# Solutions of Mock CAT – 5 2017

| Scorecard (procreview.jsp?qsetId=Uw78rA3NIGs=&qsetName=Mock CAT – 5 2017) | Accuracy (AccSelectGraph.jsp?qsetId=Uw78rA3NIGs=&qsetName=Mock CAT – 5 2017) | Time Analysis (TimeAnalysis.jsp?qsetId=Uw78rA3NIGs=&qsetName=Mock CAT – 5 2017) | Qs Analysis (QsAnalysis qsetId=Uw78rA3NIGs=&qsetN CAT – 5 2017) |
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| VRC | DILR | QA | |

## Sec 1

**Directions for questions 1-3: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.**

**The management of Australia's looming energy crisis has so far focused almost exclusively on the supply side of the equation: exploiting new gas reserves, expanding the Snowy Mountains hydro scheme, and building new infrastructure.**

**Meanwhile, the huge potential of improving efficiency and demand management, which could save vast amounts of energy, has largely been ignored. One promising development is the recent announcement of a trial of demand response incentives in Victoria and South Australia. Next summer, households and businesses who sign up for the trial will be paid when they agree to be on standby to reduce their energy use during times of increased peak demand or natural disaster. They'll be paid again if their electricity is actually reduced.**

**ClimateWorks Australia's research shows that initiatives to better manage energy use could reduce peak demand on the national grid by more than 10% – or 3.8 gigawatts – the output of two Hazelwood power stations over peak times. Harnessing the huge demand-side opportunities is critical to addressing the "energy trilemma": ensuring energy security and affordability, while reducing emissions. Our electricity market struggles to handle energy demand in times of extreme stress, as we saw in the recent South Australian and New South Wales heat-waves. And the Australian energy market operator has forecast little change in overall or peak electricity demand over the next few years.**

**Demand response measures can reduce blackouts by significantly easing peak demand on these extreme days. For example, companies could be incentivised to turn off non-essential power during peak periods, freeing up more electricity for households, hospitals and emergency services. This already occurs in Western Australia, where the electricity market regulator operates a "capacity market" allowing businesses to be paid to reduce or shift their electricity use out of peak times.**

**But many of these opportunities are unlikely to be taken up under current policy and market settings. Our research shows that in particular, companies face significant financial barriers, such as the payback period and the opportunity cost of the investment, or the availability of internal capital. Policy makers need to ensure that the transformation of our energy system includes moving to renewable energy supply and managing demand. If we improve energy efficiency, better manage commercial and domestic demand, and actively encourage electric vehicles, we can avoid serious increases in energy prices, avoid building largely unproductive infrastructure, and address dangerous climate change.**

**Q.1**
**According to the passage, a solution to the "energy trilemma" would include all of the following except:**

1 ◯ **ensuring that the common people and small businesses in Australia are able to afford their energy requirement.**

2 ◯ **ensuring that the common people and small businesses in Australia are able to use energy securely.**

3 ◯ **ensuring that the Australian policy makers are made aware of the current policy and market settings.**

4 ◯ **ensuring that the energy usage in Australia is efficient and doesn't lead to emission.**

**Solution:**
**Correct Answer : 3**
**Refer to the line in the passage "Harnessing the huge demand-side opportunities is critical to addressing the "energy trilemma": ensuring energy security and affordability, while reducing emissions." 1, 2, and 4 talk about these three aspects. 3 doesn't talk about a solution to this problem. It is a generic opinion. Hence, 3 is the answer.**

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

FeedBack

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**Q.2**
**The author in the passage aims to:**

1 **suggest ways for Australian policy makers to effectively utilize the many opportunities available in the field of energy demand management.**

2 **analyse the benefits of a demand-oriented energy policy for the Australian society.**

3 **cite ClimateWorks Australia's researches into the benefits of initiatives to use energy in a better manner.**

4 **showcase the perils of Australia's supply dominated energy equations.**

**Solution:**
**Correct Answer : 2**
**1, 3, and 4 are narrow options. They are mentioned (directly or indirectly) in the passage to talk about the need for Australia to adopt a demand-based energy policy in addition to its current focus on the supply management of energy use in the country. 2 best captures the main point and tone of the author. Hence, 2 is the answer.**

**Bookmark**

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**Q.3**
**According to the author, the energy sector in Australia is facing all of the following challenges except:**

1 **ways to improve efficiency and demand management in using available energy.**

2 **ways to handle energy rquirement during demanding and stressful times like heat-waves.**

3 **ways to make sure companies overcome the financial obstacles that hamper their ability to utilize energy more efficiently.**

4 **ways to make people participate in the incentive programmes for reducing energy consumption in Victoria and South Australia.**

**Solution:**
**Correct Answer : 4**
**1,2, and 3 have been mentioned in the passage as challenges that the Australian energy market and the Australian policy makers are facing. However, 4 is mentioned in the passage as "a welcome development". The author has not mentioned it as a challenge.**

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Answer key/Solution
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**Directions for question 4: The following question consists of a set of five sentences. These sentences need to be arranged in a coherent manner to create a meaningful paragraph. Type in the correct order of the sentences in the space provided below the question.**

**Q.4**

**1. Not all ethical hackers perform trash testing, which borders on breaking into the client's facilities. Many firms choose to stick exclusively with technolog testing.**
**2. Bill War Dialling is an old hacking technique where a hacker breaks into a network by calling phone numbers in the hopes of hitting an unsecured modem that the target has accidentally left active or forgotten.**
**3. Since some companies employ armed guards, trashing carries with it the possibility of a tragic misunderstanding between the ethical hacker and his or her client's security personnel.**
**4. Thrashing is another old hacker trick in which intruders comb through the garbage of a target company in search of documents that contain important I data, such as access numbers and passwords.**
**5. Those ethical hacking firms that do trash their clients often use subcontractors for the job and coordinate extensively with the client company so that security guards do not mistake an intrusion test for something more sinister.**

**Solution:**
**Correct Answer : 24135**
**41 is a mandatory pair as both the sentences talk about Thrashing. 2 comes before 4 as 4 starts with "another old hacker trick". So 2 has to be the opening sentence of the paragraph. 35 is a mandatory pair as both of them talk about how the firms or companies deal with hacking. 3 comes after 1 because of the word "since". So, 24135 is the correct sequence.**

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**Directions for question 5: In this question, five sentences are given. Of these, four sentences can be logically sequenced to make a coherent paragraph. On of the sentences does not belong to the paragraph. Type in the sentence number that doesn't fit into the paragraph.**

**Q.5**

**1. To the naked eye it appears as the third-brightest star in the sky, outshone only by Sirius and Canopus, but a small telescope reveals it to be double, consisting of two yellow stars like the Sun.**
**2. Centaurus contains the closest star to the Sun, Alpha Centauri, 4.3 light years away.**
**3. Alpha and Beta Centauri mark the front legs of the centaur, and they act as pointers to Crux, the Southern Cross, which lies under the centaur's rear quarters.**
**4. Alpha Centauri is also known as Rigil Kentaurus, from the Arabic meaning 'centaur's foot'.**
**5. A third, much fainter companion star is called Proxima Centauri because it is just over a tenth of a light year closer to us than the other two, but this is only visible telescopically.**

**Solution:**
**Correct Answer : 3**
**The correct sequence is 2415. 2 is the opening sentence as it introduces Alpha Centauri. 24 make a mandatory pair as 4 gives further information on 2. 5 follows 1 because "a third star" in 5 refers to the three stars mentioned in 1. So 15 makes a mandatory pair. 3 is the odd one out as it introduces a new idea (Alpha and Beta Centauri and front legs of "the centaur").**

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Answer key/Solution
FeedBack

**Directions for questions 6-11: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

**I didn't know it at the time, but I was suffering from severe anxiety, a medical condition recognized by doctors going as far back as the ancient Greeks. Today, 11 different anxiety disorders are listed in the "Diagnostic and Statistical Manual of Mental Disorders," the bible for mental-health professionals, and they are being diagnosed in rising numbers.**

**Unfortunately, even as we have learned more about the varieties of anxiety in recent decades, the underlying causes of the disorder have remained poorly understood. But that is changing. Scientists have started to unravel some of the mysteries of the anxious brain, and their discoveries may soon lead to new and better treatments.**

**Still, rates of anxiety disorders, as well as depression, seem to be increasing among young people. The number of Americans expected to have at least one anxiety disorder in the course of their lives is staggering: one in three, ages 13 or older, according to researchers at Harvard Medical School and Technisch Universität Dresden. The number is even higher for women—about 40%. Each year, about 40 million American adults have an anxiety disorder, and that doesn't include the millions of garden-variety worriers and insomniacs whose anxiety, though not debilitating, leaches away joy and steals their peace of mind.**

**Rates of anxiety disorders, as well as depression, seem to be increasing among young people, particularly college students. According to a 2016 survey by the American College Health Association, 17% of students were diagnosed with or treated for anxiety problems during the previous year, and nearly 14% were diagnosed with or treated for depression. That is up from about 10% each for anxiety and depression in 2008.**

**A certain amount of anxiety is a good thing, motivating us to study for tests, prepare for presentations, save for retirement. Too much anxiety, however, ca be incapacitating and expensive. Anxiety disorders cost the U.S. about $63 billion a year, according to a 1999 study published in the Journal of Clinical Psychiatry, the most recent estimate available. The tally includes doctor and hospital visits, psychiatric treatment, prescription drugs and the value of lost productivity at work. Anxiety can also lead to depression, substance abuse and even suicide. Anxious people who work have lower incomes. They are less likely to marry, and, if they do, more likely to divorce.**

