  ... (v)

From statement (8),  $d + e = l + m$

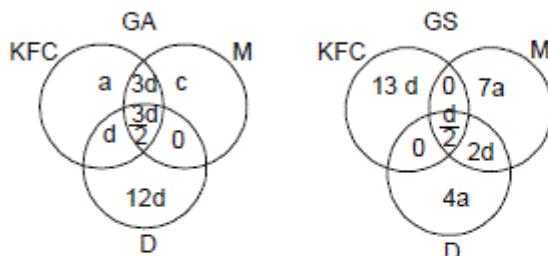
$\Rightarrow d + 3l = l + 2d$  (from (i) and (v))

$\Rightarrow d = 2l \Rightarrow l = \frac{d}{2}$  ... (vi)

From statement (4) and (7),  $j = 7a$  and  $n = 4a$  ... (vii)

From statement (9),  $k = i = f = 0$  ... (viii)

So, final venn diagrams are



$\therefore 12d + d + \frac{3d}{2} = 116$  (Since 116 people order from D in GA)

$\Rightarrow d = 8$

and,  $7a + \frac{d}{2} + 2d = 55$  (Since 55 people order from M in GS)

$\Rightarrow a = 5$

People from Galaxy Apartment who order their food from exactly two franchisees =  $d + 3d = 4d = 4 \times 8 = 32$ .

FeedBack

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

In Pune, there are 2 housing societies - Galaxy Apartment (GA) and Gokuldham Society (GS). Some people residing there are extremely fond of junk food and prefer to order their food from 3 famous franchisees - KFC, McDonalds (M), and Dominos (D). 60 people living in GA order from M and 116 order from D, while in GS, 55 people order from M.

Further the following information is also known:

- Number of people living in GA, who order their food from all 3 franchisees, is thrice the number of people of GS who order their food from all 3 of them.
- Number of people of GS who order from KFC only is 8.33% more than the number of people of GA who order from D only.
- Number of people of GS ordering their food from M and D only is 16.66 % of the number of people of GA ordering their food from D only.
- Number of people of GA ordering their food from KFC only is 14.28% of the number of people of GS ordering food from M only.
- Number of people of GA ordering food from KFC and D only and number of people in GS ordering food from M and D only are in the ratio of 1 : 2.
- Number of people in GA ordering food from KFC and M only is 25% of the number of people in GA who order their food from D only.
- Number of people in GS ordering food from D only is 4 times the number of people in GA ordering from KFC only.
- Number of people in GA ordering food from both KFC and D is equal to the number of people in GS ordering from both M and D.
- Number of people in GS ordering food from KFC and M only, and KFC and D only are zero and same is true for the number of people in GA ordering food from M and D only.

#### Q.41

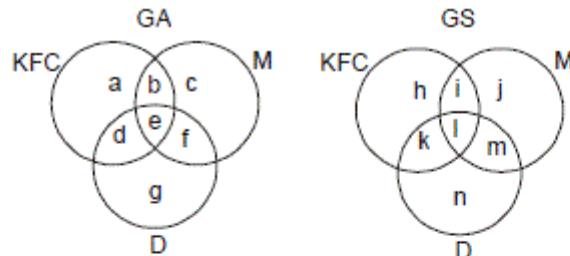
Number of people in Galaxy Apartment who order their food from KFC is

**Solution:**

**Correct Answer : 49**

 **Bookmark**

 **Answer key/Solution**



From statement (5),  $m = 2d$  ... (i)

From statement (3),  $m = \frac{g}{6} \Rightarrow g = 12d$  ... (ii)

From statement (6),  $b = \frac{g}{4} \Rightarrow b = 3d$  ... (iii)

From statement (2),  $h = \frac{13}{12}g \Rightarrow h = 13d$  ... (iv)

From statement (1),  $e = 3l$  ... (v)

From statement (8),  $d + e = l + m$

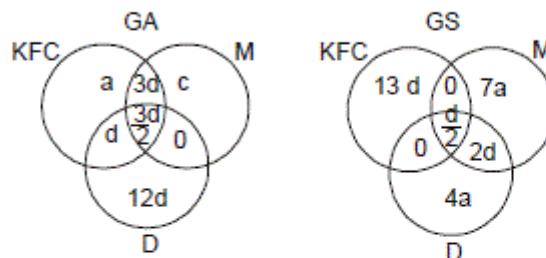
$\Rightarrow d + 3l = l + 2d$  (from (i) and (v))

$\Rightarrow d = 2l \Rightarrow l = \frac{d}{2}$  ... (vi)

From statement (4) and (7),  $j = 7a$  and  $n = 4a$  ... (vii)

From statement (9),  $k = i = f = 0$  ... (viii)

So, final venn diagrams are



$\therefore 12d + d + \frac{3d}{2} = 116$  (Since 116 people order from D in GA)

$\Rightarrow d = 8$

and,  $7a + \frac{d}{2} + 2d = 55$  (Since 55 people order from M in GS)

$\Rightarrow a = 5$

Number of people in Galaxy Apartment who order their food from KFC =  $a + 4d + \frac{3d}{2} = a + \frac{11d}{2} = 5 + 44 = 49$ .

FeedBack

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

In Pune, there are 2 housing societies - Galaxy Apartment (GA) and Gokuldham Society (GS). Some people residing there are extremely fond of junk food and prefer to order their food from 3 famous franchisees - KFC, McDonalds (M), and Dominos (D). 60 people living in GA order from M and 116 order from D, while in GS, 55 people order from M.

Further the following information is also known:

- Number of people living in GA, who order their food from all 3 franchisees, is thrice the number of people of GS who order their food from all 3 of them.
- Number of people of GS who order from KFC only is 8.33% more than the number of people of GA who order from D only.
- Number of people of GS ordering their food from M and D only is 16.66 % of the number of people of GA ordering their food from D only.
- Number of people of GA ordering their food from KFC only is 14.28% of the number of people of GS ordering food from M only.
- Number of people of GA ordering food from KFC and D only and number of people in GS ordering food from M and D only are in the ratio of 1 : 2.
- Number of people in GA ordering food from KFC and M only is 25% of the number of people in GA who order their food from D only.
- Number of people in GS ordering food from D only is 4 times the number of people in GA ordering from KFC only.
- Number of people in GA ordering food from both KFC and D is equal to the number of people in GS ordering from both M and D.
- Number of people in GS ordering food from KFC and M only, and KFC and D only are zero and same is true for the number of people in GA ordering food from M and D only.

#### Q.42

What is the ratio of number of people who prefer to order their food only from McDonalds in Gokuldham Society to that in Galaxy Apartment?

1  1 : 1

2  35 : 24

3  11 : 12

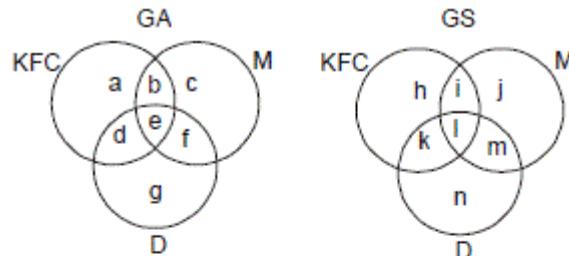
4  Data insufficient

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**



From statement (5),  $m = 2d$  ... (i)

From statement (3),  $m = \frac{g}{6} \Rightarrow g = 12d$  ... (ii)

From statement (6),  $b = \frac{g}{4} \Rightarrow b = 3d$  ... (iii)

From statement (2),  $h = \frac{13}{12}g \Rightarrow h = 13d$  ... (iv)

From statement (1),  $e = 3l$  ... (v)

From statement (8),  $d + e = l + m$

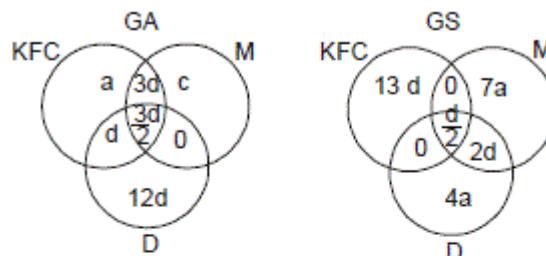
$\Rightarrow d + 3l = l + 2d$  (from (i) and (v))

$\Rightarrow d = 2l \Rightarrow l = \frac{d}{2}$  ... (vi)

From statement (4) and (7),  $j = 7a$  and  $n = 4a$  ... (vii)

From statement (9),  $k = i = f = 0$  ... (viii)

So, final venn diagrams are



$\therefore 12d + d + \frac{3d}{2} = 116$  (Since 116 people order from D in GA)

$\Rightarrow d = 8$

and,  $7a + \frac{d}{2} + 2d = 55$  (Since 55 people order from M in GS)

$\Rightarrow a = 5$

Number of people in Galaxy Apartment who order their food from McDonalds only

$$= 60 - 3d - \frac{3d}{2} = 60 - \frac{9d}{2} = 60 - 36 = 24.$$

$\therefore$  Ratio of people ordering their food only from M in GS to that in GA  $= \frac{7a}{c} = \frac{35}{24}$ .

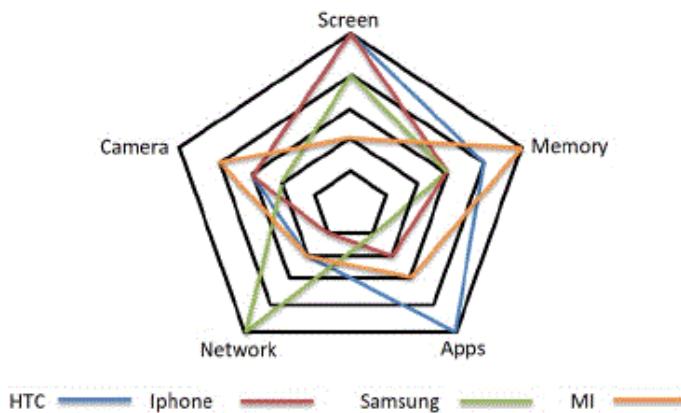
FeedBack

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

Sanjeev is planning to purchase a smartphone, out of the four famous smartphones - HTC, Iphone, Samsung and MI. There are 5 deciding parameters in his mind - Screen, Memory, Apps, Network and Camera. After doing some research, he has given a rating of 1 to 5 to each smartphone on each of the five parameters, 1 being the lowest and 5 being the highest.

The following diagram, in the shape of pentagons, represents the ratings given by him in each of these parameters. The vertices of the innermost pentagon represent rating of 1 and that of the outermost pentagon represent 5. Also, each vertex of every pentagon represents a parameter as written in the figure. He has also given a different weightage of 0.15, 0.25, 0.2, 0.15 and 0.25 to the parameters Screen, Memory, Apps, Network and Camera respectively. He finalised his selection based on the final score which he calculated based on the weightage of ratings of every parameter. Final score can be calculated as :

$$\text{Final score} = \sum_{i=1}^5 w_i r_i, \text{ where } w_i \text{ and } r_i \text{ are the weightages and ratings of the parameter } i \text{ respectively.}$$



#### Q.43

Which phone has the second best final score?

1  HTC

2  Iphone

3  Samsung

4  MI

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

According to the given information, the final table will be as follows:

	Screen	Memory	Apps	Network	Camera	Final score
HTC	5	4	5	2	3	3.8
Iphone	5	3	2	1	3	2.8
Samsung	4	3	1	5	2	2.8
MI	2	5	3	2	4	3.45

The final scores are calculated as:

$$\text{HTC: } 5 \times 0.15 + 4 \times 0.25 + 5 \times 0.20 + 2 \times 0.15 + 3 \times 0.25 = 3.8$$

$$\text{Iphone: } 5 \times 0.15 + 3 \times 0.25 + 2 \times 0.20 + 1 \times 0.15 + 3 \times 0.25 = 2.8$$

$$\text{Samsung: } 4 \times 0.15 + 3 \times 0.25 + 1 \times 0.20 + 5 \times 0.15 + 2 \times 0.25 = 2.8$$

$$\text{MI: } 2 \times 0.15 + 5 \times 0.25 + 3 \times 0.20 + 2 \times 0.15 + 4 \times 0.25 = 3.45$$

Clearly, MI smartphone has the second best final score.

[FeedBack](#)

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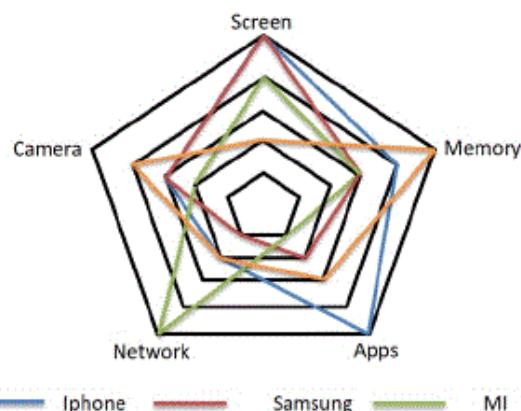
[Answer key/Solution](#)

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

Sanjeev is planning to purchase a smartphone, out of the four famous smartphones - HTC, Iphone, Samsung and MI. There are 5 deciding parameters in his mind - Screen, Memory, Apps, Network and Camera. After doing some research, he has given a rating of 1 to 5 to each smartphone on each of the five parameters, 1 being the lowest and 5 being the highest.

The following diagram, in the shape of pentagons, represents the ratings given by him in each of these parameters. The vertices of the innermost pentagon represent rating of 1 and that of the outermost pentagon represent 5. Also, each vertex of every pentagon represents a parameter as written in the figure. He has also given a different weightage of 0.15, 0.25, 0.2, 0.15 and 0.25 to the parameters Screen, Memory, Apps, Network and Camera respectively. He finalised his selection based on the final score which he calculated based on the weightage of ratings of every parameter. Final score can be calculated as :

$$\text{Final score} = \sum_{i=1}^5 w_i r_i, \text{ where } w_i \text{ and } r_i \text{ are the weightages and ratings of the parameter } i \text{ respectively.}$$



**Q.44****What is the difference between the final scores of Iphone and Samsung?****Solution:****Correct Answer : 0**

According to the given information, the final table will be as follows:

	Screen	Memory	Apps	Network	Camera	Final score
HTC	5	4	5	2	3	3.8
Iphone	5	3	2	1	3	2.8
Samsung	4	3	1	5	2	2.8
MI	2	5	3	2	4	3.45

The final scores are calculated as:

$$\text{HTC: } 5 \times 0.15 + 4 \times 0.25 + 5 \times 0.20 + 2 \times 0.15 + 3 \times 0.25 = 3.8$$

$$\text{Iphone: } 5 \times 0.15 + 3 \times 0.25 + 2 \times 0.20 + 1 \times 0.15 + 3 \times 0.25 = 2.8$$

$$\text{Samsung: } 4 \times 0.15 + 3 \times 0.25 + 1 \times 0.20 + 5 \times 0.15 + 2 \times 0.25 = 2.8$$

$$\text{MI: } 2 \times 0.15 + 5 \times 0.25 + 3 \times 0.20 + 2 \times 0.15 + 4 \times 0.25 = 3.45$$

The difference between the final scores of Iphone and Samsung =  $2.8 - 2.8 = 0$ .

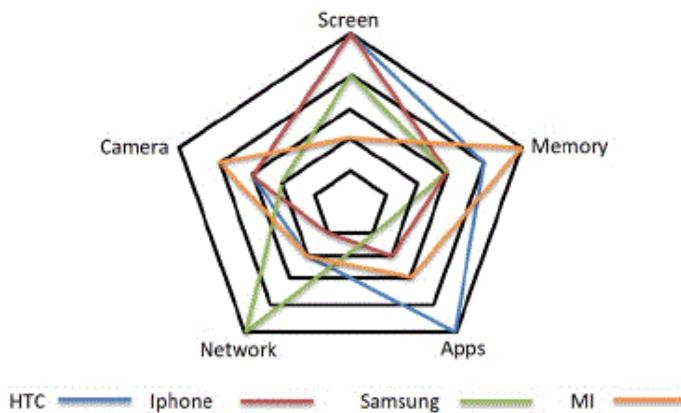
 **Bookmark**
 **Answer key/Solution**
 **FeedBack**

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

Sanjeev is planning to purchase a smartphone, out of the four famous smartphones - HTC, Iphone, Samsung and MI. There are 5 deciding parameters in his mind - Screen, Memory, Apps, Network and Camera. After doing some research, he has given a rating of 1 to 5 to each smartphone on each of the five parameters, 1 being the lowest and 5 being the highest.