**Scientists have found that many childhood events and experiences—from illness to trauma to overprotective and controlling styles of parenting—can contribute to the development of anxiety. It is also partly genetic. Having a first-degree relative—a parent, sibling or child—with an anxiety disorder bump a person's risk of developing one by up to five times that of the general population.**

**I certainly don't see my anxiety as a gift, but it has some upsides. When I'm avoiding some necessary confrontation or saying yes to too many superfluous obligations, I feel it, and it kicks me into action. Weirdly, anxiety makes me live a more authentic life. And a more empathic one. It has made me feel vulnerable and more open to asking for help, thereby deepening my friendships.**

**People who have a brush with death often talk of how it has given them a sense of what really matters. An omnipresent fear of disaster and a constant bracing for catastrophe can do that, too. Time takes on more urgency. The background hum of uneasiness in my mind has motivated me to work harder, to speak more honestly and, curiously, to take more risks than I might otherwise have. Anxiety means that I'm simply not mellow enough to take things for granted. And that has made my life all the richer.**

**Q.6**
**All of the following are side-effects of anxiety disorder except:**

1 **People with anxiety disorder can be suicidal.**

2 **Anxiety makes one say yes to too many superfluous obligations.**

3 **Anxiety disorder can affect one's marital success.**

4 **Anxiety disorder can lead to the loss of productivity.**

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**Solution:**
**Correct Answer : 2**
**Your Answer : 2**
**The passage mentions 1, 3, and 4 as side effects of anxiety disorder (fifth paragraph). However, the author talks about 2 in the penultimate paragraph. It is not categorically mentioned as a side effect. It has been mentioned as an example of "upsides" of the author's anxiety. Hence, 2 is the answer.**

FeedBack

**Bookmark**

**Answer key/Solution**

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**contribute to the development of anxiety. It is also partly genetic. Having a first-degree relative—a parent, sibling or child—with an anxiety disorder bump a person's risk of developing one by up to five times that of the general population.**

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**Q.7**

**The author has talked about people who have had a near death experience in order to:**

1 **argue that a certain amount of depression is a good thing.**

2 **illustrate that anxiety disorder has led him/her to acquire some positive traits.**

3 **prove that anxiety has made him/her richer.**

4 **illustrate that anxiety disorder is a blessing in disguise.**

**Solution:**
**Correct Answer : 2**
**The author has spoken about this example in the last paragraph. This paragraph points out how anxiety disorder has made the author more purposeful and focused. 1 is wrong because the author is neither arguing nor talking about depression in the last paragraph. 3 is wrong because the word "richer" has been used figuratively in the passage. 4 is too vague to answer the question. Hence, 2 is the answer.**

**Bookmark**

**Answer key/Solution**

FeedBack

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**Q.8**

**Which of the following has been termed unfortunate by the author?**

1 **The non-discovery of the root cause of anxiety disorders.**

2 **The rapid progress scientists are making to untangle the mysteries of anxiety disorder.**

3 **An increase in the number of young people suffering from anxiety disorder and depression.**

4 **The overwhelming number of Americans who are vulnerable to anxiety disorders.**

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**Solution:**
**Correct Answer : 1**
**Your Answer : 1**
**Refer to the lines "Unfortunately, even as we have learned more about the varieties of anxiety in recent decades, the underlying causes of the disorder have remained poorly understood." 1 is the clear answer.**

Bookmark

Answer key/Solution

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**Q.9**
**What is the fundamental conclusion that the author of the passage has made?**

1 **Despite his/her anxiety, the author has lived a more meaningful life.**

2 **Anxiety disorders have started to take the shape of an epidemic in the USA.**

3 **Scientists have made some insignificant progress in the field of treating anxiety disorders.**

4 **The search for a complete comprehension of anxiety disorders, an increasing risk for humans, is in the nascent stage.**

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**Solution:**
**Correct Answer : 4**
**Your Answer : 1**
**This can be answered by the method of elimination. 1 is misleading because the author mentions his/her anxiety as a reason for adding more value to his/her life. 2 is wrong because the word "epidemic" is too broad for this passage. 3 is wrong because of the word "insignificant". 4 is the best answer as the author clearly mentions this issue in the first three paragraphs.**

Bookmark

Answer key/Solution

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**Q.10**
**What can be inferred about anxiety disorder?**

1 **Though not debilitating, depression leaches away joy and steals the peace of mind of its victims.**

2 **Anxiety disorder can result in one's emotional as well as financial ruin.**

3 **Anxiety disorder leads to a more fulfilling life for the person suffering from it.**

4 **Women are more likely to suffer from anxiety disorders as compared to men.**

**Solution:**
**Correct Answer : 2**
**Your Answer : 2**
**1 is wrong because the passage talks about insomnia and other garden variety of anxiety disorder (not depression) while talking about "leaches away joy and ...". 2 can be inferred from the fifth paragraph. 3 is wrong because it doesn't match the tone of the author in the passage. 4 is wrong because the passage talks about American women, not women in general.**

Bookmark

Answer key/Solution

FeedBack

**Directions for questions 6-11: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

**I didn't know it at the time, but I was suffering from severe anxiety, a medical condition recognized by doctors going as far back as the ancient Greeks. Today, 11 different anxiety disorders are listed in the "Diagnostic and Statistical Manual of Mental Disorders," the bible for mental-health professionals, and they are being diagnosed in rising numbers.**

**Unfortunately, even as we have learned more about the varieties of anxiety in recent decades, the underlying causes of the disorder have remained poorly understood. But that is changing. Scientists have started to unravel some of the mysteries of the anxious brain, and their discoveries may soon lead to new and better treatments.**

**Still, rates of anxiety disorders, as well as depression, seem to be increasing among young people. The number of Americans expected to have at least one anxiety disorder in the course of their lives is staggering: one in three, ages 13 or older, according to researchers at Harvard Medical School and Technisch Universität Dresden. The number is even higher for women—about 40%. Each year, about 40 million American adults have an anxiety disorder, and that doesn't include the millions of garden-variety worriers and insomniacs whose anxiety, though not debilitating, leaches away joy and steals their peace of mind.**

**Rates of anxiety disorders, as well as depression, seem to be increasing among young people, particularly college students. According to a 2016 survey by the American College Health Association, 17% of students were diagnosed with or treated for anxiety problems during the previous year, and nearly 14% were diagnosed with or treated for depression. That is up from about 10% each for anxiety and depression in 2008.**

**A certain amount of anxiety is a good thing, motivating us to study for tests, prepare for presentations, save for retirement. Too much anxiety, however, ca be incapacitating and expensive. Anxiety disorders cost the U.S. about $63 billion a year, according to a 1999 study published in the Journal of Clinical Psychiatry, the most recent estimate available. The tally includes doctor and hospital visits, psychiatric treatment, prescription drugs and the value of lost productivity at work. Anxiety can also lead to depression, substance abuse and even suicide. Anxious people who work have lower incomes. They are less likely to marry, and, if they do, more likely to divorce.**

**Scientists have found that many childhood events and experiences—from illness to trauma to overprotective and controlling styles of parenting—can contribute to the development of anxiety. It is also partly genetic. Having a first-degree relative—a parent, sibling or child—with an anxiety disorder bump a person's risk of developing one by up to five times that of the general population.**

**I certainly don't see my anxiety as a gift, but it has some upsides. When I'm avoiding some necessary confrontation or saying yes to too many superfluous obligations, I feel it, and it kicks me into action. Weirdly, anxiety makes me live a more authentic life. And a more empathic one. It has made me feel vulnerable and more open to asking for help, thereby deepening my friendships.**

**People who have a brush with death often talk of how it has given them a sense of what really matters. An omnipresent fear of disaster and a constant bracing for catastrophe can do that, too. Time takes on more urgency. The background hum of uneasiness in my mind has motivated me to work harder, to speak more honestly and, curiously, to take more risks than I might otherwise have. Anxiety means that I'm simply not mellow enough to take things for granted. And that has made my life all the richer.**

**Q.11**

**According to the passage, all of the following can contribute to the development of anxiety disorder except:**

1 **Hereditary factors**

2 **Childhood trauma**

3 **Overprotective parents**

4 **Constant fear of catastrophe**

**Solution:**
**Correct Answer : 4**
**Your Answer : 4**
**1, 2, and 3 are mentioned in the sixth paragraph as causes contributing to the development of anxiety disorders. 4 is mentioned in a different context in the last paragraph. Hence, 4 is the answer.**

**Bookmark**

**Answer key/Solution**

FeedBack

**Directions for question 12: The following question consists of a paragraph followed by four summaries. Choose the option that best captures the essence the paragraph. Type in the option number in the space provided below the question.**

**Q.12**

**One myth that won't seem to go away is that DTP vaccine causes sudden infant death syndrome (SIDS). This belief came about because a moderate proportion of children who die of SIDS have recently been vaccinated with DTP; on the surface, this seems to point toward a causal connection. This logic faulty however; you might as well say that eating bread causes car crashes, since most drivers who crash their cars could probably be shown to have eaten bread within the past 24 hours. If you consider that most SIDS deaths occur during the age range when three shots of DTP are given, you would expect DT shots to precede a fair number of SIDS deaths simply by chance. In fact, when a number of well-controlled studies were conducted during the 1980s, the investigators found, nearly unanimously, that the number of SIDS deaths temporally associated with DTP vaccination was within the range expected to occur by chance. In other words, the SIDS deaths would have occurred even if no vaccinations had been given.**

1. Blaming DTP vaccine for SIDS is a logical fallacy; it is also analogous to blaming eating bread for car crashes.
2. A number of studies have proven that DTP vaccines are not responsible for SIDS alone.
3. The myth that DTP vaccine causes SIDS is deeply entrenched in the minds of people and even proven research works are unable to eradicate this myth.
4. Studies conducted during the 1980s concluded that blaming DTP vaccines for SIDS is logically fallacious; yet, the myth seems to persist.