The following diagram, in the shape of pentagons, represents the ratings given by him in each of these parameters. The vertices of the innermost pentagon represent rating of 1 and that of the outermost pentagon represent 5. Also, each vertex of every pentagon represents a parameter as written in the figure. He has also given a different weightage of 0.15, 0.25, 0.2, 0.15 and 0.25 to the parameters Screen, Memory, Apps, Network and Camera respectively. He finalised his selection based on the final score which he calculated based on the weightage of ratings of every parameter. Final score can be calculated as :

$$\text{Final score} = \sum_{i=1}^5 w_i r_i, \text{ where } w_i \text{ and } r_i \text{ are the weightages and ratings of the parameter } i \text{ respectively.}$$



#### Q.45

If the weightage of parameters - Screen and Memory, are interchanged, then which phone will have the maximum increase in its final score?

- 1  HTC
- 2  Iphone
- 3  Samsung
- 4  MI

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

According to the given information, the final table will be as follows:

	Screen	Memory	Apps	Network	Camera	Final score
HTC	5	4	5	2	3	3.8
Iphone	5	3	2	1	3	2.8
Samsung	4	3	1	5	2	2.8
MI	2	5	3	2	4	3.45

The final scores are calculated as:

$$\text{HTC: } 5 \times 0.15 + 4 \times 0.25 + 5 \times 0.20 + 2 \times 0.15 + 3 \times 0.25 = 3.8$$

$$\text{Iphone: } 5 \times 0.15 + 3 \times 0.25 + 2 \times 0.20 + 1 \times 0.15 + 3 \times 0.25 = 2.8$$

$$\text{Samsung: } 4 \times 0.15 + 3 \times 0.25 + 1 \times 0.20 + 5 \times 0.15 + 2 \times 0.25 = 2.8$$

$$\text{MI: } 2 \times 0.15 + 5 \times 0.25 + 3 \times 0.20 + 2 \times 0.15 + 4 \times 0.25 = 3.45$$

New weightage of parameters - Screen and Memory are 0.25 and 0.15 respectively.

Now, the new final scores of the smartphones are calculated as:

$$\text{HTC : } 5 \times 0.25 + 4 \times 0.15 + 5 \times 0.20 + 2 \times 0.15 + 3 \times 0.25 = 3.9$$

$$\text{Iphone : } 5 \times 0.25 + 3 \times 0.15 + 2 \times 0.20 + 1 \times 0.15 + 3 \times 0.25 = 3$$

$$\text{Samsung : } 4 \times 0.25 + 3 \times 0.15 + 1 \times 0.20 + 5 \times 0.15 + 2 \times 0.25 = 2.9$$

$$\text{MI : } 2 \times 0.25 + 5 \times 0.15 + 3 \times 0.20 + 2 \times 0.15 + 4 \times 0.25 = 3.15$$

$$\text{Increase in the final score of HTC} = 3.9 - 3.8 = 0.1$$

$$\text{Increase in the final score of Iphone} = 3 - 2.8 = 0.2$$

$$\text{Increase in the final score of Samsung} = 2.9 - 2.8 = 0.1$$

There is no increase in the final score of MI phone.

∴ Clearly, Iphone has the maximum increase in its final score.

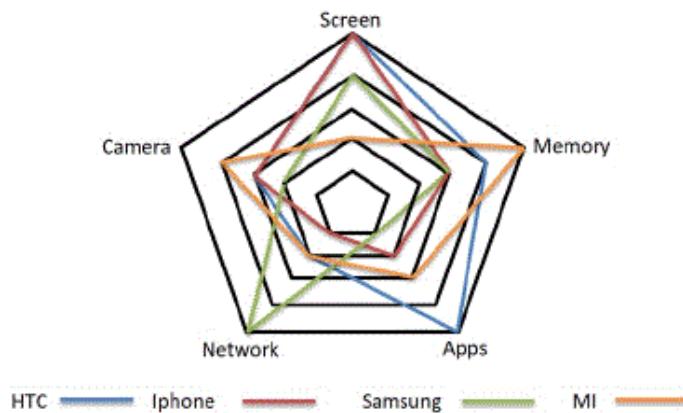

**FeedBack**

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

Sanjeev is planning to purchase a smartphone, out of the four famous smartphones - HTC, Iphone, Samsung and MI. There are 5 deciding parameters in his mind - Screen, Memory, Apps, Network and Camera. After doing some research, he has given a rating of 1 to 5 to each smartphone on each of the five parameters, 1 being the lowest and 5 being the highest.

The following diagram, in the shape of pentagons, represents the ratings given by him in each of these parameters. The vertices of the innermost pentagon represent rating of 1 and that of the outermost pentagon represent 5. Also, each vertex of every pentagon represents a parameter as written in the figure. He has also given a different weightage of 0.15, 0.25, 0.2, 0.15 and 0.25 to the parameters Screen, Memory, Apps, Network and Camera respectively. He finalised his selection based on the final score which he calculated based on the weightage of ratings of every parameter. Final score can be calculated as :

$$\text{Final score} = \sum_{i=1}^5 w_i r_i, \text{ where } w_i \text{ and } r_i \text{ are the weightages and ratings of the parameter } i \text{ respectively.}$$



#### Q.46

What can be the maximum possible final score (upto two decimal places) of a phone, if the weightages are taken in any order for any parameter?

**Solution:****Correct Answer : 4.05** **Bookmark** **Answer key/Solution**

According to the given information, the final table will be as follows:

	Screen	Memory	Apps	Network	Camera	Final score
HTC	5	4	5	2	3	3.8
Iphone	5	3	2	1	3	2.8
Samsung	4	3	1	5	2	2.8
MI	2	5	3	2	4	3.45

The final scores are calculated as:

$$\text{HTC: } 5 \times 0.15 + 4 \times 0.25 + 5 \times 0.20 + 2 \times 0.15 + 3 \times 0.25 = 3.8$$

$$\text{Iphone: } 5 \times 0.15 + 3 \times 0.25 + 2 \times 0.20 + 1 \times 0.15 + 3 \times 0.25 = 2.8$$

$$\text{Samsung: } 4 \times 0.15 + 3 \times 0.25 + 1 \times 0.20 + 5 \times 0.15 + 2 \times 0.25 = 2.8$$

$$\text{MI: } 2 \times 0.15 + 5 \times 0.25 + 3 \times 0.20 + 2 \times 0.15 + 4 \times 0.25 = 3.45$$

If the weightages are taken in any order for any parameter, then in order to find the maximum possible final score, we can consider the ratings of HTC smartphone.

Hence, final score =  $5 \times 0.25 + 4 \times 0.20 + 5 \times 0.25 + 2 \times 0.15 + 3 \times 0.15 = 4.05$ .

**FeedBack**

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

Eight people – P, Q, R, S, T, U, V and W - are working for an online commercial site, Magic.com, in 3 different shifts – 1st, 2nd and 3rd - but no more than 3 people work in any shift. There are 3 females and 5 males among these 8 people. They belong to four different departments – HR, Finance, Acads and Tech. Each department has 2 people working in it. Further, it is also known that:

- Q works only with U in the 2nd shift. V belongs to Acads department but does not work in the 3rd shift.
- One female belongs to Tech department and one to Acads department, but none of the females work in the 3rd shift.
- S, a female, belongs to the HR department and works in the 1st shift.
- Q belongs to Finance department. T and W work in the same shift.
- P and U belong to the same department i.e. Tech and they don't work in the 3rd shift.
- T and R do not belong to HR department. V is a female.
- R does not belong to Acads department.

**Q.47**

Which among the following groups can be the possible group of females?

1  P, S, V

2  S, T, V

3  S, V, W

4  P, S, T



### Solution:

**Correct Answer : 1**

**Your Answer : 1**

**Bookmark**

**Answer key/Solution**

According to the given information, the table will be as follows:

	I <sup>st</sup> shift	II <sup>nd</sup> shift	III <sup>rd</sup> shift	
HR	S (Female)			xT, xR
Finance		Q		
Acads	V (Female)		xV	xR
Tech	P	U		1 Female
			x Female, xP	

As, it is given that T and W work in the same shift and not more than three people work in any shift, it implies that both T and W will work in the 3<sup>rd</sup> shift.

Now, each department has two people working in it and R does not belong to HR and Acads department so, clearly R will belong to Finance department.

Thus, T belongs to Acads department as he does not belong to the HR department. Therefore, the only department left for W is the HR department.

There are 3 females in total, out of which S and V are definitely females (given) and there is a female in the Tech department too so, either P or U is a female.

Therefore, Q, W, R and T are definitely males. So, the final table is:

	I <sup>st</sup> shift	II <sup>nd</sup> shift	III <sup>rd</sup> shift
HR	S (Female)		W (Male)
Finance		Q (Male)	R (Male)
Acads	V (Female)		T (Male)
Tech	P (Male/Female)	U (Female/Male)	

Clearly, P, S, V can be the possible group of females.

**FeedBack**

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

Eight people – P, Q, R, S, T, U, V and W - are working for an online commercial site, Magic.com, in 3 different shifts – 1st, 2nd and 3rd - but no more than 3 people work in any shift. There are 3 females and 5 males among these 8 people. They belong to four different departments – HR, Finance, Acads and Tech. Each department has 2 people working in it. Further, it is also known that:

- Q works only with U in the 2nd shift. V belongs to Acads department but does not work in the 3rd shift.
- One female belongs to Tech department and one to Acads department, but none of the females work in the 3rd shift.
- S, a female, belongs to the HR department and works in the 1st shift.
- Q belongs to Finance department. T and W work in the same shift.
- P and U belong to the same department i.e. Tech and they don't work in the 3rd shift.
- T and R do not belong to HR department. V is a female.
- R does not belong to Acads department.

#### **Q.48**

**Who are the two people working in Finance department?**

1  P, U

2  S, V

3  Q, R

4  None of these



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

According to the given information, the table will be as follows:

	I <sup>st</sup> shift	II <sup>nd</sup> shift	III <sup>rd</sup> shift	
HR	S (Female)			xT, xR
Finance		Q		
Acads	V (Female)		xV	xR
Tech	P	U		1 Female
			x Female, xP	

As, it is given that T and W work in the same shift and not more than three people work in any shift, it implies that both T and W will work in the 3<sup>rd</sup> shift.

Now, each department has two people working in it and R does not belong to HR and Acads department so, clearly R will belong to Finance department.

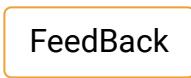
Thus, T belongs to Acads department as he does not belong to the HR department. Therefore, the only department left for W is the HR department.

There are 3 females in total, out of which S and V are definitely females (given) and there is a female in the Tech department too so, either P or U is a female.

Therefore, Q, W, R and T are definitely males. So, the final table is:

	I <sup>st</sup> shift	II <sup>nd</sup> shift	III <sup>rd</sup> shift
HR	S (Female)		W (Male)
Finance		Q (Male)	R (Male)
Acads	V (Female)		T (Male)
Tech	P (Male/Female)	U (Female/Male)	

From the final table, Q and R work in Finance department.


**FeedBack**

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

Eight people – P, Q, R, S, T, U, V and W - are working for an online commercial site, Magic.com, in 3 different shifts – 1st, 2nd and 3rd - but no more than 3 people work in any shift. There are 3 females and 5 males among these 8 people. They belong to four different departments – HR, Finance, Acads and Tech. Each department has 2 people working in it. Further, it is also known that:

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- S, a female, belongs to the HR department and works in the 1st shift.
- Q belongs to Finance department. T and W work in the same shift.
- P and U belong to the same department i.e. Tech and they don't work in the 3rd shift.
- T and R do not belong to HR department. V is a female.
- R does not belong to Acads department.

**Q.49**

**Who among the following works in the 1st shift?**

1  P

2  R

3  T

4  W

X

**Solution:****Correct Answer : 1****Your Answer : 3****Bookmark****Answer key/Solution**

According to the given information, the table will be as follows:

	I <sup>st</sup> shift	II <sup>nd</sup> shift	III <sup>rd</sup> shift	
HR	S (Female)			xT, xR
Finance		Q		
Acads	V (Female)		xV	xR
Tech	P	U		1 Female
			x Female, xP	

As, it is given that T and W work in the same shift and not more than three people work in any shift, it implies that both T and W will work in the 3<sup>rd</sup> shift.

Now, each department has two people working in it and R does not belong to HR and Acads department so, clearly R will belong to Finance department.

Thus, T belongs to Acads department as he does not belong to the HR department. Therefore, the only department left for W is the HR department.

There are 3 females in total, out of which S and V are definitely females (given) and there is a female in the Tech department too so, either P or U is a female.

Therefore, Q, W, R and T are definitely males. So, the final table is:

	I <sup>st</sup> shift	II <sup>nd</sup> shift	III <sup>rd</sup> shift
HR	S (Female)		W (Male)
Finance		Q (Male)	R (Male)
Acads	V (Female)		T (Male)
Tech	P (Male/Female)	U (Female/Male)	

Clearly, P works in the 1<sup>st</sup> shift.

**FeedBack**

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

Eight people – P, Q, R, S, T, U, V and W - are working for an online commercial site, Magic.com, in 3 different shifts – 1st, 2nd and 3rd - but no more than 3 people work in any shift. There are 3 females and 5 males among these 8 people. They belong to four different departments – HR, Finance, Acads and Tech. Each department has 2 people working in it. Further, it is also known that:

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- S, a female, belongs to the HR department and works in the 1st shift.
- Q belongs to Finance department. T and W work in the same shift.
- P and U belong to the same department i.e. Tech and they don't work in the 3rd shift.
- T and R do not belong to HR department. V is a female.
- R does not belong to Acads department.

#### **Q.50**

**Who among the following belongs to Tech department?**

1  U

2  R

3  S

4  W

X

**Solution:****Correct Answer : 1****Your Answer : 4** **Bookmark** **Answer key/Solution**

According to the given information, the table will be as follows:

	I <sup>st</sup> shift	II <sup>nd</sup> shift	III <sup>rd</sup> shift	
HR	S (Female)			xT, xR
Finance		Q		
Acads	V (Female)		xV	xR
Tech	P	U		1 Female
			x Female, xP	

As, it is given that T and W work in the same shift and not more than three people work in any shift, it implies that both T and W will work in the 3<sup>rd</sup> shift.

Now, each department has two people working in it and R does not belong to HR and Acads department so, clearly R will belong to Finance department.

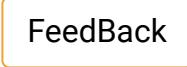
Thus, T belongs to Acads department as he does not belong to the HR department. Therefore, the only department left for W is the HR department.

There are 3 females in total, out of which S and V are definitely females (given) and there is a female in the Tech department too so, either P or U is a female.

Therefore, Q, W, R and T are definitely males. So, the final table is:

	I <sup>st</sup> shift	II <sup>nd</sup> shift	III <sup>rd</sup> shift
HR	S (Female)		W (Male)
Finance		Q (Male)	R (Male)
Acads	V (Female)		T (Male)
Tech	P (Male/Female)	U (Female/Male)	

U belongs to the Tech department.

 **FeedBack**

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

Six players, namely Kohli, Rohit, Root, Zaman, Kane and Shikhar, played in a cricket tournament in 2017.