**Solution:**
**Correct Answer : 4**
The paragraph talks about the myth that DTP vaccine causes SIDS. It also cites the research works done in the 1980s. 1 is partially correct. 2 is a misleading option as it seems to suggest that DTP vaccines are responsible for many other things too. 3 is wrong because the phrase "deeply entrenched in the minds of people" is an extreme conclusion which is not mentioned in the paragraph. 4 is the best answer as it talks about the two main points discussed in the paragraph.

Bookmark
Answer key/Solution

FeedBack

**Directions for questions 13-15: The following passage consists of a set of three questions. Read the passage and answer the questions that follow.**

Most families today in our nation do not have someone at home whose full-time job is to care for children and others, clean house and take care of other domestic chores. Certainly, that is not the case at my house. Yet, these chores still need to get done. Clean clothes and dinner on the table at a reasonable hour are the kinds of things that make a house a home, at least in our imaginations.

Paying women wages for doing housework presumes that women are and should be the ones who do the housework, and that they do not already have a paying job. In most families in the United States today men and women are sharing housework (although she still does a lot more than he does, men are doing more each year) and most women work outside the home.

So a more practical solution is to encourage greater household sanity by addressing the long-term rise in family hours of work and the long-term stagnatic of family wages. If all adults work outside the home then someone will need to be paid to care for children, the elderly and, yes, take care of the laundry. Yet, for most families, the cost of these important services are beyond their family budgets. For the bottom 80 percent of all U.S. families, incomes are the same today as they were over a decade ago, after factoring in inflation, which means affordable high quality child care and solutions for ailing elders, is quite frankly out of reach.

Another solution would be to make it possible for more families to have adults work just a little bit less than full time. Surveys show that this is something people would like. If everybody were to put in 30 or 35 hours a week, then there would be enough time to not only do well at work but also do some of those chores at home.

Laundry, of course, takes a lot less time to do today than it did 50 years ago. But it still takes time. And with two jobs and no one at home all day, that extra added burden after work is a real chore. Maybe I have read too many Harry Potter books, but I know that I wish that we had a magical chore-completing household elf.

**Q.13**
**Why does the author talk about an elf in the Harry Potter books in the last paragraph?**

1 ◯ **The author has two jobs which leave her too exhausted to do household chores. An elf would solve this problem.**

2 ◯ **Most American women struggle to care for their families due to stagnant income. An elf would do the chores for free.**

3 ◯ **Clean clothes and dinner on the table at a reasonable hour are the kinds of things that make a house a home. An elf would ensure this.**

4 ◯ **Household chores remain tedious for various socio-economic reasons. An elf would solve this problem.**

**Solution:**
**Correct Answer : 4**
2 and 3 don't answer the question directly as they don't focus on the central idea of the passage. 1 is wrong because the passage doesn't state that the author has two jobs. 4 is the best answer.

Bookmark
Answer key/Solution

FeedBack

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**Q.14**

**What is the main point that the author tries to make in this passage?**

1 How unpaid household work is affecting domestic harmony in the USA.

2 How women still struggle with household chores in the USA and ways out of this problem.

3 How an increase in salary and reduction in working hours would solve the domestic problems in the USA.

4 How unpaid household work remains a problem in the USA despite an increase in men's participation in household work.

**Solution:**
**Correct Answer : 2**
1 is wrong because the author doesn't talk about domestic harmony in the passage. 4 is too narrow an option to be the main idea. 2 and 3 are both appropriate. However, 3 is a broad option because the passage doesn't talk about "domestic problems". The passage focuses on household chores. Hence, 2 is the answer.

Bookmark

Answer key/Solution

FeedBack

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**Q.15**

**According to the author, which of the following is an assumption behind the idea of paying women wages for doing household work?**

1 In most families in the USA today, men and women are disproportionately sharing household chores.

2 30-35 hours a week contribution from men and women would be enough to manage domestic chores effectively.

3 It is the woman's obligation to do housework as she doesn't have another source of income.

4 Most women in America work outside home which affects their ability to strike a work-life balance.

**Solution:**
**Correct Answer : 3**
Refer to the first two lines of the third paragraph. It clearly states 3 as the presumption behind this idea. Hence, 3 is the answer.

Bookmark

Answer key/Solution

FeedBack

**Directions for questions 16-21: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

Today, 263 million children around the world don't attend school. Another 330 million, despite being in school, receive subpar education. It's not that thei parents don't want quality education for their children. Rather, existing solutions are priced far above what they can afford. And the solutions most can afford, many of which are government funded, are so mediocre children are better off without them.

It's a global education problem – and a prime example of nonconsumption, defined as a large segment of the population that cannot afford to purchase and use existing solutions in the market. To tackle the issue of nonconsumption, countries suffering most from the education crisis must invest in market-creating innovation. It is the investment in, and proliferation of, market-creating innovations in poor countries that leads to economic prosperity. Bridge International Academies (Bridge) is proof.

Bridge, a chain of nursery and primary schools with a mission to deliver affordable education to millions of children in poor countries, is one of the best examples of a market-creating innovation in Africa. If harnessed properly and supported aggressively, Bridge – supported by Bill Gates, Zuckerberg, the World Bank, and several other high-profile institutions and foundations – could have a positive societal impact that far surpasses the popularly celebrated mobile money platform M-PESA.

Despite being less than a decade old and operating in some of the toughest countries in the world, Bridge has already made a tremendous impact. Since 2009, it has built more than 500 schools in India, Kenya, Liberia, Nigeria, and Uganda, and has educated more than 250,000 children. As you read this, ther are currently more than 100,000 children receiving a quality education in Bridge schools across those five countries. Teacher absenteeism, a problem so pervasive in poor countries it has been flagged by the World Bank, is a mere one percent at Bridge. The global average monthly cost of a Bridge education about $7 per month, an amount within the reach of many of Bridge's consumers. Approximately one new Bridge school is built each month, further broadening its reach.

Yet, despite all of the positives, in November 2016, a Ugandan court ordered the closure of 60 Bridge schools, citing allegations of poor hygiene and puttir children's lives at risk. In Liberia, a United Nations rights expert complained that the country's decision to "outsource its primary education to a private company" is unacceptable. Unfortunately, these complaints are misguided and could cause a devastating shock to an already fragile education system in many poor countries.

Bridge's solution, while not perfect, far surpasses what many poor country governments can accomplish. Remember, these are countries that struggle to pay salaries of existing public servants. But the gospel of "universal primary education," promulgated by the United Nations Sustainable Development Goa 4, is now so pervasive that education is not only seen as an absolute necessity, but also as the exclusive responsibility of the government. We forget that now-developed countries did not have this heavy burden when they were poor.

Many of the incumbents in the education sector of poor countries, including teachers, unions, administrators and policymakers, have real and understandable fears. Their beloved sector will likely undergo an unwelcome, but necessary, transformation. However, instead of looking at Bridge as a replacement, they should consider it a complement to the existing under-resourced education system. A complement that could truly transform the education sector in their respective countries – and even create better opportunities for them and for their children.

The value Bridge provides is clear. But Bridge, by itself, is not enough. To truly have a transformative impact in the countries where Bridge works, we shou challenge it to further integrate its operations. For instance, we should ask Bridge what its plans are for the students that graduate from their programs. How will it radically transform not just primary education, but also other forms of education?

If Bridge were challenged, as opposed to criticized, the organization would rise to the challenge – and it has already begun to. Aagon Tingba, the Liberian Deputy Minister for Administration in Education, could not have said it better: "Critics say the government should be responsible for our own schools, but in Liberia we simply don't have the resources to do it ourselves. That is the reality. Liberian children deserve more. Doing nothing was not an option."

**Q.16**

**According to the passage, what can be inferred about Bridge?**

1 Bridge can help poor countries achieve the United Nations' goal of "universal primary education".

2 Bridge is a self-sufficient solution for the problems plaguing the education sectors in poor countries.

3 Bridge needs to be challenged as it performs best under criticism.

4 Bridge was unable to maintain minimum sanitary conditions required and, thus, endangered the lives of children in Uganda.

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Bookmark

Answer key/Solution

**Solution:**
**Correct Answer : 1**
**Your Answer : 1**
The entire passage talks about the important role that Bridge has played so far in facilitating access to primary education in poor countries. The author highlights the far reaching potential of Bridge in the education sector in future. So, 1 can be definitely inferred. 2 is wrong because the author has mentioned that "But Bridge, by itself, is not enough." 3 is wrong. Refer to the first line of the last paragraph. The author states that Bridge performs under challenge, and not criticism. 4 is an accusation levied by the Uganda court There is no data to support its validity. Hence, 1 is the answer.