In the tournament, number of innings played by these 6 players were 6, 8, 10, 10, 12 and 14, not necessarily in the same order. Some of the known data about the tournament is written in the table as shown below:

Player	Number of innings played	Total runs scored in the tournament	Batting average	Number of centuries made
Kohli				
Rohit			80	4
Root				
Zaman		450		2
Kane			65	
Shikhar		560		3

Batting average can be calculated as, batting average =  $\frac{\text{Runs Scored}}{\text{Innings played}}$

Further the following information is also known:

- Batting averages of Kane, Zaman and Kohli were 3 consecutive odd multiples of 5 in any order, with no player's average more than 90.
- Zaman had the 3rd highest batting average among the six players but scored the least total runs, while Kohli had the highest batting average as well as the highest total runs.
- Root played the maximum number of innings but was one of the second lowest run scorers with total 560 runs, with the minimum batting average among the six players.
- Batting average of Shikhar was the arithmetic mean of the batting averages of Kane and Zaman.
- Number of centuries made by Rohit was 100% more than that of Kane's. Both of them had played equal number of innings.

### Q.51

What is the ratio of the number of centuries made by Kane and Shikhar?

1  2 : 3

2  4 : 3

3  1 : 1

4  1 : 3

X

**Solution:****Correct Answer : 1****Your Answer : 4****Bookmark****Answer key/Solution**

From statement 3, it can be concluded that Root played 14 innings and his batting average was 40.

From statement 5, it can be inferred that,

Number of centuries made by Rohit = 4, number of centuries made by Kane = 2

Since both of them had played equal number of innings, so they played 10 innings each.

So, number of runs scored by Rohit =  $10 \times 80 = 800$

Number of runs scored by Kane =  $10 \times 65 = 650$

From statement (1) and (2), it can be concluded that Kohli had a batting average of 85.

Therefore, batting average of Zaman = 75

$$\text{Number of innings played by Zaman} = \frac{450}{75} = 6.$$

From statement (4),

$$\text{Batting average of Shikhar} = \frac{65 + 75}{2} = 70$$

$$\text{So, the number of innings played by Shikhar} = \frac{560}{70} = 8$$

So, the final table is:

Player	Number of innings played	Total runs scored in the tournament	Batting average	Number of centuries made
Kohli	12	1020	85	
Rohit	10	800	80	4
Root	14	560	40	
Zaman	6	450	75	2
Kane	10	650	65	2
Shikhar	8	560	70	3

From the table given, the ratio is 2 : 3.

**FeedBack**

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

Six players, namely Kohli, Rohit, Root, Zaman, Kane and Shikhar, played in a cricket tournament in 2017.

In the tournament, number of innings played by these 6 players were 6, 8, 10, 10, 12 and 14, not necessarily in the same order. Some of the known data about the tournament is written in the table as shown below:

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Batting average can be calculated as, batting average =  $\frac{\text{Runs Scored}}{\text{Innings played}}$

Further the following information is also known:

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- Zaman had the 3rd highest batting average among the six players but scored the least total runs, while Kohli had the highest batting average as well as the highest total runs.
- Root played the maximum number of innings but was one of the second lowest run scorers with total 560 runs, with the minimum batting average among the six players.
- Batting average of Shikhar was the arithmetic mean of the batting averages of Kane and Zaman.
- Number of centuries made by Rohit was 100% more than that of Kane's. Both of them had played equal number of innings.

#### Q.52

How many innings were played by Shikhar?

1  12

2  6

3  8

4  10

**Solution:****Correct Answer : 3****Your Answer : 4****Bookmark****Answer key/Solution**

From statement 3, it can be concluded that Root played 14 innings and his batting average was 40.

From statement 5, it can be inferred that,

Number of centuries made by Rohit = 4, number of centuries made by Kane = 2

Since both of them had played equal number of innings, so they played 10 innings each.

So, number of runs scored by Rohit =  $10 \times 80 = 800$

Number of runs scored by Kane =  $10 \times 65 = 650$

From statement (1) and (2), it can be concluded that Kohli had a batting average of 85.

Therefore, batting average of Zaman = 75

$$\text{Number of innings played by Zaman} = \frac{450}{75} = 6.$$

From statement (4),

$$\text{Batting average of Shikhar} = \frac{65 + 75}{2} = 70$$

$$\text{So, the number of innings played by Shikhar} = \frac{560}{70} = 8$$

So, the final table is:

Player	Number of innings played	Total runs scored in the tournament	Batting average	Number of centuries made
Kohli	12	1020	85	
Rohit	10	800	80	4
Root	14	560	40	
Zaman	6	450	75	2
Kane	10	650	65	2
Shikhar	8	560	70	3

From the table given, Shikhar played 8 innings.

**FeedBack**

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

Six players, namely Kohli, Rohit, Root, Zaman, Kane and Shikhar, played in a cricket tournament in 2017.

In the tournament, number of innings played by these 6 players were 6, 8, 10, 10, 12 and 14, not necessarily in the same order. Some of the known data about the tournament is written in the table as shown below:

Player	Number of innings played	Total runs scored in the tournament	Batting average	Number of centuries made
Kohli				
Rohit			80	4
Root				
Zaman		450		2
Kane			65	
Shikhar		560		3

Batting average can be calculated as, batting average =  $\frac{\text{Runs Scored}}{\text{Innings played}}$

Further the following information is also known:

- Batting averages of Kane, Zaman and Kohli were 3 consecutive odd multiples of 5 in any order, with no player's average more than 90.
- Zaman had the 3rd highest batting average among the six players but scored the least total runs, while Kohli had the highest batting average as well as the highest total runs.
- Root played the maximum number of innings but was one of the second lowest run scorers with total 560 runs, with the minimum batting average among the six players.
- Batting average of Shikhar was the arithmetic mean of the batting averages of Kane and Zaman.
- Number of centuries made by Rohit was 100% more than that of Kane's. Both of them had played equal number of innings.

### Q.53

Kohli's batting average was how much percent more than the batting average of Root?

1  110%

2  112.5%

3  106.25%

4  114.28%

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

From statement 3, it can be concluded that Root played 14 innings and his batting average was 40.

From statement 5, it can be inferred that,

Number of centuries made by Rohit = 4, number of centuries made by Kane = 2

Since both of them had played equal number of innings, so they played 10 innings each.

So, number of runs scored by Rohit =  $10 \times 80 = 800$

Number of runs scored by Kane =  $10 \times 65 = 650$

From statement (1) and (2), it can be concluded that Kohli had a batting average of 85.

Therefore, batting average of Zaman = 75

$$\text{Number of innings played by Zaman} = \frac{450}{75} = 6.$$

From statement (4),

$$\text{Batting average of Shikhar} = \frac{65 + 75}{2} = 70$$

$$\text{So, the number of innings played by Shikhar} = \frac{560}{70} = 8$$

So, the final table is:

Player	Number of innings played	Total runs scored in the tournament	Batting average	Number of centuries made
Kohli	12	1020	85	
Rohit	10	800	80	4
Root	14	560	40	
Zaman	6	450	75	2
Kane	10	650	65	2
Shikhar	8	560	70	3

Batting average of Kohli = 85

Batting average of Root = 40

$$\text{Percentage difference} = \frac{85 - 40}{40} \times 100 = 112.5\%$$

 **FeedBack**

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

Six players, namely Kohli, Rohit, Root, Zaman, Kane and Shikhar, played in a cricket tournament in 2017.

In the tournament, number of innings played by these 6 players were 6, 8, 10, 10, 12 and 14, not necessarily in the same order. Some of the known data about the tournament is written in the table as shown below:

Player	Number of innings played	Total runs scored in the tournament	Batting average	Number of centuries made
Kohli				
Rohit			80	4
Root				
Zaman		450		2
Kane			65	
Shikhar		560		3

Batting average can be calculated as, batting average =  $\frac{\text{Runs Scored}}{\text{Innings played}}$

Further the following information is also known:

- Batting averages of Kane, Zaman and Kohli were 3 consecutive odd multiples of 5 in any order, with no player's average more than 90.
- Zaman had the 3rd highest batting average among the six players but scored the least total runs, while Kohli had the highest batting average as well as the highest total runs.
- Root played the maximum number of innings but was one of the second lowest run scorers with total 560 runs, with the minimum batting average among the six players.
- Batting average of Shikhar was the arithmetic mean of the batting averages of Kane and Zaman.
- Number of centuries made by Rohit was 100% more than that of Kane's. Both of them had played equal number of innings.

#### Q.54

The total runs scored by all the 6 batsmen taken together were

1  5260

2  4260

3  3920

4  4040

**x**

**Solution:****Correct Answer : 4****Your Answer : 1****Bookmark****Answer key/Solution**

From statement 3, it can be concluded that Root played 14 innings and his batting average was 40.

From statement 5, it can be inferred that,

Number of centuries made by Rohit = 4, number of centuries made by Kane = 2

Since both of them had played equal number of innings, so they played 10 innings each.

So, number of runs scored by Rohit =  $10 \times 80 = 800$

Number of runs scored by Kane =  $10 \times 65 = 650$

From statement (1) and (2), it can be concluded that Kohli had a batting average of 85.

Therefore, batting average of Zaman = 75

$$\text{Number of innings played by Zaman} = \frac{450}{75} = 6.$$

From statement (4),

$$\text{Batting average of Shikhar} = \frac{65 + 75}{2} = 70$$

$$\text{So, the number of innings played by Shikhar} = \frac{560}{70} = 8$$

So, the final table is:

Player	Number of innings played	Total runs scored in the tournament	Batting average	Number of centuries made
Kohli	12	1020	85	
Rohit	10	800	80	4
Root	14	560	40	
Zaman	6	450	75	2
Kane	10	650	65	2
Shikhar	8	560	70	3

From the table given, the total runs scored by all the batsmen taken together =  $1020 + 800 + 560 + 450 + 650 + 560 = 4040$ .

**FeedBack**

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

Hina, Inshia, Jasmeet, Kiran and Latika participated in a race and got ranked at the first five positions in the race i.e rank 1, rank 2, rank 3, rank 4 and rank 5. Each one of them received a different rank. They all belong to three different tribes among Shiva, Ravana and Kumbha. In Shiva tribe, people always speak the truth, in Ravana tribe, people always lie and in Kumbha tribe, people switch between truth and lie alternately. It is also known that only one of them belongs to Ravana tribe and at least two belong to Kumbha tribe. When someone asked them about their performances in the race, each one of them passed two statements.

**Hina:**

**Jasmeet got rank 2.**

**Only I belong to Shiva Tribe.**

**Inshia:**

**I still need to work hard to get rank 1.**

**I belong to Kumbha Tribe.**

**Jasmeet:**

**Hina is not from Shiva Tribe.**

**I belong to Kumbha Tribe.**

**Kiran:**

**Hina got rank 3.**

**I belong to Ravana tribe.**

**Latika:**

**I am from Shiva tribe.**

**I got rank 1.**

**Q.55**

**Who among them got rank 1?**

1  **Latika**

2  **Hina**

3  **Inshia**

4  **Kiran**

**x**

**Solution:****Correct Answer : 3****Your Answer : 1****Bookmark****Answer key/Solution**

- According to the statements passed by Inshia, we can say that she is not from Shiva tribe otherwise her second statement will contradict.
- Jasmeet cannot be from Shiva tribe otherwise her second statement will contradict. She cannot be from Ravana tribe too otherwise her first statement will contradict. Therefore, we can say that Jasmeet belongs to Kumbha tribe which means that her second statement is correct while her first statement is wrong. Hence, Hina belongs to Shiva tribe and her first statement "Jasmeet got rank 2" is correct.
- According to the second statement passed by Kiran, we can clearly say that she is neither from Ravana tribe nor from Shiva tribe otherwise it will contradict. Hence, she belongs to Kumbha tribe. So, her first statement that Hina got rank 3 is correct.
- Now among Latika and Inshia, one should definitely belong to Ravana tribe. First, suppose Latika is from Kumbha tribe, then her first statement is wrong and second statement should be correct which implies that the first statement passed by Inshia is correct and hence she too does not belong to Ravana tribe, which is contradicting as one has to be from Ravana tribe.

Hence, surely, Latika belongs to Ravana tribe and Inshia belongs to Kumbha tribe. Therefore, the second statement passed by Inshia is correct while her first statement is wrong, which means Inshia got rank 1.

So, the final table is:

Name	Tribe	Rank
Hina	Shiva	3 <sup>rd</sup>
Inshia	Kumbha	1 <sup>st</sup>
Jasmeet	Kumbha	2 <sup>nd</sup>
Kiran	Kumbha	4 <sup>th</sup> /5 <sup>th</sup>
Latika	Ravana	5 <sup>th</sup> /4 <sup>th</sup>

Clearly, Inshia got rank 1.

[FeedBack](#)

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

Hina, Inshia, Jasmeet, Kiran and Latika participated in a race and got ranked at the first five positions in the race i.e rank 1, rank 2, rank 3, rank 4 and rank 5. Each one of them received a different rank. They all belong to three different tribes among Shiva, Ravana and Kumbha. In Shiva tribe, people always speak the truth, in Ravana tribe, people always lie and in Kumbha tribe, people switch between truth and lie alternately. It is also known that only one of them belongs to Ravana tribe and at least two belong to Kumbha tribe. When someone asked them about their performances in the race, each one of them passed two statements.

**Hina:**

**Jasmeet got rank 2.**

**Only I belong to Shiva Tribe.**

**Inshia:**

**I still need to work hard to get rank 1.**

**I belong to Kumbha Tribe.**

**Jasmeet:**

**Hina is not from Shiva Tribe.**

**I belong to Kumbha Tribe.**

**Kiran:**

**Hina got rank 3.**

**I belong to Ravana tribe.**

**Latika:**

**I am from Shiva tribe.**

**I got rank 1.**

**Q.56**

**Who belongs to Ravana Tribe?**

1  **Latika**

2  **Hina**

3  **Jasmeet**

4  **Kiran**

**x**

**Solution:****Correct Answer : 1****Your Answer : 4** **Bookmark** **Answer key/Solution**

- According to the statements passed by Inshia, we can say that she is not from Shiva tribe otherwise her second statement will contradict.
- Jasmeet cannot be from Shiva tribe otherwise her second statement will contradict. She cannot be from Ravana tribe too otherwise her first statement will contradict. Therefore, we can say that Jasmeet belongs to Kumbha tribe which means that her second statement is correct while her first statement is wrong. Hence, Hina belongs to Shiva tribe and her first statement "Jasmeet got rank 2" is correct.
- According to the second statement passed by Kiran, we can clearly say that she is neither from Ravana tribe nor from Shiva tribe otherwise it will contradict. Hence, she belongs to Kumbha tribe. So, her first statement that Hina got rank 3 is correct.
- Now among Latika and Inshia, one should definitely belong to Ravana tribe. First, suppose Latika is from Kumbha tribe, then her first statement is wrong and second statement should be correct which implies that the first statement passed by Inshia is correct and hence she too does not belong to Ravana tribe, which is contradicting as one has to be from Ravana tribe.

Hence, surely, Latika belongs to Ravana tribe and Inshia belongs to Kumbha tribe. Therefore, the second statement passed by Inshia is correct while her first statement is wrong, which means Inshia got rank 1.

So, the final table is:

Name	Tribe	Rank
Hina	Shiva	3 <sup>rd</sup>
Inshia	Kumbha	1 <sup>st</sup>
Jasmeet	Kumbha	2 <sup>nd</sup>
Kiran	Kumbha	4 <sup>th</sup> /5 <sup>th</sup>
Latika	Ravana	5 <sup>th</sup> /4 <sup>th</sup>

Latika belongs to Ravana tribe.

**FeedBack**

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

Hina, Inshia, Jasmeet, Kiran and Latika participated in a race and got ranked at the first five positions in the race i.e rank 1, rank 2, rank 3, rank 4 and rank 5. Each one of them received a different rank. They all belong to three different tribes among Shiva, Ravana and Kumbha. In Shiva tribe, people always speak the truth, in Ravana tribe, people always lie and in Kumbha tribe, people switch between truth and lie alternately. It is also known that only one of them belongs to Ravana tribe and at least two belong to Kumbha tribe. When someone asked them about their performances in the race, each one of them passed two statements.