FeedBack

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**Q.17**

**The author gives the example of M-PESA in order to highlight which of the following?**

1 ◯ **M-PESA's success proves that new scientific technology can bring about positive societal changes in poor countries.**

2 ◯ **M-PESA epitomizes the positive consequences of projects which are patronized by rich people and institutions.**

3 ◯ **M-PESA and Bridge are analogous as both have fortified the ailing education sector in poor African countries.**

4 ◯ **Market-creating innovations like Bridge have enormous potential in catalyzing positive societal changes in poor countries.**

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**Solution:**
**Correct Answer : 4**
**Your Answer : 4**
**The third paragraph talks about M-PESA. The aim of the author in this paragraph is to draw an analogy between M-PESA's success and Bridge's potential. 1 is not the main aim as the author in the passage has not focused on "scientific technology". 2 can't be factually supported as the author mentions Bridge, and not M-PESA, as the project backed by the Gates foundation, the World Bank, and others. 3 is not a correct conclusion as M-PESA's contribution to the education sector has not been mentioned in the passage. 4 can be inferred from the third paragraph. Hence, 4 is the answer.**

FeedBack

Bookmark

Answer key/Solution

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**Q.18**

According to the passage, which of the following will be an example of nonconsumption?

1 An unemployed father who is unable to admit his sick daughter to a private hospital.

2 An elderly man who is unable to collect his pension from the government.

3 A poor man who is unable to cash his cheque due to a bank strike.

4 A girl who is unable to pursue higher education due to her conservative family.

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Solution:
Correct Answer : 1
Your Answer : 1
According to the passage nonconsumption is "defined as a large segment of the population that cannot afford to purchase and use existing solutions in the market". 2 doesn't specify the reason for the inability. 3 doesn't talk about the man not being able to afford a solution. 4 doesn't talk about the market. Only 1 talks about not being able to afford an existing solution in the market.

FeedBack

Bookmark

Answer key/Solution

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If Bridge were challenged, as opposed to criticized, the organization would rise to the challenge – and it has already begun to. Aagon Tingba, the Liberian Deputy Minister for Administration in Education, could not have said it better: "Critics say the government should be responsible for our own schools, but in Liberia we simply don't have the resources to do it ourselves. That is the reality. Liberian children deserve more. Doing nothing was not an option."

**Q.19**

**Which of the following is the main argument of Aagon Tingba, according to the passage?**

1 Constructive challenge brings out the best in Bridge and it helps the Liberian children the most.

2 In the absence of a resourceful government, options like Bridge should be welcome.

3 It is the sacrosanct duty of every government to provide for the education of its children.

4 Doing nothing is not an option when the consequences of lack of education are catastrophic.

✔

Bookmark

Answer key/Solution

**Solution:**
**Correct Answer : 2**
**Your Answer : 2**
The last paragraph talks about Tingba and his comment. 1 is the author's, not Tingba's, opinion. 3 is wrong because the paragraph doesn't talk about "sacrosanct duty of every government". 4 is wrong as the Tingba doesn't talk about "catastrophic consequences". 2 best captures the essence of his argument. Hence, 2 is the answer.

FeedBack

**Directions for questions 16-21: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

Today, 263 million children around the world don't attend school. Another 330 million, despite being in school, receive subpar education. It's not that thei parents don't want quality education for their children. Rather, existing solutions are priced far above what they can afford. And the solutions most can afford, many of which are government funded, are so mediocre children are better off without them.

It's a global education problem – and a prime example of nonconsumption, defined as a large segment of the population that cannot afford to purchase and use existing solutions in the market. To tackle the issue of nonconsumption, countries suffering most from the education crisis must invest in market-creating innovation. It is the investment in, and proliferation of, market-creating innovations in poor countries that leads to economic prosperity. Bridge International Academies (Bridge) is proof.

Bridge, a chain of nursery and primary schools with a mission to deliver affordable education to millions of children in poor countries, is one of the best

examples of a market-creating innovation in Africa. If harnessed properly and supported aggressively, Bridge – supported by Bill Gates, Zuckerberg, the World Bank, and several other high-profile institutions and foundations – could have a positive societal impact that far surpasses the popularly celebrated mobile money platform M-PESA.

Despite being less than a decade old and operating in some of the toughest countries in the world, Bridge has already made a tremendous impact. Since 2009, it has built more than 500 schools in India, Kenya, Liberia, Nigeria, and Uganda, and has educated more than 250,000 children. As you read this, ther are currently more than 100,000 children receiving a quality education in Bridge schools across those five countries. Teacher absenteeism, a problem so pervasive in poor countries it has been flagged by the World Bank, is a mere one percent at Bridge. The global average monthly cost of a Bridge education about $7 per month, an amount within the reach of many of Bridge's consumers. Approximately one new Bridge school is built each month, further broadening its reach.

Yet, despite all of the positives, in November 2016, a Ugandan court ordered the closure of 60 Bridge schools, citing allegations of poor hygiene and puttir children's lives at risk. In Liberia, a United Nations rights expert complained that the country's decision to "outsource its primary education to a private company" is unacceptable. Unfortunately, these complaints are misguided and could cause a devastating shock to an already fragile education system in many poor countries.

Bridge's solution, while not perfect, far surpasses what many poor country governments can accomplish. Remember, these are countries that struggle to pay salaries of existing public servants. But the gospel of "universal primary education," promulgated by the United Nations Sustainable Development Goa 4, is now so pervasive that education is not only seen as an absolute necessity, but also as the exclusive responsibility of the government. We forget that now-developed countries did not have this heavy burden when they were poor.

Many of the incumbents in the education sector of poor countries, including teachers, unions, administrators and policymakers, have real and understandable fears. Their beloved sector will likely undergo an unwelcome, but necessary, transformation. However, instead of looking at Bridge as a replacement, they should consider it a complement to the existing under-resourced education system. A complement that could truly transform the education sector in their respective countries – and even create better opportunities for them and for their children.

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**Q.20**

**According to the passage, what leads to economic prosperity in poor countries?**

1 Investment in the proliferation of education

2 Investment in technological advancement

3 Investment and proliferation of economic innovations

4 Investment in schools and colleges like Bridge

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**Solution:**
**Correct Answer : 3**
**Your Answer : 3**
**Refer to the line "It is the investment in, and proliferation of, market-creating innovations in poor countries that leads to economic prosperity". Only 3 comes close to the intended meaning of this line. Hence, 3 is the answer.**

FeedBack

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Answer key/Solution

**Directions for questions 16-21: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

Today, 263 million children around the world don't attend school. Another 330 million, despite being in school, receive subpar education. It's not that thei parents don't want quality education for their children. Rather, existing solutions are priced far above what they can afford. And the solutions most can afford, many of which are government funded, are so mediocre children are better off without them.

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**Q.21**

**According to the passage, how can Bridge act as a compliment to the education sector in poor countries?**

1 ○ **The value of Bridge is crystal clear as it facilitates unwelcome but necessary transformation in the education sector of poor countries.**

2 ○ **Bridge fulfils the demands of teachers, unions, administrators, and policy makers of poor countries by addressing their fears.**

3 ○ **Bridge can strengthen the under-resourced education sector in poor countries**

4 ○ **Bridge can replace the ailing educational institutes in poor countries and provide better facilities to the children of those countries.**

**Solution:**
**Correct Answer : 3**
**The answer to this question can be found in the seventh paragraph. 1 is a twisted option as it talks about the value of Bridge being crystal clear. This is not addressed in this paragraph. Secondly, Bridge is yet to prove its efficacy in effecting this transformation. 2 is contrary to the data provided in the paragraph. 3 is clearly mentioned in the last line of this paragraph. 4 is wrong because the author mentions Bridge as a "complement" and not a "replacement" for the educational institutes in poor countries.**

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Answer key/Solution

**Directions for question 22: The following question consists of a set of five sentences. These sentences need to be arranged in a coherent manner to create meaningful paragraph. Type in the correct order of the sentences in the space provided below the question.**

**Q.22**

**1. When sleeping at the edge of a group, mallards keep one cerebral hemisphere awake and the corresponding eye open and directed away from the other birds, toward a potential threat.**
**2. Based on these findings and the fact that dolphins can swim while sleeping unihemispherically, it is commonly assumed that birds also rely on this sort o autopilot to navigate and maintain aerodynamic control during flight.**
**3. How might a bird sleep in flight without colliding with obstacles or falling from the sky?**
**4. However, it is also possible that birds evolved a way to cheat on sleep.**
**5. One solution would be to only switch off half of the brain at a time, as Rattenborg showed in mallard ducks sleeping in a dangerous situation on land.**

**Solution:**
**Correct Answer : 35124**
**35 makes a mandatory pair as 5 gives a possible answer to 3. 1 takes the idea further by talking about "mallards" which is mentioned in 5. 2 talks about "these findings" which refers to 5 and 1. 4 comes at the end as it introduces a slightly different take on the issue (see "however" in 4). Thus, 35124 is the correct sequence.**

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Answer key/Solution

**Directions for question 23: The following question consists of a set of five sentences. These sentences need to be arranged in a coherent manner to create meaningful paragraph. Type in the correct order of the sentences in the space provided below the question.**

**Q.23**

**1. Yet this is precisely what scientists and historians are attempting to uncover following the discovery of the remains of a North African man in the Suffol town in the year 1190.**
**2. It is unlikely that the man was either rich or a slave due to the fact that his remains showed he had strong muscles and was quite healthy until his death.**
**3. So quite why anyone would choose to trek half way across the world to witness Mediaeval Ipswich is certainly something of a mystery.**
**4. However, scientists remained perplexed as to how the man ended up being buried in the cemetery of a friary as this denotes two things; he must have converted to Christianity and he must have been a person of wealth.**
**5. It is not typically known as a popular destination for overseas visitors, even in an age of readily accessible and affordable travel.**