**Hina:**

**Jasmeet got rank 2.**

**Only I belong to Shiva Tribe.**

**Inshia:**

**I still need to work hard to get rank 1.**

**I belong to Kumbha Tribe.**

**Jasmeet:**

**Hina is not from Shiva Tribe.**

**I belong to Kumbha Tribe.**

**Kiran:**

**Hina got rank 3.**

**I belong to Ravana tribe.**

**Latika:**

**I am from Shiva tribe.**

**I got rank 1.**

**Q.57**

**Who among the following definitely got rank 4?**

1  **Latika**

2  **Kiran**

3  **Inshia**

4  **Cannot be determined**



**Solution:****Correct Answer : 4****Your Answer : 4** **Bookmark** **Answer key/Solution**

- According to the statements passed by Inshia, we can say that she is not from Shiva tribe otherwise her second statement will contradict.
- Jasmeet cannot be from Shiva tribe otherwise her second statement will contradict. She cannot be from Ravana tribe too otherwise her first statement will contradict. Therefore, we can say that Jasmeet belongs to Kumbha tribe which means that her second statement is correct while her first statement is wrong. Hence, Hina belongs to Shiva tribe and her first statement "Jasmeet got rank 2" is correct.
- According to the second statement passed by Kiran, we can clearly say that she is neither from Ravana tribe nor from Shiva tribe otherwise it will contradict. Hence, she belongs to Kumbha tribe. So, her first statement that Hina got rank 3 is correct.
- Now among Latika and Inshia, one should definitely belong to Ravana tribe. First, suppose Latika is from Kumbha tribe, then her first statement is wrong and second statement should be correct which implies that the first statement passed by Inshia is correct and hence she too does not belong to Ravana tribe, which is contradicting as one has to be from Ravana tribe.

Hence, surely, Latika belongs to Ravana tribe and Inshia belongs to Kumbha tribe. Therefore, the second statement passed by Inshia is correct while her first statement is wrong, which means Inshia got rank 1.

So, the final table is:

Name	Tribe	Rank
Hina	Shiva	3 <sup>rd</sup>
Inshia	Kumbha	1 <sup>st</sup>
Jasmeet	Kumbha	2 <sup>nd</sup>
Kiran	Kumbha	4 <sup>th</sup> /5 <sup>th</sup>
Latika	Ravana	5 <sup>th</sup> /4 <sup>th</sup>

Either Kiran or Latika got rank 4. So, answer is cannot be determined.

**FeedBack**

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

Hina, Inshia, Jasmeet, Kiran and Latika participated in a race and got ranked at the first five positions in the race i.e rank 1, rank 2, rank 3, rank 4 and rank 5. Each one of them received a different rank. They all belong to three different tribes among Shiva, Ravana and Kumbha. In Shiva tribe, people always speak the truth, in Ravana tribe, people always lie and in Kumbha tribe, people switch between truth and lie alternately. It is also known that only one of them belongs to Ravana tribe and at least two belong to Kumbha tribe. When someone asked them about their performances in the race, each one of them passed two statements.

**Hina:**

**Jasmeet got rank 2.**

**Only I belong to Shiva Tribe.**

**Inshia:**

**I still need to work hard to get rank 1.**

**I belong to Kumbha Tribe.**

**Jasmeet:**

**Hina is not from Shiva Tribe.**

**I belong to Kumbha Tribe.**

**Kiran:**

**Hina got rank 3.**

**I belong to Ravana tribe.**

**Latika:**

**I am from Shiva tribe.**

**I got rank 1.**

**Q.58**

**Who belongs to Shiva Tribe?**

1  **Latika**

2  **Hina**

3  **Inshia**

4  **Kiran**

**x**

**Solution:****Correct Answer : 2****Your Answer : 1****Bookmark****Answer key/Solution**

- According to the statements passed by Inshia, we can say that she is not from Shiva tribe otherwise her second statement will contradict.
- Jasmeet cannot be from Shiva tribe otherwise her second statement will contradict. She cannot be from Ravana tribe too otherwise her first statement will contradict. Therefore, we can say that Jasmeet belongs to Kumbha tribe which means that her second statement is correct while her first statement is wrong. Hence, Hina belongs to Shiva tribe and her first statement "Jasmeet got rank 2" is correct.
- According to the second statement passed by Kiran, we can clearly say that she is neither from Ravana tribe nor from Shiva tribe otherwise it will contradict. Hence, she belongs to Kumbha tribe. So, her first statement that Hina got rank 3 is correct.
- Now among Latika and Inshia, one should definitely belong to Ravana tribe. First, suppose Latika is from Kumbha tribe, then her first statement is wrong and second statement should be correct which implies that the first statement passed by Inshia is correct and hence she too does not belong to Ravana tribe, which is contradicting as one has to be from Ravana tribe.

Hence, surely, Latika belongs to Ravana tribe and Inshia belongs to Kumbha tribe. Therefore, the second statement passed by Inshia is correct while her first statement is wrong, which means Inshia got rank 1.

So, the final table is:

Name	Tribe	Rank
Hina	Shiva	3 <sup>rd</sup>
Inshia	Kumbha	1 <sup>st</sup>
Jasmeet	Kumbha	2 <sup>nd</sup>
Kiran	Kumbha	4 <sup>th</sup> /5 <sup>th</sup>
Latika	Ravana	5 <sup>th</sup> /4 <sup>th</sup>

Hina belongs to Shiva tribe.

**FeedBack**

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

Aman, Bineet, Charu, Devika, Eshan, Farhan, Gopal, and Hanish were shortlisted for the II-stage of the IIM admission process i.e the interview round, which was arranged at the Lucknow centre. For this round, they all reached at the venue on different timings. Also, their interviews were scheduled at different times of the day. The running time for an interview was of 30 minutes but for some of them, it ran for an extra 10 minutes. All of these candidates were interviewed by a single panel. The first interview started at 11:00 am and between any two consecutive interviews, there was a gap of 10 minutes, if nothing else is mentioned.

Some additional Information is also known:

1. All the candidates reached the venue in such a way that between any two consecutive arrivals, there was a gap of 10 minutes with Eshan arriving as the last person at 11:30 am.
2. Hanish was the first person to arrive but was not the first person to be interviewed. Farhan did not wait the longest for his interview.
3. Charu arrived before Devika and Gopal, at 11 am and she had to wait for her interview for 2 hours.
4. Aman reached at the venue before Bineet and after Farhan. Also, Gopal's waiting time for the interview was one hour.
5. Farhan was interviewed before Gopal and there was no time-break between Gopal's Interview and Hanish's Interview.
6. After Bineet's Interview the panel had a tea-break for 20 minutes.
7. Only one person was interviewed between Bineet and Eshan, whose interview lasted for 40 minutes.
8. Between Charu's interview and Aman's interview, there was a gap of 20 minutes.
9. The last interview ended at 4 : 40 pm.

#### Q.59

How many people arrived between Gopal and Farhan?

1  6

2  3

3  4

4  Cannot be determined

**Solution:**

**Correct Answer :** 4

 **Bookmark**

 **Answer key/Solution**

- According to the given information, Hanish was the first person to arrive and Eshan was the last person to arrive at 11 : 30 am.
- Charu arrived at 11 am and arrived before Devika and Gopal.
- Aman reached at the venue before Bineet and after Farhan.
- Between any two consecutive arrivals, there was a gap of 10 minutes.

On the basis of the data above, we can conclude the arrival time of different candidates

So, from the data above, we can conclude the arrival time of different candidates.

Name	Arrival time
Hanish	10:20 am
10 minute gap	
Farhan	10:30 am
10 minute gap	
Aman	10:40 am
10 minute gap	
Bineet	10:50 am
10 minute gap	
Charu	11:00 am
10 minute gap	
Gopal/Devika	11:10 am
10 minute gap	
Devika/Gopal	11:20 am
10 minute gap	
Eshan	11:30 am

So, we can say that there are two possible arrival times of Gopal i.e. 11:10 am or 11:20 am.

#### Case 1: When Gopal's arrival time is 11 : 10 am.

- Charu had to wait for her interview for 2 hours and her arrival time is 11 am, therefore her interview started at 1 pm.
- Gopal's waiting time for the interview was one hour, therefore his interview started at 12 : 10 pm. This shows that Charu had interview after Gopal and Gopal's interview lasted for 40 minutes followed by a 10 minute break.
- There was no time-break between Gopal's interview and Hanish's interview and Farhan was interviewed before Gopal. Also, the first interview started at 11 am and between any two consecutive interviews, there was a gap of 10 minutes, if nothing is mentioned. So, clearly, we can say that Farhan's interview started at 11 am and the running time for his interview was of 30 minutes. Then, after the gap of 10 minutes, Hanish's interview started at 11 : 40 am and lasted for 30 minutes.
- Between Charu's interview and Aman's interview, there was a gap of 20 minutes.
- After Bineet's interview, the panel had a tea break for 20 minutes.
- Only one person was interviewed between Bineet and Eshan, whose interview lasted for 40 minutes and the last interview ended at 4 : 40 pm.

From the above data, we can say that Aman's interview time was 1 : 50 pm because Charu's interview lasted for 30 minutes followed by a 20 minute break. So, the table will be as follows:

Interview timings:

	Interview time	Interview duration
Farhan	11:00 am	30 minutes
10 minute gap		
Hanish	11:40 am	30 minutes
No gap		
Gopal	12:10 pm	40 minutes
10 minute gap		
Charu	1:00 pm	30 minutes
20 minute gap		
Aman	1:50 pm	30 minutes
10 minute gap		
Bineet	2:30 pm	30 minutes
20 minute gap		
Devika	3:20 pm	30 minutes
10 minute gap		
Eshan	4:00 pm	40 minutes

Clearly, we can see that the last interview ended at 4 : 40 pm.

#### Case 2: When Gopal's arrival time is 11 : 20 am.

It can be further divided into two subcases:

- (a) When Farhan's interview lasted for 40 minutes while that of Hanish lasted for 30 minutes.

- (b) When Farhan's interview lasted for 30 minutes while that of Hanish lasted for 40 minutes.

(v) When Farhan's interview lasted for 30 minutes while that of Hanish lasted for 40 minutes.

**2 (a)**

	Interview time	Interview duration
Farhan	11:00 am	40 minutes
<b>10 minute gap</b>		
Hanish	11:50 am	30 minutes
<b>No gap</b>		
Gopal	12:20 pm	30 minutes
<b>10 minute gap</b>		
Charu	1:00 pm	30 minutes
<b>20 minute gap</b>		
Aman	1:50 pm	30 minutes
<b>10 minute gap</b>		
Bineet	2:30 pm	30 minutes
<b>20 minute gap</b>		
Devika	3:20 pm	30 minutes
<b>10 minute gap</b>		
Eshan	4:00 pm	40 minutes

**2 (b)**

	Interview time	Interview duration
Farhan	11:00 am	30 minutes
<b>10 minute gap</b>		
Hanish	11:40 am	40 minutes
<b>No gap</b>		
Gopal	12:20 pm	30 minutes
<b>10 minute gap</b>		
Charu	1:00 pm	30 minutes
<b>20 minute gap</b>		
Aman	1:50 pm	30 minutes
<b>10 minute gap</b>		
Bineet	2:30 pm	30 minutes
<b>20 minute gap</b>		
Devika	3:20 pm	30 minutes
<b>10 minute gap</b>		
Eshan	4:00 pm	40 minutes

Either 3 or 4 people arrived between Gopal and Farhan as there is no fixed arrival time of Gopal.

**FeedBack**

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

Aman, Bineet, Charu, Devika, Eshan, Farhan, Gopal, and Hanish were shortlisted for the II-stage of the IIM admission process i.e the interview round, which was arranged at the Lucknow centre. For this round, they all reached at the venue on different timings. Also, their interviews were scheduled at different times of the day. The running time for an interview was of 30 minutes but for some of them, it ran for an extra 10 minutes. All of these candidates were interviewed by a single panel. The first interview started at 11:00 am and between any two consecutive interviews, there was a gap of 10 minutes, if nothing else is mentioned.

Some additional Information is also known:

1. All the candidates reached the venue in such a way that between any two consecutive arrivals, there was a gap of 10 minutes with Eshan arriving as the last person at 11:30 am.
2. Hanish was the first person to arrive but was not the first person to be interviewed. Farhan did not wait the longest for his interview.
3. Charu arrived before Devika and Gopal, at 11 am and she had to wait for her interview for 2 hours.
4. Aman reached at the venue before Bineet and after Farhan. Also, Gopal's waiting time for the interview was one hour.
5. Farhan was interviewed before Gopal and there was no time-break between Gopal's Interview and Hanish's Interview.
6. After Bineet's Interview the panel had a tea-break for 20 minutes.
7. Only one person was interviewed between Bineet and Eshan, whose interview lasted for 40 minutes.
8. Between Charu's interview and Aman's interview, there was a gap of 20 minutes.
9. The last interview ended at 4 : 40 pm.

#### Q.60

For how long Charu had to wait for Bineet, if they decided to leave together for home?

1  100 minutes

2  70 minutes

3  80 minutes

4  90 minutes

**Solution:**

**Correct Answer : 4**

 **Bookmark**

 **Answer key/Solution**

- According to the given information, Hanish was the first person to arrive and Eshan was the last person to arrive at 11 : 30 am.
- Charu arrived at 11 am and arrived before Devika and Gopal.
- Aman reached at the venue before Bineet and after Farhan.
- Between any two consecutive arrivals, there was a gap of 10 minutes.

On from the data above, we can conclude the arrival time of different candidates

So, from the data above, we can conclude the arrival time of different candidates.

Name	Arrival time
Hanish	10:20 am
10 minute gap	
Farhan	10:30 am
10 minute gap	
Aman	10:40 am
10 minute gap	
Bineet	10:50 am
10 minute gap	
Charu	11:00 am
10 minute gap	
Gopal/Devika	11:10 am
10 minute gap	
Devika/Gopal	11:20 am
10 minute gap	
Eshan	11:30 am

So, we can say that there are two possible arrival times of Gopal i.e. 11:10 am or 11:20 am.

Case 1: When Gopal's arrival time is 11 : 10 am.

- Charu had to wait for her interview for 2 hours and her arrival time is 11 am, therefore her interview started at 1 pm.
- Gopal's waiting time for the interview was one hour, therefore his interview started at 12 : 10 pm. This shows that Charu had interview after Gopal and Gopal's interview lasted for 40 minutes followed by a 10 minute break.
- There was no time-break between Gopal's interview and Hanish's interview and Farhan was interviewed before Gopal. Also, the first interview started at 11 am and between any two consecutive interviews, there was a gap of 10 minutes, if nothing is mentioned. So, clearly, we can say that Farhan's interview started at 11 am and the running time for his interview was of 30 minutes. Then, after the gap of 10 minutes, Hanish's interview started at 11 : 40 am and lasted for 30 minutes.
- Between Charu's interview and Aman's interview, there was a gap of 20 minutes.
- After Bineet's interview, the panel had a tea break for 20 minutes.
- Only one person was interviewed between Bineet and Eshan, whose interview lasted for 40 minutes and the last interview ended at 4 : 40 pm.

From the above data, we can say that Aman's interview time was 1 : 50 pm because Charu's interview lasted for 30 minutes followed by a 20 minute break. So, the table will be as follows:

Interview timings:

	Interview time	Interview duration
Farhan	11:00 am	30 minutes
10 minute gap		
Hanish	11:40 am	30 minutes
No gap		
Gopal	12:10 pm	40 minutes
10 minute gap		
Charu	1:00 pm	30 minutes
20 minute gap		
Aman	1:50 pm	30 minutes
10 minute gap		
Bineet	2:30 pm	30 minutes
20 minute gap		
Devika	3:20 pm	30 minutes
10 minute gap		
Eshan	4:00 pm	40 minutes

Clearly, we can see that the last interview ended at 4 : 40 pm.