**Solution:**
**Correct Answer : 53142**
**142 make a mandatory sequence as they talk about the "man" whose remains were discovered in Ipswich. 1 introduces the theme by talking about "North African man in the Suffolk town". 4 takes it further by talking about "the man" and why his burial site is such a puzzle. 2 follows 4 as 2 has the phrase "rich slave" which further expands the two things denoted in 4. 53 has to come before 142. 3 gives an explanation for the issue given in 5. So, 5 has to be the opening sentence of the paragraph. Thus, 53142 is the correct sequence.**

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Answer key/Solution

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**Directions for question 24: The following question consists of a paragraph followed by four summaries. Choose the option that best captures the essence the paragraph. Type in the option number in the space provided below the question.**

**Q.24**
**The existential question "Why am I here?" is usually followed by the equally confounding "How am I doing?" In 1954, the social psychologist Leon Festinge put forward the social comparison theory, which posits that we try to determine our worth based on how we stack up against others. In the era of social media, such comparisons take place on a screen with carefully curated depictions that don't provide the full picture. Mobile devices escalate the comparisons from occasional to nearly constant. Where the faulty comparisons become dangerous is when a student already carries feelings of shame, according to Dr. Anthony L. Rostain, a pediatric psychiatrist. "Shame is the sense one has of being defective or, said another way, not good enough," Dr. Rostain said. "It isn't that one isn't doing well. It's that 'I am no good.'" Instead of thinking "I failed at something, these students think, 'I am a failure.'"**

**1. Dr Rostain and Leon Festinger have done research works which show why students suffer from feelings of inadequacy and failure.**
**2. The near constant comparisons, consequences of social media addictions, lead to feelings of shame and inadequacy among students.**
**3. The social comparison theory, in its attempt to answer the existential question "Why am I here", postulated the reasons behind the thought "I am a failure" among students.**
**4. As per research, social comparison has become a constant feature in the era of social media and this comparison sometimes leads to feelings of inadequacy and shame in students.**

**Solution:**
**Correct Answer : 4**
**1 is misleading because the paragraph doesn't mention whether Leon Festinger focused on students. It is also an incomplete summary. 3 is a far-fetched conclusion and not a summary. Between 2 and 4, 4 captures the essence of the paragraph in a clearer manner. Hence, 4 is the answer.**

Bookmark

Answer key/Solution

FeedBack

**Directions for questions 25-30: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

**If someone asked you to list the defining features of being human, you might cite our formidable linguistic prowess, our finely tuned moral sense, and our unrivalled capacity for creative invention. All these have no doubt played their parts in making us the globally dominant species that we are, enabling us t share ideas, form close-knit communities, and eke out an existence in an unprecedented range of environments. Yet an equally important factor in the success of our species has been our capacity for precise imitation. Copying other people is what creates the very possibility of complex culture, and cultur imitation is a universal human trait. Every person on the planet (barring those with certain cognitive deficits) is equipped to pick up the knowledge and skills nurtured by any culture that has existed. If a Palaeolithic infant time-travelled to the present, she would develop much like any other normal child, learning to read and write and to use all the advanced technologies of the 21st century.**

**In addition to technical skills, however, we also imitate behaviours where the link between what we do and some hoped-for outcome is much less clear — rituals being a prime example. People engage in ritual activities for all sorts of reasons: to commune with the divine, to mark changes in status, to bury the dead, and sometimes for no reason at all that anybody can remember. No matter what the goal is, however, the actual mechanisms by which rituals are supposed to work are typically inscrutable. There's no clear causal process: you simply have to do things this way, and that's that.**

**This has some remarkable consequences. Human populations living side-by-side tend to have a lot in common. They adopt the same basic techniques of production, use similar tools and natural resources, live in similar kinds of houses and so on. At the level of practical affairs, there might be little to tell them apart. However, their rituals are a different story altogether. Arbitrary conventions on how to achieve certain goals — placate the gods, or ensure an adequate crop — can assume any pattern: in straightforward physical terms, they don't actually have to do anything. And yet they are far from impotent. Indeed, in social terms they can have very significant effects. To start with, they serve as admirable group markers precisely because they are of no use to those outside the group. And they don't just demarcate people. Rituals also bind them together. How? And how far can they stretch?**

**The very fact that ceremonial actions are not intelligible in practical terms means that we can endow them with many possible functions and meanings. Furthermore, if we don't know very much about what others are thinking, we tend to believe that what is personally meaningful about the experience of joining in is shared by everyone else. This is the 'false consensus bias', well-documented in social psychology. These two facts together explain why painful or frightening (in the jargon, 'dysphoric') rituals — such as traumatic initiations and hazing practices — lead to bonding. Whatever each performer thinks o feels about the experience, they all assume that the other participants feel the same as them. The same goes for non-ritual experiences, too: the more painful or horrifying it is, the stronger the effect. If we are hurt in a plane crash, we might dwell on it for years afterwards, considering how it changed our lives and wondering why it happened, how it could have been different and so on. Discovering other people who share this experience can be powerful: the seem uniquely placed to understand us in a way that others simply can't. In fact, we might go so far as to say that people have no right to comment if they haven't been through what we have been through. Ritual is able to work with these feelings – provoking them as part of an intense experience of bonding with a group.**

**Ritual is popularly misconstrued as an exotic, even quirky topic — a facet of human nature that, along with beliefs in supernatural agents and magical spell is little more than a curious fossil of pre-scientific culture, doomed to eventual extinction in the wake of rational discovery and invention. Nothing could be further from the truth. Humans are as ritualistic today as they have ever been.**

**Q.25**
**What is the main focus of the author in this passage?**

1 **Rituals have unscientific origins and are doomed to eventual extinction.**

2 **Painful experiences can lead to strong bonding between humans.**

3 **Rituals serve many socio-emotional purposes and are likely to continue to be in existence.**

4 **Linguistic prowess and ritual oriented bonding are the main reasons behind the human supremacy in the world.**

**Solution:**
**Correct Answer : 3**
**Your Answer : 3**
**1 is negated by the last paragraph. 2 is just an example of rituals. It can't be the central idea. 4 is misleading as it summarises the first paragraph where the author talks about "imitation" and not rituals. 3 is the best answer as the author in the passage focuses on different aspects of rituals and their purposes.**

FeedBack

**Bookmark**

**Answer key/Solution**

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**The very fact that ceremonial actions are not intelligible in practical terms means that we can endow them with many possible functions and meanings. Furthermore, if we don't know very much about what others are thinking, we tend to believe that what is personally meaningful about the experience of joining in is shared by everyone else. This is the 'false consensus bias', well-documented in social psychology. These two facts together explain why painful or frightening (in the jargon, 'dysphoric') rituals — such as traumatic initiations and hazing practices — lead to bonding. Whatever each performer thinks o feels about the experience, they all assume that the other participants feel the same as them. The same goes for non-ritual experiences, too: the more painful or horrifying it is, the stronger the effect. If we are hurt in a plane crash, we might dwell on it for years afterwards, considering how it changed our lives and wondering why it happened, how it could have been different and so on. Discovering other people who share this experience can be powerful: the seem uniquely placed to understand us in a way that others simply can't. In fact, we might go so far as to say that people have no right to comment if they haven't been through what we have been through. Ritual is able to work with these feelings – provoking them as part of an intense experience of bonding with a group.**

**Ritual is popularly misconstrued as an exotic, even quirky topic — a facet of human nature that, along with beliefs in supernatural agents and magical spell**

is little more than a curious fossil of pre-scientific culture, doomed to eventual extinction in the wake of rational discovery and invention. Nothing could be further from the truth. Humans are as ritualistic today as they have ever been.

**Q.26**
**What, according to the author, is inscrutable about rituals?**

1 Why rituals exist

2 How rituals work

3 How humans bond

4 How rituals guide scientists

**Solution:**
**Correct Answer : 2**
**Refer to the lines "No matter what the goal is, however, the actual mechanisms by which rituals are supposed to work are typically inscrutable. There's no clear causal process: you simply have to do things this way, and that's that" in the second paragraph. 2 is the clear answer.**

Bookmark

Answer key/Solution

FeedBack

**Directions for questions 25-30: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

If someone asked you to list the defining features of being human, you might cite our formidable linguistic prowess, our finely tuned moral sense, and our unrivalled capacity for creative invention. All these have no doubt played their parts in making us the globally dominant species that we are, enabling us to share ideas, form close-knit communities, and eke out an existence in an unprecedented range of environments. Yet an equally important factor in the success of our species has been our capacity for precise imitation. Copying other people is what creates the very possibility of complex culture, and cultur imitation is a universal human trait. Every person on the planet (barring those with certain cognitive deficits) is equipped to pick up the knowledge and skills nurtured by any culture that has existed. If a Palaeolithic infant time-travelled to the present, she would develop much like any other normal child, learning to read and write and to use all the advanced technologies of the 21st century.

In addition to technical skills, however, we also imitate behaviours where the link between what we do and some hoped-for outcome is much less clear — rituals being a prime example. People engage in ritual activities for all sorts of reasons: to commune with the divine, to mark changes in status, to bury the dead, and sometimes for no reason at all that anybody can remember. No matter what the goal is, however, the actual mechanisms by which rituals are supposed to work are typically inscrutable. There's no clear causal process: you simply have to do things this way, and that's that.

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The very fact that ceremonial actions are not intelligible in practical terms means that we can endow them with many possible functions and meanings. Furthermore, if we don't know very much about what others are thinking, we tend to believe that what is personally meaningful about the experience of joining in is shared by everyone else. This is the 'false consensus bias', well-documented in social psychology. These two facts together explain why painful or frightening (in the jargon, 'dysphoric') rituals — such as traumatic initiations and hazing practices — lead to bonding. Whatever each performer thinks o feels about the experience, they all assume that the other participants feel the same as them. The same goes for non-ritual experiences, too: the more painful or horrifying it is, the stronger the effect. If we are hurt in a plane crash, we might dwell on it for years afterwards, considering how it changed our lives and wondering why it happened, how it could have been different and so on. Discovering other people who share this experience can be powerful: the seem uniquely placed to understand us in a way that others simply can't. In fact, we might go so far as to say that people have no right to comment if they haven't been through what we have been through. Ritual is able to work with these feelings – provoking them as part of an intense experience of bonding with a group.

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**Q.27**
**According to the passage, which of the following will be an example of "false-consensus bias"?**

1 A bullied child assuming that everyone in its class is a bully.

2 A doctor assuming that his unorthodox treatment method will be endorsed by legal practitioners.

3 A political worker assuming that all politicians are crooks.

4 A devout follower of a spiritual leader assuming that all the other devotees of his Guru are sincere.

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**Solution:**

**Correct Answer : 4**
**Your Answer : 4**
**Refer to the lines "Furthermore, if we don't know very much about what others are thinking, we tend to believe that what is personally meaningful about the experience of joining in is shared by everyone else. This is the 'false consensus bias', well-documented in social psychology." It primarily talks about a group experience. 1 is the reverse because the child assumes everyone is against it. It doesn't talk about consensus. 2 talks about an individual's wish and not a group experience. 3 talks about the worker's personal opinion about all politicians and not only his fellow workers. 4 is the best answer.**

Bookmark

Answer key/Solution

FeedBack

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**In addition to technical skills, however, we also imitate behaviours where the link between what we do and some hoped-for outcome is much less clear — rituals being a prime example. People engage in ritual activities for all sorts of reasons: to commune with the divine, to mark changes in status, to bury the dead, and sometimes for no reason at all that anybody can remember. No matter what the goal is, however, the actual mechanisms by which rituals are supposed to work are typically inscrutable. There's no clear causal process: you simply have to do things this way, and that's that.**

**This has some remarkable consequences. Human populations living side-by-side tend to have a lot in common. They adopt the same basic techniques of production, use similar tools and natural resources, live in similar kinds of houses and so on. At the level of practical affairs, there might be little to tell them apart. However, their rituals are a different story altogether. Arbitrary conventions on how to achieve certain goals — placate the gods, or ensure an adequate crop — can assume any pattern: in straightforward physical terms, they don't actually have to do anything. And yet they are far from impotent. Indeed, in social terms they can have very significant effects. To start with, they serve as admirable group markers precisely because they are of no use to those outside the group. And they don't just demarcate people. Rituals also bind them together. How? And how far can they stretch?**

**The very fact that ceremonial actions are not intelligible in practical terms means that we can endow them with many possible functions and meanings. Furthermore, if we don't know very much about what others are thinking, we tend to believe that what is personally meaningful about the experience of joining in is shared by everyone else. This is the 'false consensus bias', well-documented in social psychology. These two facts together explain why painful or frightening (in the jargon, 'dysphoric') rituals — such as traumatic initiations and hazing practices — lead to bonding. Whatever each performer thinks o feels about the experience, they all assume that the other participants feel the same as them. The same goes for non-ritual experiences, too: the more painful or horrifying it is, the stronger the effect. If we are hurt in a plane crash, we might dwell on it for years afterwards, considering how it changed our lives and wondering why it happened, how it could have been different and so on. Discovering other people who share this experience can be powerful: the seem uniquely placed to understand us in a way that others simply can't. In fact, we might go so far as to say that people have no right to comment if they haven't been through what we have been through. Ritual is able to work with these feelings – provoking them as part of an intense experience of bonding with a group.**

**Ritual is popularly misconstrued as an exotic, even quirky topic — a facet of human nature that, along with beliefs in supernatural agents and magical spell is little more than a curious fossil of pre-scientific culture, doomed to eventual extinction in the wake of rational discovery and invention. Nothing could be further from the truth. Humans are as ritualistic today as they have ever been.**

**Q.28**
**Which of the following can be inferred from the line "the more painful or horrifying it is, the stronger the effect"?**

1 **Shared pain is always more profound than individual loss is.**

2 **Painful experiences may lead to stronger bonding between individuals.**

3 **Painful experiences are the primary cause behind false consensus bias.**

4 **If one doesn't share our pain, he/she has no right to comment on it.**

✔

**Solution:**
**Correct Answer : 2**
**Your Answer : 2**
**Refer to the penultimate paragraph. The author talks about how shared pain leads to a stronger bonding between those suffering from it. 1 is an extreme conclusion. 3 is misleading because of the word "primary". 4 is an example cited in the passage which is not the author's opinion.**

Bookmark

Answer key/Solution

FeedBack

**Directions for questions 25-30: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

If someone asked you to list the defining features of being human, you might cite our formidable linguistic prowess, our finely tuned moral sense, and our unrivalled capacity for creative invention. All these have no doubt played their parts in making us the globally dominant species that we are, enabling us to share ideas, form close-knit communities, and eke out an existence in an unprecedented range of environments. Yet an equally important factor in the success of our species has been our capacity for precise imitation. Copying other people is what creates the very possibility of complex culture, and cultur imitation is a universal human trait. Every person on the planet (barring those with certain cognitive deficits) is equipped to pick up the knowledge and skills nurtured by any culture that has existed. If a Palaeolithic infant time-travelled to the present, she would develop much like any other normal child, learning to read and write and to use all the advanced technologies of the 21st century.

In addition to technical skills, however, we also imitate behaviours where the link between what we do and some hoped-for outcome is much less clear — rituals being a prime example. People engage in ritual activities for all sorts of reasons: to commune with the divine, to mark changes in status, to bury the dead, and sometimes for no reason at all that anybody can remember. No matter what the goal is, however, the actual mechanisms by which rituals are supposed to work are typically inscrutable. There's no clear causal process: you simply have to do things this way, and that's that.

This has some remarkable consequences. Human populations living side-by-side tend to have a lot in common. They adopt the same basic techniques of production, use similar tools and natural resources, live in similar kinds of houses and so on. At the level of practical affairs, there might be little to tell them apart. However, their rituals are a different story altogether. Arbitrary conventions on how to achieve certain goals — placate the gods, or ensure an adequate crop — can assume any pattern: in straightforward physical terms, they don't actually have to do anything. And yet they are far from impotent. Indeed, in social terms they can have very significant effects. To start with, they serve as admirable group markers precisely because they are of no use to those outside the group. And they don't just demarcate people. Rituals also bind them together. How? And how far can they stretch?

The very fact that ceremonial actions are not intelligible in practical terms means that we can endow them with many possible functions and meanings. Furthermore, if we don't know very much about what others are thinking, we tend to believe that what is personally meaningful about the experience of joining in is shared by everyone else. This is the 'false consensus bias', well-documented in social psychology. These two facts together explain why painful or frightening (in the jargon, 'dysphoric') rituals — such as traumatic initiations and hazing practices — lead to bonding. Whatever each performer thinks o feels about the experience, they all assume that the other participants feel the same as them. The same goes for non-ritual experiences, too: the more painful or horrifying it is, the stronger the effect. If we are hurt in a plane crash, we might dwell on it for years afterwards, considering how it changed our lives and wondering why it happened, how it could have been different and so on. Discovering other people who share this experience can be powerful: the seem uniquely placed to understand us in a way that others simply can't. In fact, we might go so far as to say that people have no right to comment if they haven't been through what we have been through. Ritual is able to work with these feelings – provoking them as part of an intense experience of bonding with a group.

Ritual is popularly misconstrued as an exotic, even quirky topic — a facet of human nature that, along with beliefs in supernatural agents and magical spell is little more than a curious fossil of pre-scientific culture, doomed to eventual extinction in the wake of rational discovery and invention. Nothing could be further from the truth. Humans are as ritualistic today as they have ever been.

**Q.29**
**The author calls which of the following "curious fossil of pre-scientific culture"?**

1 Supernatural stories

2 Rituals and magical spells

3 Black magic

4 Quirky topics

✔

**Solution:**
**Correct Answer : 2**
**Your Answer : 2**
**Refer to the last paragraph. The author calls rituals along with supernatural agents and magical spells "curious fossil of pre-scientific culture". 2 is the only correct option. Black magic has not been mentioned. "Supernatural stories" is wrong. Hence, 2 is the answer.**

FeedBack

Bookmark

Answer key/Solution

**Directions for questions 25-30: The following passage consists of a set of six questions. Read the passage and answer the questions that follow.**

If someone asked you to list the defining features of being human, you might cite our formidable linguistic prowess, our finely tuned moral sense, and our unrivalled capacity for creative invention. All these have no doubt played their parts in making us the globally dominant species that we are, enabling us to share ideas, form close-knit communities, and eke out an existence in an unprecedented range of environments. Yet an equally important factor in the success of our species has been our capacity for precise imitation. Copying other people is what creates the very possibility of complex culture, and cultur imitation is a universal human trait. Every person on the planet (barring those with certain cognitive deficits) is equipped to pick up the knowledge and skills nurtured by any culture that has existed. If a Palaeolithic infant time-travelled to the present, she would develop much like any other normal child, learning to read and write and to use all the advanced technologies of the 21st century.