Case 2: When Gopal's arrival time is 11 : 20 am.

It can be further divided into two subcases:

- When Farhan's interview lasted for 40 minutes while that of Hanish lasted for 30 minutes.

- (b) When Farhan's interview lasted for 30 minutes while that of Hanish lasted for 40 minutes.

2 (a)

	Interview time	Interview duration
Farhan	11:00 am	40 minutes
<b>10 minute gap</b>		
Hanish	11:50 am	30 minutes
<b>No gap</b>		
Gopal	12:20 pm	30 minutes
<b>10 minute gap</b>		
Charu	1:00 pm	30 minutes
<b>20 minute gap</b>		
Aman	1:50 pm	30 minutes
<b>10 minute gap</b>		
Bineet	2:30 pm	30 minutes
<b>20 minute gap</b>		
Devika	3:20 pm	30 minutes
<b>10 minute gap</b>		
Eshan	4:00 pm	40 minutes

2 (b)

	Interview time	Interview duration
Farhan	11:00 am	30 minutes
<b>10 minute gap</b>		
Hanish	11:40 am	40 minutes
<b>No gap</b>		
Gopal	12:20 pm	30 minutes
<b>10 minute gap</b>		
Charu	1:00 pm	30 minutes
<b>20 minute gap</b>		
Aman	1:50 pm	30 minutes
<b>10 minute gap</b>		
Bineet	2:30 pm	30 minutes
<b>20 minute gap</b>		
Devika	3:20 pm	30 minutes
<b>10 minute gap</b>		
Eshan	4:00 pm	40 minutes

From cases 1, 2(a) and 2(b), we can say that Charu had to wait for Bineet for 90 minutes because Charu's interview ended at 1 : 30 pm whereas Bineet's interview ended at 3 pm.

FeedBack

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

Aman, Bineet, Charu, Devika, Eshan, Farhan, Gopal, and Hanish were shortlisted for the II-stage of the IIM admission process i.e the interview round, which was arranged at the Lucknow centre. For this round, they all reached at the venue on different timings. Also, their interviews were scheduled at different times of the day. The running time for an interview was of 30 minutes but for some of them, it ran for an extra 10 minutes. All of these candidates were interviewed by a single panel. The first interview started at 11:00 am and between any two consecutive interviews, there was a gap of 10 minutes, if nothing else is mentioned.

Some additional Information is also known:

1. All the candidates reached the venue in such a way that between any two consecutive arrivals, there was a gap of 10 minutes with Eshan arriving as the last person at 11:30 am.
2. Hanish was the first person to arrive but was not the first person to be interviewed. Farhan did not wait the longest for his interview.
3. Charu arrived before Devika and Gopal, at 11 am and she had to wait for her interview for 2 hours.
4. Aman reached at the venue before Bineet and after Farhan. Also, Gopal's waiting time for the interview was one hour.
5. Farhan was interviewed before Gopal and there was no time-break between Gopal's Interview and Hanish's Interview.
6. After Bineet's Interview the panel had a tea-break for 20 minutes.
7. Only one person was interviewed between Bineet and Eshan, whose interview lasted for 40 minutes.
8. Between Charu's interview and Aman's interview, there was a gap of 20 minutes.
9. The last interview ended at 4 : 40 pm.

#### Q.61

What is the average interview running time per person?

1  32.5 minutes

2  27.5 minutes

3  28.75 minutes

4  30 minutes

**Solution:**

**Correct Answer : 1**

 **Bookmark**

 **Answer key/Solution**

- According to the given information, Hanish was the first person to arrive and Eshan was the last person to arrive at 11 : 30 am.
- Charu arrived at 11 am and arrived before Devika and Gopal.
- Aman reached at the venue before Bineet and after Farhan.
- Between any two consecutive arrivals, there was a gap of 10 minutes.

On from the data above, we can conclude the arrival time of different candidates

So, from the data above, we can conclude the arrival time of different candidates.

Name	Arrival time
Hanish	10:20 am
10 minute gap	
Farhan	10:30 am
10 minute gap	
Aman	10:40 am
10 minute gap	
Bineet	10:50 am
10 minute gap	
Charu	11:00 am
10 minute gap	
Gopal/Devika	11:10 am
10 minute gap	
Devika/Gopal	11:20 am
10 minute gap	
Eshan	11:30 am

So, we can say that there are two possible arrival times of Gopal i.e. 11:10 am or 11:20 am.

Case 1: When Gopal's arrival time is 11 : 10 am.

- Charu had to wait for her interview for 2 hours and her arrival time is 11 am, therefore her interview started at 1 pm.
- Gopal's waiting time for the interview was one hour, therefore his interview started at 12 : 10 pm. This shows that Charu had interview after Gopal and Gopal's interview lasted for 40 minutes followed by a 10 minute break.
- There was no time-break between Gopal's interview and Hanish's interview and Farhan was interviewed before Gopal. Also, the first interview started at 11 am and between any two consecutive interviews, there was a gap of 10 minutes, if nothing is mentioned. So, clearly, we can say that Farhan's interview started at 11 am and the running time for his interview was of 30 minutes. Then, after the gap of 10 minutes, Hanish's interview started at 11 : 40 am and lasted for 30 minutes.
- Between Charu's interview and Aman's interview, there was a gap of 20 minutes.
- After Bineet's interview, the panel had a tea break for 20 minutes.
- Only one person was interviewed between Bineet and Eshan, whose interview lasted for 40 minutes and the last interview ended at 4 : 40 pm.

From the above data, we can say that Aman's interview time was 1 : 50 pm because Charu's interview lasted for 30 minutes followed by a 20 minute break. So, the table will be as follows:

Interview timings:

	Interview time	Interview duration
Farhan	11:00 am	30 minutes
10 minute gap		
Hanish	11:40 am	30 minutes
No gap		
Gopal	12:10 pm	40 minutes
10 minute gap		
Charu	1:00 pm	30 minutes
20 minute gap		
Aman	1:50 pm	30 minutes
10 minute gap		
Bineet	2:30 pm	30 minutes
20 minute gap		
Devika	3:20 pm	30 minutes
10 minute gap		
Eshan	4:00 pm	40 minutes

Clearly, we can see that the last interview ended at 4 : 40 pm.

Case 2: When Gopal's arrival time is 11 : 20 am.

It can be further divided into two subcases:

- When Farhan's interview lasted for 40 minutes while that of Hanish lasted for 30 minutes.

- (b) When Farhan's interview lasted for 30 minutes while that of Hanish lasted for 40 minutes.

2 (a)

	Interview time	Interview duration
Farhan	11:00 am	40 minutes
<b>10 minute gap</b>		
Hanish	11:50 am	30 minutes
<b>No gap</b>		
Gopal	12:20 pm	30 minutes
<b>10 minute gap</b>		
Charu	1:00 pm	30 minutes
<b>20 minute gap</b>		
Aman	1:50 pm	30 minutes
<b>10 minute gap</b>		
Bineet	2:30 pm	30 minutes
<b>20 minute gap</b>		
Devika	3:20 pm	30 minutes
<b>10 minute gap</b>		
Eshan	4:00 pm	40 minutes

2 (b)

	Interview time	Interview duration
Farhan	11:00 am	30 minutes
<b>10 minute gap</b>		
Hanish	11:40 am	40 minutes
<b>No gap</b>		
Gopal	12:20 pm	30 minutes
<b>10 minute gap</b>		
Charu	1:00 pm	30 minutes
<b>20 minute gap</b>		
Aman	1:50 pm	30 minutes
<b>10 minute gap</b>		
Bineet	2:30 pm	30 minutes
<b>20 minute gap</b>		
Devika	3:20 pm	30 minutes
<b>10 minute gap</b>		
Eshan	4:00 pm	40 minutes

The average interview running time per person is

$$= \frac{30 + 30 + 40 + 30 + 30 + 30 + 30 + 40}{8} = \frac{260}{8} = 32.5 \text{ minutes.}$$

FeedBack

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

Aman, Bineet, Charu, Devika, Eshan, Farhan, Gopal, and Hanish were shortlisted for the II-stage of the IIM admission process i.e the interview round, which was arranged at the Lucknow centre. For this round, they all reached at the venue on different timings. Also, their interviews were scheduled at different times of the day. The running time for an interview was of 30 minutes but for some of them, it ran for an extra 10 minutes. All of these candidates were interviewed by a single panel. The first interview started at 11:00 am and between any two consecutive interviews, there was a gap of 10 minutes, if nothing else is mentioned.

Some additional Information is also known:

1. All the candidates reached the venue in such a way that between any two consecutive arrivals, there was a gap of 10 minutes with Eshan arriving as the last person at 11:30 am.
2. Hanish was the first person to arrive but was not the first person to be interviewed. Farhan did not wait the longest for his interview.
3. Charu arrived before Devika and Gopal, at 11 am and she had to wait for her interview for 2 hours.
4. Aman reached at the venue before Bineet and after Farhan. Also, Gopal's waiting time for the interview was one hour.
5. Farhan was interviewed before Gopal and there was no time-break between Gopal's Interview and Hanish's Interview.
6. After Bineet's Interview the panel had a tea-break for 20 minutes.
7. Only one person was interviewed between Bineet and Eshan, whose interview lasted for 40 minutes.
8. Between Charu's interview and Aman's interview, there was a gap of 20 minutes.
9. The last interview ended at 4 : 40 pm.

#### Q.62

If Devika and Hanish interchange their interview slots, then out of all the interviewees, who waited for the maximum time for his/her turn?

1  Eshan

2  Hanish

3  Bineet

4  Gopal

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

- According to the given information, Hanish was the first person to arrive and Eshan was the last person to arrive at 11 : 30 am.
- Charu arrived at 11 am and arrived before Devika and Gopal.
- Aman reached at the venue before Bineet and after Farhan.

- Between any two consecutive arrivals, there was a gap of 10 minutes.  
So, from the data above, we can conclude the arrival time of different candidates.

Name	Arrival time
Hanish	10:20 am
10 minute gap	
Farhan	10:30 am
10 minute gap	
Aman	10:40 am
10 minute gap	
Bineet	10:50 am
10 minute gap	
Charu	11:00 am
10 minute gap	
Gopal/Devika	11:10 am
10 minute gap	
Devika/Gopal	11:20 am
10 minute gap	
Eshan	11:30 am

So, we can say that there are two possible arrival times of Gopal i.e. 11:10 am or 11:20 am.

Case 1: When Gopal's arrival time is 11 : 10 am.

- Charu had to wait for her interview for 2 hours and her arrival time is 11 am, therefore her interview started at 1 pm.
- Gopal's waiting time for the interview was one hour, therefore his interview started at 12 : 10 pm. This shows that Charu had interview after Gopal and Gopal's interview lasted for 40 minutes followed by a 10 minute break.
- There was no time-break between Gopal's interview and Hanish's interview and Farhan was interviewed before Gopal. Also, the first interview started at 11 am and between any two consecutive interviews, there was a gap of 10 minutes, if nothing is mentioned. So, clearly, we can say that Farhan's interview started at 11 am and the running time for his interview was of 30 minutes. Then, after the gap of 10 minutes, Hanish's interview started at 11 : 40 am and lasted for 30 minutes.
- Between Charu's interview and Aman's interview, there was a gap of 20 minutes.
- After Bineet's interview, the panel had a tea break for 20 minutes.
- Only one person was interviewed between Bineet and Eshan, whose interview lasted for 40 minutes and the last interview ended at 4 : 40 pm.

From the above data, we can say that Aman's interview time was 1 : 50 pm because Charu's interview lasted for 30 minutes followed by a 20 minute break. So, the table will be as follows:

Interview timings:

	Interview time	Interview duration
Farhan	11:00 am	30 minutes
10 minute gap		
Hanish	11:40 am	30 minutes
No gap		
Gopal	12:10 pm	40 minutes
10 minute gap		
Charu	1:00 pm	30 minutes
20 minute gap		
Aman	1:50 pm	30 minutes
10 minute gap		
Bineet	2:30 pm	30 minutes
20 minute gap		
Devika	3:20 pm	30 minutes
10 minute gap		
Eshan	4:00 pm	40 minutes

Clearly, we can see that the last interview ended at 4 : 40 pm.

Case 2: When Gopal's arrival time is 11 : 20 am.

It can be further divided into two subcases:

- (a) When Farhan's interview lasted for 40 minutes while that of Hanish lasted for 30 minutes.  
 (b) When Farhan's interview lasted for 30 minutes while that of Hanish lasted for 40 minutes.

2 (a)

	Interview time	Interview duration
Farhan	11:00 am	40 minutes
<b>10 minute gap</b>		
Hanish	11:50 am	30 minutes
<b>No gap</b>		
Gopal	12:20 pm	30 minutes
<b>10 minute gap</b>		
Charu	1:00 pm	30 minutes
<b>20 minute gap</b>		
Aman	1:50 pm	30 minutes
<b>10 minute gap</b>		
Bineet	2:30 pm	30 minutes
<b>20 minute gap</b>		
Devika	3:20 pm	30 minutes
<b>10 minute gap</b>		
Eshan	4:00 pm	40 minutes

2 (b)

	Interview time	Interview duration
Farhan	11:00 am	30 minutes
<b>10 minute gap</b>		
Hanish	11:40 am	40 minutes
<b>No gap</b>		
Gopal	12:20 pm	30 minutes
<b>10 minute gap</b>		
Charu	1:00 pm	30 minutes
<b>20 minute gap</b>		
Aman	1:50 pm	30 minutes
<b>10 minute gap</b>		
Bineet	2:30 pm	30 minutes
<b>20 minute gap</b>		
Devika	3:20 pm	30 minutes
<b>10 minute gap</b>		
Eshan	4:00 pm	40 minutes

If Devika and Hanish interchange their interview slots, then Hanish's new interview time would be 3 : 20 pm and that of Devika would be 11 : 40 pm or 11 : 50 pm (considering all cases).

	Arriving time	Interview time	Waiting time
Eshan	11:30 am	4:00 pm	4 hours 30 minutes
Hanish	10:20 am	3:20 pm	5 hours
Bineet	10:50 am	2:30 pm	3 hours 40 minutes
Gopal	11:10 am or 11:20 am	12:10 pm or 12:20 pm	1 hour

Clearly, Hanish waited for the maximum time i.e. for 5 hours for his turn.

FeedBack

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

The table given below shows some data regarding the production and the per head consumption of wheat and rice for six farming families, in a village named Hoshiarpur, in the year 2018.

Family name	Number of members	Wheat Produced (in kg)	Rice Produced (in kg)	Per head consumption of wheat (in kg)	Per head consumption of rice (in kg)
Sharma	6	600	520	91.2	83.2
Sen	4	440	260	100.8	60
Srivastava	7	800	560	108.4	78.4
Sehgal	8	600	640	74.4	75.2
Srinivasan	5	480	500	80	96.8
Suri	7	520	460	63.2	64

**Surplus food is defined as, Surplus = Total Production – Total Consumption**

**Also, it is known that per head consumption is same for each member of a family.**

### Q.63

**For how many families was the surplus of wheat and rice together greater than 73.5 kg?**

1  0

2  1

3  2

4  3

**Solution:****Correct Answer : 4** **Bookmark** **Answer key/Solution**

Family Name	Number of Members	Wheat Produced (in kg)	Wheat consumption (in kg)	Rice produced (in kg)	Rice consumption (in kg)
Sharma	6	600	$91.2 \times 6 = 547.2$	520	499.2
Sen	4	440	403.2	260	240
Srivastava	7	800	758.8	560	548.8
Sehgal	8	600	595.2	640	601.6
Srinivasan	5	480	400	500	484
Suri	7	520	442.4	460	448

Family Name	Wheat surplus (in kg)	Rice surplus (in kg)	Total surplus (in kg)
Sharma	52.8	20.8	73.6
Sen	36.8	20	56.8
Srivastava	41.2	11.2	52.4
Sehgal	4.8	38.4	43.2
Srinivasan	80	16	96
Suri	77.6	12	89.6

So, for 3 families – Sharma, Srinivasan and Suri, total surplus is greater than 73.5 kg.