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This has some remarkable consequences. Human populations living side-by-side tend to have a lot in common. They adopt the same basic techniques of production, use similar tools and natural resources, live in similar kinds of houses and so on. At the level of practical affairs, there might be little to tell them apart. However, their rituals are a different story altogether. Arbitrary conventions on how to achieve certain goals — placate the gods, or ensure an adequate crop — can assume any pattern: in straightforward physical terms, they don't actually have to do anything. And yet they are far from impotent. Indeed, in social terms they can have very significant effects. To start with, they serve as admirable group markers precisely because they are of no use to those outside the group. And they don't just demarcate people. Rituals also bind them together. How? And how far can they stretch?

The very fact that ceremonial actions are not intelligible in practical terms means that we can endow them with many possible functions and meanings. Furthermore, if we don't know very much about what others are thinking, we tend to believe that what is personally meaningful about the experience of joining in is shared by everyone else. This is the 'false consensus bias', well-documented in social psychology. These two facts together explain why painful or frightening (in the jargon, 'dysphoric') rituals — such as traumatic initiations and hazing practices — lead to bonding. Whatever each performer thinks o feels about the experience, they all assume that the other participants feel the same as them. The same goes for non-ritual experiences, too: the more painful or horrifying it is, the stronger the effect. If we are hurt in a plane crash, we might dwell on it for years afterwards, considering how it changed our lives and wondering why it happened, how it could have been different and so on. Discovering other people who share this experience can be powerful: the seem uniquely placed to understand us in a way that others simply can't. In fact, we might go so far as to say that people have no right to comment if they haven't been through what we have been through. Ritual is able to work with these feelings – provoking them as part of an intense experience of bonding with a group.

Ritual is popularly misconstrued as an exotic, even quirky topic — a facet of human nature that, along with beliefs in supernatural agents and magical spell is little more than a curious fossil of pre-scientific culture, doomed to eventual extinction in the wake of rational discovery and invention. Nothing could be further from the truth. Humans are as ritualistic today as they have ever been.

**Q.30**

**Traumatic initiation or hazing process has been mentioned in the passage in order to:**

1 ◯ **illustrate how pain can be a bonding agent.**

2 ◯ **showcase the power of rituals.**

3 ◯ **highlight the side-effects of rituals.**

4 ◯ **exemplify the concept of psychological bias.**

**Solution:**
**Correct Answer : 1**
**Refer to the penultimate paragraph. The line in the question has been given to explain how painful events can bind the members of the group. Hence, 1 is the answer. "Exemplify" has a different connotation, rendering 4 incorrect.**

FeedBack

**Bookmark**

**Answer key/Solution**

**Directions for question 31: The following question consists of a set of five sentences. These sentences need to be arranged in a coherent manner to create meaningful paragraph. Type in the correct order of the sentences in the space provided below the question.**

**Q.31**

**1. Prior to a conflict reaching that point, however, the parties might find themselves in a period of increased tensions.**
**2. On the one hand, we might see actors increase communication in an attempt to prevent the outbreak of hostility.**
**3. When communication increases or when communication decreases during a crisis -- once hostility becomes entrenched, channels of communication will degrade quickly, and may stop altogether, further increasing the potential for disaster.**
**4. Often, during a serious conflict, there is very little communication between the involved parties and there is also little sharing of information, intents, and beliefs; all these lead to an impasse.**
**5. On the other hand, communication channels between actors may degrade during the crisis, increasing the likelihood of further escalation and possibly violence.**

**Solution:**
**Correct Answer : 41253**
**4 introduces the topic of "conflict". 41 is a mandatory pair as "that point" in 1 refers to "impasse" in 4. 25 make a mandatory pair because of "on the one hand" and "on the other hand". 3 further explains 2 and 5. Hence, 41253 is the correct sequence.**

FeedBack

**Bookmark**

**Answer key/Solution**

**Directions for question 32: The following question consists of a paragraph followed by four summaries. Choose the option that best captures the essence the paragraph. Type in the option number in the space provided below the question.**

**Q.32**

**Babies whose needs are met quickly and warmly (e.g., feeding, changing, holding/cradling, and soothing them) achieve a crucial developmental task – *attachment*. This bond of affection between parents and children is necessary for a healthy parent-child relationship, and also extends to relationships between children, their siblings, and other family members and caregivers. When infants attach successfully to their parents and caregivers, they learn to trust that the outside world is a welcoming place and are more likely to explore and interact with their environment. This lays the groundwork for further social, emotional, and cognitive development.**

1. A successful "attachment" between a child and its parents and caregivers affects the child's social, emotional, and cognitive development in a positive way.
2. "Attachment" lays the groundwork for the cognitive, social, and emotional development of a child as "attachment" springs out of a healthy parent-child relationship, which is a social bond.
3. Parents, siblings, other family members, and caregivers play a crucial role in defining and nurturing the concept of "attachment".
4. A lack of "attachment" can hamper the social, emotional, and cognitive development of any child.

Solution:
Correct Answer : 1
2 is a twisted option. It is wrong because "attachment" itself doesn't lay the groundwork for the child's emotional development. Secondly, the concept of "parent-child relationship is a social bond" has not been mentioned in the paragraph. 3 is not a summary as it doesn't capture the central idea of the paragraph which is the overall development of a child. 4 can be eliminated as it is a conclusion derived from the paragraph and not a summary. Thus, 1 is the best answer.

Bookmark
Answer key/Solution

FeedBack

Directions for question 33: In this question, five sentences are given. Of these, four sentences can be logically sequenced to make a coherent paragraph. One of the sentences does not belong to the paragraph. Type in the sentence number that doesn't fit into the paragraph.

Q.33

1. In ancient times a father guarded his offspring by being a warrior and a hunter.
2. Men must allow themselves to be aware of their feelings so they can empathize with their children.
3. Being close to your children doesn't have to be that hard for men.
4. Over the centuries, his role has shifted to that of bread-winner.
5. Many of today's fathers are struggling for a definition of dad that feels right.

Solution:
Correct Answer : 2
The correct sequence is 3514. 3 is the topic sentence of the paragraph as it introduces the main idea of the paragraph. 5 talks about the definition of "dad" which is explained in 1 and 4. 14 is a mandatory pair. This pair talks about the changing role of a father from a societal perspective. Hence, 2 doesn't belong to this paragraph. It gives a generic solution to the problem which is abrupt and doesn't belong to this paragraph.

Bookmark
Answer key/Solution

FeedBack

Directions for question 34: In this question, five sentences are given. Of these, four sentences can be logically sequenced to make a coherent paragraph. One of the sentences does not belong to the paragraph. Type in the sentence number that doesn't fit into the paragraph.

Q.34

1. The East India Company no longer exists, and it has, thankfully, no exact modern equivalent.
2. Yet the East India Company – the first great multinational corporation, and the first to run amok – was the ultimate model for many of today's joint-stock corporations.
3. Walmart, which is the world's largest corporation in revenue terms, does not number among its assets a fleet of nuclear submarines; neither Facebook nor Shell possesses regiments of infantry.
4. The 300-year-old question of how to cope with the power and perils of large multinational corporations remains today without a clear answer: it is not clear how a nation state can adequately protect itself and its citizens from corporate excess.
5. The East India Company remains history's most terrifying warning about the potential for the abuse of corporate power – and the insidious means by which the interests of shareholders become those of the state.

Solution:
Correct Answer : 4
The correct sequence is 1325. 1 opens the paragraph by talking about the East India Company and the lack of its "modern equivalent". 3 takes this idea further by discussing Facebook and Walmart, both modern companies. 2 introduces a contrast with the word "yet". 5 gives a conclusion. 4, however, doesn't fit into this paragraph as it is a generic sentence which talks about corporations in general and not about the East India Company and its legacy.

Bookmark
Answer key/Solution

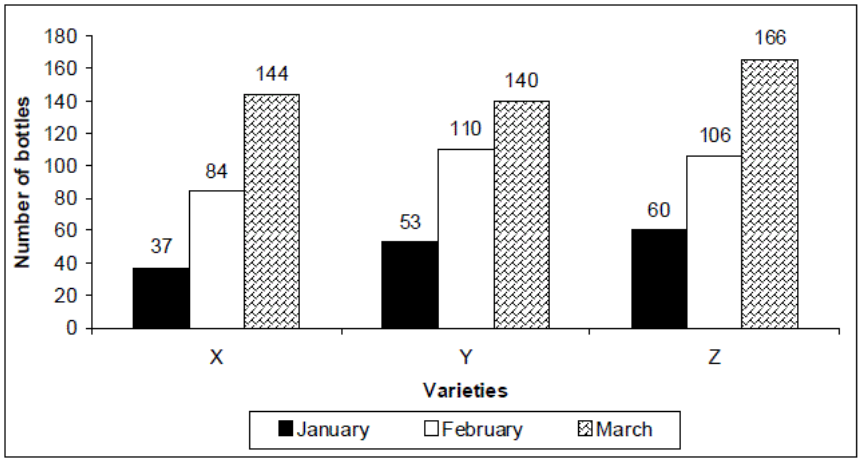
FeedBack

## Sec 2

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

A manufacturing company named PXZ Pvt. Ltd. manufactures only three different types of lubricant oil namely X, Y and Z. On a given day, in the first three months of 2014, the number of bottles of each variety of lubricants manufactured is 2 or 4 or 5. Similarly, the number of bottles of each type of lubricants sold on any given day is 1 or 2 or 3. It is also given that, on a particular day, the number of bottles of each variety of lubricants manufactured or sold is

**different from the number of bottles of any other variety of lubricants manufactured or sold. The following bar graph provides the information about the number of bottles of X, Y and Z left unsold at the end of the first three months of 2014. Assume each month has 30 days and also assume that there were n bottles of X, Y or Z left unsold at the end of the year 2013.**




**Q.35**

**If the maximum possible number of bottles of Z were manufactured in January, then find the least possible number of days on which 4 bottles of Y were manufactured in January.**

**Solution:**

**Correct Answer : 12**

Number of bottles of Z left unsold at the end of January = 60.