**FeedBack**

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

The table given below shows some data regarding the production and the per head consumption of wheat and rice for six farming families, in a village named Hoshiarpur, in the year 2018.

Family name	Number of members	Wheat Produced (in kg)	Rice Produced (in kg)	Per head consumption of wheat (in kg)	Per head consumption of rice (in kg)
Sharma	6	600	520	91.2	83.2
Sen	4	440	260	100.8	60
Srivastava	7	800	560	108.4	78.4
Sehgal	8	600	640	74.4	75.2
Srinivasan	5	480	500	80	96.8
Suri	7	520	460	63.2	64

**Surplus food is defined as, Surplus = Total Production – Total Consumption**

**Also, it is known that per head consumption is same for each member of a family.**

#### **Q.64**

A relative of Sehgal family joined them at the beginning of the year 2018 and stayed with them for the whole year. If the amount of wheat consumed by the relative in that year was 68 kg, by what amount had the family members reduced their per head consumption of wheat to meet the requirement with the produced quantity only?

- 1  7.9 kg
- 2  7.43 kg
- 3  73.90 kg
- 4  None of these

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

Family Name	Number of Members	Wheat Produced (in kg)	Wheat consumption (in kg)	Rice produced (in kg)	Rice consumption (in kg)
Sharma	6	600	$91.2 \times 6 = 547.2$	520	499.2
Sen	4	440	403.2	260	240
Srivastava	7	800	758.8	560	548.8
Sehgal	8	600	595.2	640	601.6
Srinivasan	5	480	400	500	484
Suri	7	520	442.4	460	448

Total wheat consumption of Sehgal's family after the addition of the relative =  $595.2 + 68 = 663.2$

$$\text{Reduction in per head consumption of wheat} = \frac{663.2 - 600}{8} = \frac{63.2}{8} = 7.9 \text{ kg.}$$

**FeedBack**

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

The table given below shows some data regarding the production and the per head consumption of wheat and rice for six farming families, in a village named Hoshiarpur, in the year 2018.

Family name	Number of members	Wheat Produced (in kg)	Rice Produced (in kg)	Per head consumption of wheat (in kg)	Per head consumption of rice (in kg)
Sharma	6	600	520	91.2	83.2
Sen	4	440	260	100.8	60
Srivastava	7	800	560	108.4	78.4
Sehgal	8	600	640	74.4	75.2
Srinivasan	5	480	500	80	96.8
Suri	7	520	460	63.2	64

**Surplus food is defined as, Surplus = Total Production – Total Consumption**

**Also, it is known that per head consumption is same for each member of a family.**

**Q.65**

**What was the total surplus (in kg) of wheat and rice of all the families put together at the end of the year?**

1  **296**2  **404.8**3  **411.6**4  **None of these****Solution:****Correct Answer : 3****Your Answer : 3** **Bookmark** **Answer key/Solution**

Family Name	Number of Members	Wheat Produced (in kg)	Wheat consumption (in kg)	Rice produced (in kg)	Rice consumption (in kg)
Sharma	6	600	$91.2 \times 6 = 547.2$	520	499.2
Sen	4	440	403.2	260	240
Srivastava	7	800	758.8	560	548.8
Sehgal	8	600	595.2	640	601.6
Srinivasan	5	480	400	500	484
Suri	7	520	442.4	460	448

Family Name	Wheat surplus (in kg)	Rice surplus (in kg)	Total surplus (in kg)
Sharma	52.8	20.8	73.6
Sen	36.8	20	56.8
Srivastava	41.2	11.2	52.4
Sehgal	4.8	38.4	43.2
Srinivasan	80	16	96
Suri	77.6	12	89.6

Total combined surplus =  $73.6 + 56.8 + 52.4 + 43.2 + 96 + 89.6 = 411.6$  kg. **FeedBack**

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

The table given below shows some data regarding the production and the per head consumption of wheat and rice for six farming families, in a village named Hoshiarpur, in the year 2018.

Family name	Number of members	Wheat Produced (in kg)	Rice Produced (in kg)	Per head consumption of wheat (in kg)	Per head consumption of rice (in kg)
Sharma	6	600	520	91.2	83.2
Sen	4	440	260	100.8	60
Srivastava	7	800	560	108.4	78.4
Sehgal	8	600	640	74.4	75.2
Srinivasan	5	480	500	80	96.8
Suri	7	520	460	63.2	64

**Surplus food is defined as, Surplus = Total Production – Total Consumption**

Also, it is known that per head consumption is same for each member of a family.

#### Q.66

In the previous year i.e. 2017, the production of rice (in kg) was different for three families, as shown in the below table, but same for the rest of the three families. While the other production and per head consumption for both the grains remained same for all the six families in 2017 also.

Family	Rice produced (in kg)
Sen	280
Sehgal	615
Suri	470

Find the absolute difference (in kg) between the total surplus of wheat and rice of the first three families i.e Sharma, Sen, Srivastava taken together and that of the last three families i.e Sehgal, Srinivasan and Suri taken together in the year 2017.

**Solution:****Correct Answer : 11** **Bookmark** **Answer key/Solution**

Family Name	Number of Members	Wheat Produced (in kg)	Wheat consumption (in kg)	Rice produced (in kg)	Rice consumption (in kg)
Sharma	6	600	$91.2 \times 6 = 547.2$	520	499.2
Sen	4	440	403.2	260	240
Srivastava	7	800	758.8	560	548.8
Sehgal	8	600	595.2	640	601.6
Srinivasan	5	480	400	500	484
Suri	7	520	442.4	460	448

Surplus of rice for Sen's family =  $280 - 240 = 40$  kgTotal surplus of Sen's family =  $36.8 + 40 = 76.8$  kgSurplus of rice for Sehgal's family =  $615 - 601.6 = 13.4$  kgTotal surplus =  $4.8 + 13.4 = 18.2$  kgSurplus of rice for Suri's =  $470 - 448 = 22$  kg

Total Surplus = 99.6 kg

Total Surplus of the first three families =  $73.6 + 76.8 + 52.4 = 202.8$  kgTotal Surplus of the last three families =  $18.2 + 96 + 99.6 = 213.8$  kgAbsolute difference =  $213.8 - 202.8 = 11$  kg.**FeedBack**

## Sec 3

### Q.67

If a 12-sided regular polygon is circumscribed around a circle, then what is the ratio of the area of the polygon to that of the circle?

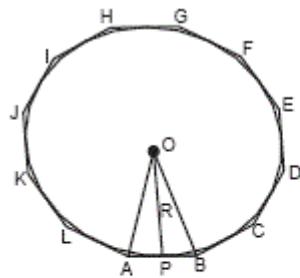
(Take  $\tan 15^\circ = 2 - \sqrt{3}$ )

1   $\frac{6(2 - \sqrt{3})}{\pi}$

2   $\frac{6(4 - \sqrt{3})}{\pi}$

3   $\frac{9(2 - \sqrt{3})}{2\pi}$

4   $\frac{12(2 - \sqrt{3})}{\pi}$

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

Let  $OP = R = \text{radius of circle}$

$$\text{Also, } \angle AOB = \frac{360}{12} = 30^\circ$$

$$\text{So, } \angle POB = 15^\circ$$

$$\text{Now, } \tan 15^\circ = \frac{PB}{OP} \Rightarrow \frac{PB}{R} = 2 - \sqrt{3}$$

$$\Rightarrow PB = (2 - \sqrt{3})R$$

$$\text{Therefore, } AB = (4 - 2\sqrt{3})R$$

$$\begin{aligned} \text{So, area of the polygon} &= 12 \times \text{Area of } \triangle OAB \\ &= 12 \times (1/2 \times AB \times OP) \\ &= 12 \times \left(\frac{1}{2} \times (4 - 2\sqrt{3})R \times R\right) = 12(2 - \sqrt{3})R^2 \end{aligned}$$

$$\text{So, the required ratio} = \frac{12(2 - \sqrt{3})R^2}{\pi R^2} = \frac{12(2 - \sqrt{3})}{\pi}$$

**FeedBack**

**Bookmark**

**Answer key/Solution**

**Q.68**

Three friends - A, B and C - have some coins with them in such a way that the number of coins with A is 1/3rd of the number of coins with B and C taken together, and the number of coins with B is 1/4th of the number of coins with A and C taken together. If the number of coins with C is 1/x of what A and B together have, then find the value of x.

1  20/11

2  11/20

3  9/11

4  11/9

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

Suppose total number of coins with A, B and C be 20.

If A has got 1/3rd of B and C, then this implies A has got 1/4th of the total number of coins i.e, A got 5 coins.

If B has got 1/4th of A and C, then this implies B has got 1/5th of the total number of coins i.e, B got 4 coins.

So, the number of coins that C got is  $(20 - 5 - 4) = 11$ .

i.e.  $11 = 1/x (5 + 4)$

$$\Rightarrow x = 9/11.$$

**FeedBack****Q.69**

**In a company, an engineer planned to do a certain work in 8 days. But after working for 3 days, he found that only 30% of the work was completed with machines running 5 hours a day. If he wants to complete the work on time, then for how many hours per day should he work now?**

**Solution:****Correct Answer : 7****Your Answer : 7** **Bookmark** **Answer key/Solution**

Work done in 3 days with machine working 5 hrs/day =  $3 \times 5 = 15$  hours

As 30% of work is done in 15 hours, remaining 70% can be done in  $\frac{70 \times 15}{30} = 35$  hours.

But this needs to be done in  $(8 - 3)$  i.e, 5 days.

So, per day machine needs to work for  $\frac{35}{5} = 7$  hours.

**FeedBack****Q.70**

If  $a^{(3x^2+7x+5)} = a^{(2x^2+12x-1)}$ , then find the value of x.

1  2 2  3 3  2 or 3

4  Cannot be determined



### Solution:

**Correct Answer : 4**

**Your Answer : 4**

$$a^{\sqrt{3x^2+7x+5}} = a^{\sqrt{2x^2+12x-1}}$$

CASE 1: When  $a$  is not equal to  $-1, 0, 1$ .

So,  $3x^2 + 7x + 5 = 2x^2 + 12x - 1$

$$\Rightarrow x^2 - 5x + 6 = 0$$

$$\Rightarrow (x - 2)(x - 3) = 0$$

$$\Rightarrow x = 2 \text{ or } 3$$

CASE 2:  $a = -1$

For equation to hold true, both powers have to be both even or both odd.

So,  $x$  can take many other values also. For example,  $x = 1$ .

Similarly, many values of  $x$  satisfies for  $a = 0$  and  $1$ .

**Bookmark**

**Answer key/Solution**

**FeedBack**

### Q.71

If  $5 \log_{27}(y) + 2 \log_9(81y) = 20$ , then the value of  $y$  is

1  81

2  2187

3  729

4  59049

### Solution:

**Correct Answer : 3**

$$5 \log_{27}(y) + 2 \log_9(81y) = 20$$

$$\text{L.H.S.} = \frac{5}{3} \log_3(y) + \frac{2}{2} \log_3(81y)$$

$$= \log_3(81) + \log_3(y^{\frac{8}{3}}) \quad \{ \text{As } \log_3(81y) = \log_3(81) + \log_3(y) \}$$

$$= 4 + \frac{8}{3} \log_3(y)$$

$$= 20 \text{ (as given)}$$

$$\text{So, } \log_3(y) = 6$$

$$\Rightarrow y = 3^6 = 729.$$

**Bookmark**

**Answer key/Solution**

**FeedBack**

**Q.72**

Find the sum of the following series:

$$\frac{2^2}{1 \times 3} + \frac{3^2}{2 \times 4} + \frac{4^2}{3 \times 5} + \dots + \frac{21^2}{20 \times 22}.$$

1   $20 - \frac{10}{21} + \frac{5}{22}$

2   $20 + \frac{10}{21} + \frac{5}{22}$

3   $21 - \frac{1}{21 \times 22}$

4   $20 + \frac{3}{21 \times 22}$

**Solution:**

**Correct Answer : 2**

 **Bookmark**

 **Answer key/Solution**

$$\begin{aligned}
 S &= \frac{2^2}{1 \times 3} + \frac{3^2}{2 \times 4} + \frac{4^2}{3 \times 5} + \dots + \frac{21^2}{20 \times 22} \\
 &= 1 + \frac{1}{1 \times 3} + 1 + \frac{1}{2 \times 4} + 1 + \frac{1}{3 \times 5} + \dots + 1 + \frac{1}{20 \times 22} \\
 &= (1+1+\dots) + \left( \frac{1}{1 \times 3} + \frac{1}{2 \times 4} + \frac{1}{3 \times 5} + \frac{1}{4 \times 6} + \dots + \frac{1}{19 \times 21} + \frac{1}{20 \times 22} \right) \\
 &= 20 + \left[ \left( \frac{1}{1 \times 3} + \frac{1}{3 \times 5} + \frac{1}{5 \times 7} + \dots + \frac{1}{19 \times 21} \right) + \left( \frac{1}{2 \times 4} + \frac{1}{4 \times 6} + \dots + \frac{1}{20 \times 22} \right) \right] \\
 &= 20 + \frac{1}{2} \left[ \left( \frac{1}{1} - \frac{1}{3} \right) + \left( \frac{1}{3} - \frac{1}{5} \right) + \left( \frac{1}{5} - \frac{1}{7} \right) + \dots + \left( \frac{1}{19} - \frac{1}{21} \right) \right] + \frac{1}{2} \left[ \left( \frac{1}{2} - \frac{1}{4} \right) + \left( \frac{1}{4} - \frac{1}{6} \right) + \dots + \left( \frac{1}{20} - \frac{1}{22} \right) \right] \\
 &= 20 + \frac{1}{2} \left[ \left( 1 - \frac{1}{21} \right) + \left( \frac{1}{2} - \frac{1}{22} \right) \right] = 20 + \frac{1}{2} \left( \frac{20}{21} + \frac{10}{22} \right) = 20 + \frac{10}{21} + \frac{5}{22}.
 \end{aligned}$$

**FeedBack**

**Q.73**

P, Q, R and S are 4 points on a line in that same order. Amit and Vikas are standing at point Q whereas Chimpu and Dhammu are standing at point S. Amit and Vikas start running simultaneously in opposite directions such that when Amit reaches P, Vikas reaches R. Also, when Chimpu and Dhammu start running simultaneously towards P, Chimpu and Dhammu reach at P and R respectively, at the same time. If the ratio of the speeds of Amit, Vikas, Chimpu and Dhammu is 3 : 1 : 3 : 2, then find the ratio of the lengths of QR and RS.

1  1 : 42  3 : 23  1 : 84  Cannot be determined**Solution:****Correct Answer :** 3**Your Answer :** 3 **Bookmark** **Answer key/Solution**

Let the speeds of Amit, Vikas, Chimpu and Dhammu be  $3s$ ,  $s$ ,  $3s$  and  $2s$  respectively.

$P \quad X \quad Q \quad Y \quad R \quad Z \quad S$

Let the distance  $PQ$ ,  $QR$  and  $RS$  be  $X$ ,  $Y$  and  $Z$  respectively.

The time taken by Amit to reach  $P$  is same as the time taken by Vikas to reach  $R$ .

So, the ratio of their speeds must be equal to the ratio of the distance travelled by them.

$$\text{So, } \frac{X}{Y} = \frac{3s}{s} \text{ i.e. } X = 3Y.$$

$$\text{Similarly, } \frac{X+Y+Z}{Z} = \frac{3s}{2s} \text{ i.e. } \frac{3Y+Y+Z}{Z} = \frac{3}{2} \text{ i.e. } 8Y + 2Z = 3Z \text{ or } \frac{Y}{Z} = \frac{1}{8}.$$

**FeedBack****Q.74**

**$m$  is the smallest positive integer such that for any integer  $n \geq m$ , the quantity  $n^3 - 13n^2 + 52n - 60$  is positive. What is the value of  $m$  ?**

1  42  53  84  None of these

**Solution:****Correct Answer : 4****Your Answer : 1**

$$\text{Let } y = n^3 - 13n^2 + 52n - 60$$

$$\text{Now, } n^3 - 13n^2 + 52n - 60 = (n-2)(n-5)(n-6)$$

So the whole expression will always be positive if  $n - 6 > 0$  i.e.  $n > 6$ .

Since  $n$  is an integer, so its least value will be  $n = 7$ .

Now  $n \geq m$  and  $m$  is also an integer.

Hence, the least value of  $m$  is also 7.

**Bookmark****Answer key/Solution****FeedBack****Q.75**

**A six-digit number is formed using digits 1, 2, 3, 5, 7 and 9, without repeating any of them. If 'X' is the sum of all such possible 6-digit numbers, then how many different digits are used in X?**

**Solution:****Correct Answer : 6****Bookmark****Answer key/Solution**

Total possible such 6 digits number using given six digits =  $6! = 720$

As there are 720 total numbers, every digit is possible in  $720/6 = 120$  numbers at ones place.

Same is true for tens, hundreds and every other place.

$$\begin{aligned} \text{So, sum of numbers at ones place} &= 120 \times 1 + 120 \times 2 + 120 \times 3 + 120 \times 5 + 120 \times 7 + 120 \times 9 \\ &= 120(1+2+3+5+7+9) = 120(27) = 3240 \end{aligned}$$

As the sum of digits is same at every place, sum of all such numbers =  $3240 \times 111111 = 359999640$ .

So, there are 6 different digits i.e., 0, 3, 4, 5, 6, 9, are used to write this number.

**FeedBack****Q.76**

**By what percent (correct upto one decimal place) should the price of a t-shirt be marked up over its cost price so that there is a profit of 30% even after selling it at a discount of 20%?**

**Solution:****Correct Answer : 62.5****Bookmark****Answer key/Solution****Method 1:**

Let the CP be Rs100. Therefore, Selling Price = Rs130

As he earns this profit after giving 20% discount on MP,

So,  $0.8 \text{ MP} = 130 \Rightarrow \text{MP} = \text{Rs.}162.50$

So, t-shirt is marked at 62.5% higher rate than CP.

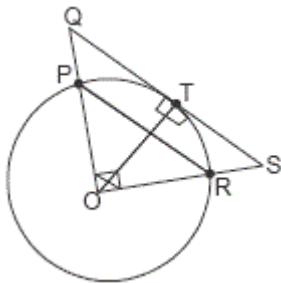
**Method 2:**

$$\text{SP} = 0.8 \text{ MP} = 1.3 \text{ CP}$$

$$\Rightarrow \text{MP} = 13/8 \text{ CP}$$

So, there will be an increase of  $5/8$  i.e. 62.5%.

**FeedBack**

**Q.77**

In the figure shown above,  $OQ$ ,  $QS$  and  $OS$  are three lines with points  $P$ ,  $T$  and  $R$  on it respectively.  $O$  is the centre of the circle having radius  $r$ . If  $OQ = OS$ , then how many line segments shown above (i.e. lines with labeled endpoints) have length ' $r$ '?

**X****Solution:****Correct Answer : 5****Your Answer : 6**

$\overline{OP}$ ,  $\overline{OT}$  and  $\overline{OR}$  are radii of the circle, so they all have length  $r$ .

Since  $OQ = OS$ , angles  $Q$  and  $S$  are each  $45^\circ$ .

Thus,  $OT = TS$  and  $OT = QT$ .

So, there are five labeled segments with length  $r$  i.e.,  $\overline{OP}$ ,  $\overline{OT}$ ,  $\overline{OR}$ ,  $\overline{QT}$  and  $\overline{TS}$ .

**Bookmark****Answer key/Solution****FeedBack****Q.78**

The average marks of a class of 45 students is 80. The difference between the marks of the student who gets the highest marks and the one who gets the least is 99. If both these students are not considered, then the average marks of the class falls by 1 mark. Find the highest marks scored in the class.

**✓**

**Solution:****Correct Answer : 151****Your Answer : 151**Total marks of class =  $80 \times 45 = 3600$ 

Let highest marks be H and lowest be L.

$$\therefore H - L = 99 \quad \dots(1)$$

Now average of 43 students = 79

and their total marks =  $43 \times 79 = 3397$ 

$$\therefore \text{Average of whole class} = \frac{3397 + H + L}{45} = 80$$

$$\therefore H + L = 203 \quad \dots(2)$$

Solving (1) and (2), we get H = 151.

**Bookmark****Answer key/Solution****FeedBack****Q.79**

If k is positive and not equal to '1' and also  $k^{-p^3} = l$ ,  $k^{-q^3} = m$ ,  $k^{-r^3} = n$ , where  $p + q + r = 0$ , then for what value of k will  $pqr = 1/3$ ?

1   $\frac{1}{lmn}$

2   $\sqrt[3]{lmn}$

3   $lmn$

4   $l + m + n$

**Solution:****Correct Answer : 1**

$$l = k^{-p^3}, m = k^{-q^3}, n = k^{-r^3}$$

$$\text{So, } lmn = k^{-(p^3+q^3+r^3)} = k^{-(3pqr)} \quad (\because p+q+r=0)$$

If  $pqr = \frac{1}{3}$ , then

$$lmn = k^{-(3 \times \frac{1}{3})} = k^{-1}.$$

$$\Rightarrow k = \frac{1}{lmn}.$$

**Bookmark****Answer key/Solution****FeedBack**

**Q.80**

In a tank of capacity 400 liters, half filled with milk initially, one inlet pipe and one outlet pipe are operating. In the first hour, only the outlet pipe is operating and it takes out 20 liters of the mixture. In the next hour, the outlet pipe is closed and the inlet pipe pours in 30 liters of water. In the next hour the inlet pipe is closed and outlet pipe takes out 20 liters of the mixture and again in the next hour outlet pipe is closed and the inlet pipe pours in 30 liters of water. This process is repeated for another 4 hours. What is the approximate final quantity of water in the tank after 8 hours?

1  105 liters

2  149 liters

3  91 liters

4  141 liters

**Solution:**

**Correct Answer : 1**

 **Bookmark**

 **Answer key/Solution**

	Milk	:	Water
Initially	200	:	0
1st hour	180	:	0
2nd hour	180	:	30
3rd hour	$180 - \frac{120}{7}$	:	$30 - \frac{20}{7}$
4th hour	$180 - \frac{120}{7}$	:	$60 - \frac{20}{7}$
	$= \frac{1140}{7}$	:	$= \frac{400}{7}$
5th hour	$\frac{1140}{7} - \frac{57}{77} \times 20$	:	$\frac{400}{7} - \frac{20}{77} \times 20$
	$= \frac{11400}{77}$	:	$= \frac{4000}{77}$
6th hour	$\frac{11400}{77}$	:	$\frac{4000}{77} + 30 = \frac{6310}{77}$
7th hour	$\frac{11400}{77} - \frac{1140}{1771} \times 20$	:	$\frac{6310}{77} - \frac{631}{1771} \times 20$
8th hour	$\frac{11400}{77} \left(1 - \frac{2}{23}\right)$	:	$\frac{6310}{77} \left(1 - \frac{2}{23}\right) + 30 = 74.8 + 30$

So, the final quantity of water in the tank after 8 hours is 104.8 liters or 105 liters approximately.

**FeedBack**

**Q.81**

An alloy X consists of four materials - Zinc, Lead, Copper and Iron. The ratio of both Zinc to Lead and Copper to Iron in the alloy is 1 : 2. If the amount of Zinc and Copper in the alloy is increased by 30% and 40% respectively and that of the Lead and Iron is decreased by 15% and 20% respectively, then find the net change in the volume of the alloy.

1  No change

2  Increased by 25%

3  Decreased by 25%

4  Data insufficient

**Solution:**

**Correct Answer :** 1

Let initially the volume of Zinc, Lead, Copper and Iron in the alloy be 20, 40, 20 and 40 respectively.

After increase amount of Zinc and Copper become 26 and 28 respectively.

And after decrease amount of Lead and Iron become 34 and 32 respectively.

So, the new volume of the alloy =  $26 + 28 + 34 + 32 = 120$ , which is same as the initial volume.

 **Bookmark**

 **Answer key/Solution**

**FeedBack**

**Q.82**

A 3-digit natural number is 297 more than the number formed by reversing the order of its digit. If the digit at the tens place of the original number is higher than the digit at the units place, then how many such 3-digit numbers are possible?

**Solution:****Correct Answer : 42**

Let the 3-digit number be 'abc' i.e.  $100a + 10b + c$   
 So,  $(100a + 10b + c) - (100c + 10b + a) = 297$   
 i.e,  $99(a - c) = 297$

$$\text{or } a - c = \frac{297}{99} = 3$$

Further, it is given that  $b > c$

So, if  $a = 9$ , then  $c = 6$  and  $b = 7/8/9$

a	b	c	3 numbers
9	7	6	
9	8	6	
9	9	6	

Similarly, for other cases also we get the following cases:

- (1)  $a = 9 c = 6, b = 7/8/9$
- (2)  $a = 8 c = 5, b = 6/7/8/9$
- (3)  $a = 7 c = 4, b = 5/6/7/8/9$
- (4)  $a = 6 c = 3, b = 4/5/6/7/8/9$
- (5)  $a = 5 c = 2, b = 3/4/5/6/7/8/9$
- (6)  $a = 4 c = 1, b = 2/3/4/5/6/7/8/9$
- (7)  $a = 3 c = 0, b = 1/2/3/4/5/6/7/8/9$

So, we get a total of 42 such numbers.

 **Bookmark**
 **Answer key/Solution**
[FeedBack](#)
**Q.83**

**Shasha sets off on his bike from Noida to Kanpur, at a certain speed, intending to reach Kanpur by 5 p.m. After covering a certain distance, he realises that he would be able to cover only five-eighth of the intended distance by 5 p.m. He therefore increases his speed by 75% and reaches Kanpur at 5 p.m. What fraction of the total distance did he cover at his initial speed?**

1  **5/8**

2  **1/8**

3  **3/4**

4  **3/5**



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

Let the total distance between Noida (N) and Kanpur(K) be  $8x$  and Shasha's initial speed be  $4a$ .  
Therefore, his increased speed is  $7a$ .

Let the point, where he increased his speed, be P and let Q be the point on NK such that  $NQ = \frac{5}{8}(NK)$ , as shown below:



If he had travelled at  $4a$ , he would be at Q by 5 p.m. But, after point P, he actually travels at speed of  $7a$  and reaches K by 5 pm.

$$\text{So, } \frac{PQ}{PK} = \frac{4}{7} \quad (\text{as distance is directly proportional to speed, if time is constant})$$

$$\text{Let } PQ = 4y \text{ and } PK = 7y$$

$$\text{Then, } QK = 3x = PK - PQ = 7y - 4y \Rightarrow y = x$$

$$\Rightarrow PQ = 4x \text{ and } PK = 7x$$

$$\text{So, } NP = x$$

Hence, by the time he changed his speed, he had covered  $x$  or  $\frac{1}{8}$ th of the total distance.

**FeedBack**

#### **Q.84**

A rectangle ABCD has length 16 units and width 12 units. Midpoints of its sides are joined internally to form a quadrilateral. Again midpoints of this quadrilateral are joined to form another quadrilateral and this process keeps on repeating infinitely. Find the sum of areas (in square units) of the rectangle and all such quadrilaterals.

1  **384**

2   **$192\sqrt{2}$**

3  **288**

4  **768**

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

Quadrilateral formed inside rectangle is rhombus, with its area as half of the area of rectangle.

Now, area of rectangle =  $16 \times 12 = 192$  sq. units

So, area of rhombus = 96 sq. units

Again area of quadrilateral inside of rhombus = 48 sq. units

So, area keep on decreasing by 50% in every step, or we can say area of these quadrilaterals form a Geometric Progression with its first term as 192 and common ratio as 1/2.

$$\text{So, the required total sum} = \frac{a}{1-r} = \frac{192}{1-\frac{1}{2}} = 384 \text{ sq. units.}$$

**FeedBack****Q.85**

**A certain sum of money, invested by Aman, amounts to Rs. 4800 at the end of two years and Rs. 8112 at the end of four years. If the interest on the sum is compounded annually, then what was the amount (in Rs.) at the end of three years?**

**Solution:****Correct Answer : 6240**

Let P be the principal and r be the rate of interest.

**Bookmark** **Answer key/Solution**

$$\text{Then, } P\left(1+\frac{r}{100}\right)^2 = 4800$$

$$\text{and } P\left(1+\frac{r}{100}\right)^4 = 8112$$

$$\therefore 4800\left(1+\frac{r}{100}\right)^2 = 8112$$

So,  $r = 30\%$

And hence amount after 3 years =  $4800 \times 1.3 = \text{Rs. 6240.}$

**FeedBack****Q.86**

**The cost price of five articles is in the ratio of 1 : 2 : 3 : 4 : 5 and the profit percentage earned on selling these articles is also in the ratio of 1 : 2 : 3 : 4 : 5 respectively. If the maximum earned profit is less than 100% and the percentage of profit earned on every article is a multiple of 10, then find the approximate overall profit percentage earned on the five articles.**

1  **37%**2  **30%**

3  **34%**

4  **40%**

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

Let the price of the articles be 100, 200, 300, 400, 500.

Now profit percent on the articles can be 10%, 20%, 30%, 40% and 50% only as all are the multiple of 10 and maximum profit is less than 100%.

So, profit earned on the five articles become 10, 40, 90, 160, 250

So, overall profit = 550

$$\text{Profit percent} = \frac{550}{1500} \times 100 = 36.66 \approx 37\%.$$

**FeedBack****Q.87**

**At a press conference, conducted by UNESCO, 200 foreign journalists were present. Out of which, 175 could speak English, 150 could speak French, 180 could speak Spanish while 160 could speak German. What could be the minimum number of journalists who can speak at least three of the four languages?**

1  **150**

2  **135**

3  **133**

4  **65**



**Solution:****Correct Answer : 3****Your Answer : 4**

**Sum of all sets is  $175 + 150 + 180 + 160 = 665$ . Each journalist is given one language each and again which reduces total count of language by  $200 \times 2 = 400$ .**

**Answer key/Solution**

The remaining 265 languages has to be given away to them in such a way that least receives at least three. Giving two languages to each one first will reduce the count of journalists. Only a max of 132 journalists can get two languages each and the last language goes to 133rd journalist. Thus making 132 journalists receive 4 languages each, 1 journalist receiving 3 language and the remaining 67 journalists getting 2 languages.

**FeedBack****Q.88**

**The 3rd and the 17th term of an Arithmetic Progression are 24 and 73 respectively. Find the sum of the first 10 terms of the AP. (correct upto one decimal place)**

**Solution:****Correct Answer : 327.5****Answer key/Solution**

In an Arithmetic Progression, the difference between the consecutive terms is constant. Since the 3rd term of the sequence is 24 and the 17th term is 73, the common difference is  $\frac{73 - 24}{17 - 3} = 3.5$ .

If the 3rd term of the sequence is 24, the 2nd term must be  $24 - 3.5 = 20.5$ , and the 1st term must be 17. Likewise, the 10th term is equal to  $17 + 9(3.5) = 48.5$ . The sum of the first 10 terms of the sequence is given by

$$S_{10} = \frac{10(17 + 48.5)}{2} = 327.5.$$

**FeedBack****Q.89**

**In how many ways can the letters of the word 'MANAGEMENT' be rearranged such that the first and the last letters are same?**

1  **5 × 9!**2  **4 × 8!**3  **4 × 7!**

4  None of these

**Solution:**

**Correct Answer : 3**

**Your Answer : 2**

**Bookmark**

**Answer key/Solution**

The two similar letters can be 2 M's, 2 A's, 2 N's or 2 E's. So, there are 4 ways to select them. The remaining

letters can be arranged in  $\frac{8!}{2! \times 2! \times 2!}$  ways.

Total number of ways =  $4 \times \frac{8!}{2! \times 2! \times 2!} = 4 \times 7!$ .

**FeedBack**

### Q.90

If  $f(x) = x^2 + 10x + 20$  and  $f[f(x)] = 0$ , then find the real values of  $x$ .

1   $-5 \pm 5^{\frac{1}{4}}$

2   $-4 \pm 5^{\frac{1}{4}}$

3   $-6 \pm 6^{\frac{1}{4}}$

4   $-4 \pm 4^{\frac{1}{4}}$

**Solution:**

**Correct Answer : 1**

$$\begin{aligned} f(x) &= x^2 + 10x + 20 \\ &= (x^2 + 10x + 25) - 5 \\ &= (x + 5)^2 - 5 \end{aligned}$$

$$\text{So, } f[f(x)] = f[(x + 5)^2 - 5]$$

$$\begin{aligned} &= \left[ \left\{ (x + 5)^2 - 5 \right\} + 5 \right]^2 - 5 \\ &= (x + 5)^4 - 5 \end{aligned}$$

$$\text{So, } (x + 5)^4 - 5 = 0$$

$$\Rightarrow (x + 5)^4 = 5$$

$$\Rightarrow (x + 5) = \pm(5)^{\frac{1}{4}}$$

$$\Rightarrow x = \pm(5)^{\frac{1}{4}} - 5 .$$

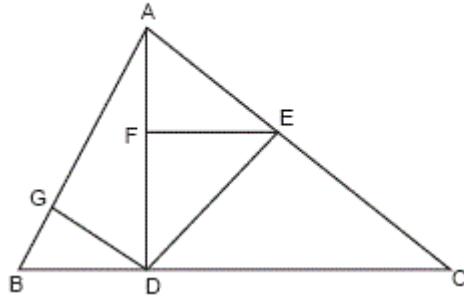
**Bookmark**

**Answer key/Solution**

**FeedBack**

**Q.91**

In  $\triangle ABC$ ,  $BA \perp AC$ ,  $AD \perp BC$ ,  $DE \perp AC$ ,  $DG \perp AB$  and  $EF \perp AD$ . If  $AF = 1$  and  $FD = 3$ , then find the value of  $DG : DE$ .



1  2 :  $\sqrt{3}$

2   $\sqrt{3} : 1$

3  1 :  $\sqrt{3}$

4   $\sqrt{3} : 2$



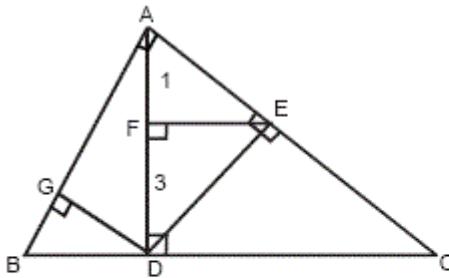
**Solution:**

**Correct Answer :** 3

**Your Answer :** 3

**Bookmark**

**Answer key/Solution**



Let  $\angle FAE = \theta$ , then  $\angle AEF = 90^\circ - \theta$ ,  $\angle FED = \theta$  and  $\angle ADE = 90^\circ - \theta$

So,  $\triangle AFE \sim \triangle AED$

$$\therefore \frac{AF}{AE} = \frac{AE}{AD} \Rightarrow \frac{1}{AE} = \frac{AE}{4} \Rightarrow AE = 2$$

$$\text{So, in } \triangle AEF, \cos \theta = \frac{AF}{AE} = \frac{1}{2} \Rightarrow \theta = 60^\circ$$

So, we can say that  $\angle BAD = \angle BDG = 30^\circ$  (because  $\angle BAC = 90^\circ$ )

$$\text{Now, in } \triangle ADE, \tan 60^\circ = \frac{DE}{AE}$$

$$\Rightarrow \sqrt{3} = \frac{DE}{2} \Rightarrow DE = 2\sqrt{3}$$

$$\text{In } \triangle ADG, \sin 30^\circ = \frac{DG}{AD}$$

$$\Rightarrow \frac{1}{2} = \frac{DG}{4} \Rightarrow DG = 2$$

$$\text{So, the required ratio of } \frac{DG}{DE} = \frac{2}{2\sqrt{3}} = 1 : \sqrt{3}.$$

**FeedBack**

### Q.92

If  $2x\%$  of  $y$  is equal to  $3y\%$  of  $z$  which in turn is equal to  $5z\%$  of  $x$ , where  $x, y$  and  $z$  are non-zero real numbers, then what percentage of  $y^2z$  is  $x^2y$ ?

1  10%

2  90%

3  85%

4  111.11%

**Solution:****Correct Answer : 2**

$$\frac{y \cdot 2x}{100} = \frac{z \cdot 3y}{100} = \frac{x \cdot 5z}{100}$$

i.e.  $2xy = 3yz = 5xz$ i.e.  $2x = 3z$  and  $3y = 5x$ 

$$\text{Hence, } z = \frac{2x}{3} \text{ and } y = \frac{5x}{3}$$

So, if we take  $x = 3$ , we get  $z = 2$  and  $y = 5$ . $x^2y = 45$  and  $y^2z = 50$ . So,  $x^2y$  i.e. 45 is 90% of 50 ( $= y^2z$ ).**Bookmark****Answer key/Solution****FeedBack****Q.93**

The score of a team in a one-day cricket match was 300. If the scores of the team in the next 3 matches were  $40\%$ ,  $33\frac{1}{3}\%$  and  $15\%$  more than their scores in their respective preceding matches, then find the average score of the team in these 4 matches.

**Solution:****Correct Answer : 481**

$$\text{The score of the team in its second match} = 300 + \frac{40(300)}{100} = 420 ;$$

$$\text{In 3rd match} = 420 + \frac{33\frac{1}{3}}{100}(420) = 560 ;$$

$$\text{In 4th match} = 560 + \frac{15}{100} \times 560 = 644.$$

$$\therefore \text{The required average score} = \frac{300 + 420 + 560 + 644}{4} = 481 .$$

**Bookmark****Answer key/Solution****FeedBack****Q.94**

Amit starts travelling from Lucknow towards Delhi, while Aman starts travelling from Delhi towards Lucknow at the same time along the same route. After passing each other on the route, they

complete their remaining journey in  $1\frac{1}{2}$  hours and  $2\frac{2}{5}$  hours respectively. Find the approximate speed at which Aman is travelling, if the speed of Amit is 16 kmph.

1  **9 kmph**

2 **25 kmph**

3 **13 kmph**

4 **None of these**



### Solution:

**Correct Answer : 3**

**Your Answer : 3**

**Bookmark**

**Answer key/Solution**

Let the distance travelled by Amit and Aman before they met be  $d_1$  and  $d_2$  respectively.  
Since they both start travelling together, so time taken by both of them is same.

$$\text{i.e., } \frac{d_1}{16} = \frac{d_2}{s}$$

$$\text{Also, time taken by Amit after meeting} = \frac{d_2}{16} = \frac{3}{2} \Rightarrow d_2 = 24$$

$$\text{And time taken by Aman after meeting} = \frac{d_1}{s} = \frac{12}{5} \Rightarrow d_1 = \frac{12}{5}s$$

Putting values of  $d_1$  and  $d_2$  in the above equation, we get

speed of Aman =  $s = 4\sqrt{10} = 12.64 \approx 13 \text{ kmph.}$

### Alternate method:

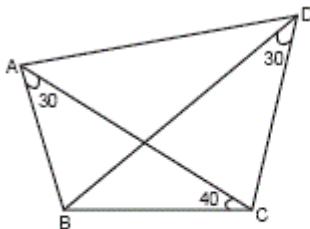
Let the speed of Aman be  $s$ . Then,

$$\frac{s_1}{s_2} = \sqrt{\frac{t_2}{t_1}} \Rightarrow \frac{16}{s} = \sqrt{\frac{12/5}{3/2}} \Rightarrow s = 4\sqrt{10} \approx 13 \text{ km/hr.}$$

**FeedBack**

### Q.95

**In a quadrilateral ABCD,  $\angle BAC = \angle BDC = 30^\circ$  and  $\angle ACB = 40^\circ$ . Find the measure (in degrees) of  $\angle ADB$ .**

**Solution:****Correct Answer : 40****Bookmark****Answer key/Solution**

As  $\angle BAC = \angle BDC$ , so quadrilateral ABCD will be cyclic by the property of angle in same segment.

So,  $\angle ADB = \angle ACB = 40^\circ$ . (By the same property)

**FeedBack****Q.96**

The average wage of a worker during a fortnight, comprising 15 consecutive working days, was Rs. 90 per day. During the first 7 days and the last 7 days, his average wage was Rs. 87 per day and Rs. 92 per day respectively. Find his wage (in Rupees) on the 8th day.

**Solution:****Correct Answer : 97****Bookmark****Answer key/Solution**

The total wage of the worker earned during the 15 days =  $15 \times 90$   
= Rs. 1,350.

The total wage earned during the first 7 days =  $7 \times 87$  = Rs. 609.

The total wage earned during the last 7 days =  $7 \times 92$  = Rs. 644.

Total wage earned during the 15 days = wage earned during first 7 days + wage earned on 8th day + wage earned during the last 7 days.

So,  $1350 = 609 + \text{wage on 8th day} + 644$

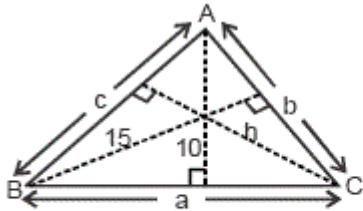
Hence, wage earned by the worker on 8th day =  $1350 - 609 - 644$  = Rs.97.

**FeedBack****Q.97**

The altitudes of a triangle, corresponding to 2 different sides as bases, are 10 cm and 15 cm. The altitude corresponding to the third side of the triangle as base is also an integral multiple of a cm. How many such triangles are possible?

1  222  233  24

4 ● 19

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

$$\text{Area of the triangle } (A) = \frac{1}{2}a \times 10 = \frac{1}{2}b \times 15 = \frac{1}{2}c \times h$$

$$\text{So, } a = \frac{2A}{10} = \frac{A}{5}, \quad b = \frac{2A}{15} \quad \text{and} \quad c = \frac{2A}{h}$$

$$\text{Now, } a - b < c < a + b$$

(∴ Any side of a triangle is more than the difference of the other two sides and less than the sum of the sides)

$$\Rightarrow \frac{A}{5} - \frac{2A}{15} < \frac{2A}{h} < \frac{A}{5} + \frac{2A}{15}$$

$$\Rightarrow \frac{1}{15} < \frac{2}{h} < \frac{5}{15} \Rightarrow 15 > \frac{h}{2} > 3 \Rightarrow 30 > h > 6$$

Therefore, h can be equal to 7, 8, 9, 10, ..., 29

So, 23 such triangles are possible.

**FeedBack**
**Q.98**

If  $\log_4(\log_2 1024 + \log_3 81 + 2) = 2k + m$  and  $\log_{\sqrt{5}}(5 + 5 \log_9 3^8) = k + 2m$ , then find the value of  $(k^2 + 8m + km)$ .

**Solution:****Correct Answer : 16**

$$\begin{aligned}\log_4(\log_2 1024 + \log_3 81 + 2) &= 2k + m \\ \Rightarrow \log_4(10 + 4 + 2) &= 2k + m \\ \Rightarrow \log_4(16) &= 2k + m \\ \Rightarrow 2 &= 2k + m \quad \dots(i)\end{aligned}$$

$$\begin{aligned}\log_{\sqrt{5}}(5 + 5 \log_9 3^8) &= k + 2m \\ \Rightarrow \log_{\sqrt{5}}\left(5 + \frac{5}{2} \times 8\right) &= k + 2m \\ \text{and } \Rightarrow \log_{\sqrt{5}}25 &= k + 2m \\ \Rightarrow 4 &= k + 2m \quad \dots(ii)\end{aligned}$$

Solving (i) and (ii), we get  
 $k = 0$  and  $m = 2$ .  
So, the required relation i.e.  $k^2 + 8m + km = 0 + 16 + 0 = 16$ .

**FeedBack****Bookmark****Answer key/Solution****Q.99**

**Four boys and four girls are seated in a row in such a way that exactly 2 of the 4 boys are sitting together. In how many ways can they be seated?**

1  7! × 22  6! × 23  6! × 244  8! – 7! × 2**Solution:****Correct Answer : 3****Your Answer : 3****Bookmark****Answer key/Solution**

The two boys who are sitting together can be chosen in  ${}^4C_2$  ways and they can be arranged in 2 ways. The other two boys should not be sitting together and should not be next to these two boys. So, there are 3 units of boys i.e. BB, B and B and no two of them should be sitting together.

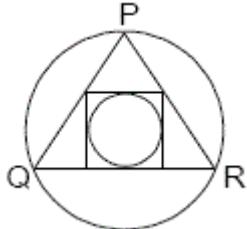
4 girls can be arranged in  $4!$  ways. Now, there are 5 spaces between these girls where the boys' units can be arranged i.e. \_ G \_ G \_ G \_ G \_. These 3 units of boys can be put at these 5 positions in  $5 \times 4 \times 3$  ways.

Hence, the total number of ways are  ${}^4C_2 \times 2 \times 4! \times 5 \times 4 \times 3$  i.e.  $6! \times 24$  ways.

**FeedBack**

**Q.100**

A circle is circumscribed around an equilateral triangle PQR as shown in the figure given below. Also a square of largest possible area is drawn inside the triangle as shown. Again a circle is inscribed inside the square. What is the ratio of area of the smaller circle to the larger circle?



- 1   $(9 - \sqrt{3}) : 2$
- 2   $(15 - 12\sqrt{3}) : 1$
- 3   $(17 - 4\sqrt{3}) : 8$
- 4   $(63 - 36\sqrt{3}) : 4$

**Solution:**

**Correct Answer : 4**

**Bookmark**

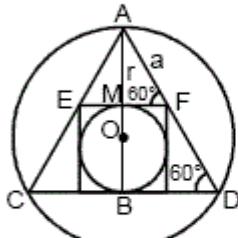
**Answer key/Solution**

Let the radius of the bigger circle be  $r$ .

Since the triangle given is equilateral, the centre of the circle lies at the centroid of the triangle.

So,  $\frac{2}{3} \times AB = r = OA$

i.e,  $AB = 3r/2$



In triangle ABD,

$$\frac{AB}{AD} = \sin 60^\circ$$

$$\Rightarrow \frac{3r}{2 \times AD} = \frac{\sqrt{3}}{2}$$

$$\Rightarrow AD = \sqrt{3}r$$

Also,  $AM = \frac{\sqrt{3}}{2}a$ , where  $a$  is the side of the square

$$AM + MB = AB = \frac{3r}{2}$$

$$\Rightarrow \frac{\sqrt{3}}{2}a + a = \frac{3r}{2}$$

$$\Rightarrow \frac{\sqrt{3} + 2}{2}a = \frac{3r}{2}$$

$$\Rightarrow a = \frac{3r}{\sqrt{3} + 2}$$

Hence, radius of smaller circle =  $a/2$

$$\text{Therefore, the required ratio} = \frac{\left(\frac{3r}{2(\sqrt{3}+2)}\right)^2}{r^2} = \frac{9}{4(7+4\sqrt{3})} = \frac{9(7-4\sqrt{3})}{4} = \frac{(63 - 36\sqrt{3})}{4}$$

**FeedBack**