If maximum possible number of bottles were manufactured, then maximum possible number of bottles should be sold. That means that on each of the 30 days in the month of January, 5 bottles were manufactured and 3 bottles were sold. That means 5 units of 'Y' can not be manufactured and 3 units of Y cannot be sold on any day of January.

In the month of January, let, the number of days on which 4 bottles of Y were manufactured be x, therefore the number of days on which 2 bottles of Y were manufactured = 30 – x.

Let the number of days on which 1 bottle of Y was sold be 'y', therefore, the number of days on which 2 bottles of Y were sold is (30 – y). Obviously 'x' and 'y' are integers less than or equal to 30.

$53 = 4x + 2(30 - x) - y - 2(30 - y) = 2x + y$. Maximum possible value of y = 29, because if y = 30 then the value of x is not an integer.

Minimum possible value of $x = \frac{53-29}{2} = 12$.

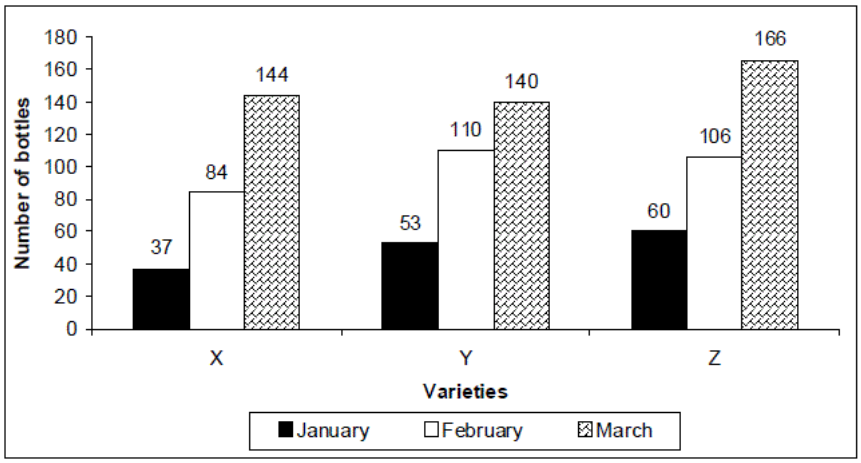
FeedBack

Bookmark

Answer key/Solution

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

**A manufacturing company named PXZ Pvt. Ltd. manufactures only three different types of lubricant oil namely X, Y and Z. On a given day, in the first three months of 2014, the number of bottles of each variety of lubricants manufactured is 2 or 4 or 5. Similarly, the number of bottles of each type of lubricants sold on any given day is 1 or 2 or 3. It is also given that, on a particular day, the number of bottles of each variety of lubricants manufactured or sold is different from the number of bottles of any other variety of lubricants manufactured or sold. The following bar graph provides the information about the number of bottles of X, Y and Z left unsold at the end of the first three months of 2014. Assume each month has 30 days and also assume that there were n bottles of X, Y or Z left unsold at the end of the year 2013.**




**Q.36**
**Find the maximum possible number of days on which 5 bottles of Z were manufactured over the period of three months.**

Bookmark

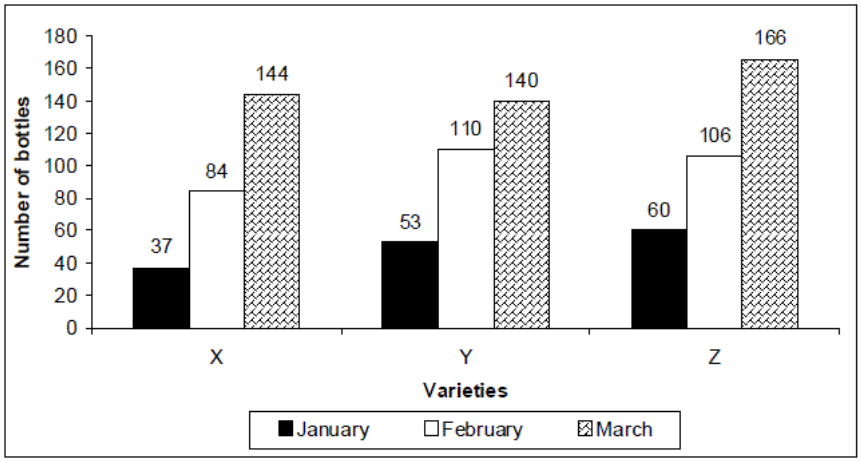
Answer key/Solution

**Solution:**
**Correct Answer : 84**
**Number of bottles of Z left unsold at the end of January = 60.**
**Maximum possible number of days on which 5 bottles of Z were manufactured in January is 30, when the numbers of days on which 3 bottles of Z were sold = 30.**
**That means, (106 – 60) = 46 bottles out of the total bottles of Z, which were manufactured in February were left unsold.**
**Since we have to maximize the number of days on which 5 bottles of Z were manufactured, we will maximize the number of days on which 3 bottles of Z were sold.**
**So maximum possible number of days on which 3 bottles of Z were sold = 30.**
**Therefore, number of bottles of Z that were manufactured in February = 46 + 3(30) = 136.**
**Let the number of days on which 5 and 4 bottles of Z were manufactured be 'a' and 'b' respectively.**
**Therefore the number of days on which 2 bottles of Z were manufactured = (30 – a – b).**
**136 = 5a + 4b + 2(30 – a – b) or 3a + 2b = 76.**
**Maximum possible value of a is 24 when b = 2.**
**Therefore maximum possible number of days on which 5 bottles of Z were manufactured = 24.**
**In the month of March, (166 – 106) = 60 bottles of Z out of the bottles of Z manufactured in the month of March were left unsold.**
**So, maximum possible number of days on which 5 bottles of Z were manufactured in the month of March = 30, when 3 bottles of Z were sold on each of the 30 days in March.**
**Therefore, maximum possible number of days on which 5 bottles of Z were manufactured across all the three months = 30 + 24 + 30 = 84.**

FeedBack

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

**A manufacturing company named PXZ Pvt. Ltd. manufactures only three different types of lubricant oil namely X, Y and Z. On a given day, in the first three months of 2014, the number of bottles of each variety of lubricants manufactured is 2 or 4 or 5. Similarly, the number of bottles of each type of lubricants sold on any given day is 1 or 2 or 3. It is also given that, on a particular day, the number of bottles of each variety of lubricants manufactured or sold is different from the number of bottles of any other variety of lubricants manufactured or sold. The following bar graph provides the information about the number of bottles of X, Y and Z left unsold at the end of the first three months of 2014. Assume each month has 30 days and also assume that there were n bottles of X, Y or Z left unsold at the end of the year 2013.**




**Q.37**
**Find the minimum possible number of days on which 5 bottles of X were manufactured over the period of three months.**

Bookmark

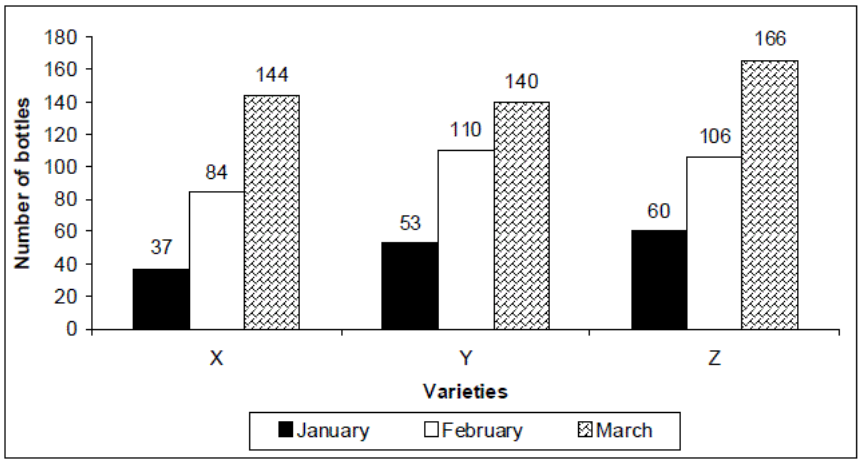
Answer key/Solution

**Solution:**
**Correct Answer : 0**
**Total number of bottles of X manufactured in all the three months = 144 + Total number of bottles of X sold in all the three months.**
**Let the number of days on which 5 and 4 bottles of X were manufactured in all the three months be p and q respectively.**
**Or, 5p + 4q + 2(90 – p – q) = 144 + 90 (to maximise the number of bottles of X sold in all the three months)**
**3p + 2q = 54.**
**Minimum value of p will be 0, when the value of q is 27.**
**Therefore, minimum possible number of days on which 5 bottles of X were sold in all the three months = 0.**

FeedBack

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

**A manufacturing company named PXZ Pvt. Ltd. manufactures only three different types of lubricant oil namely X, Y and Z. On a given day, in the first three months of 2014, the number of bottles of each variety of lubricants manufactured is 2 or 4 or 5. Similarly, the number of bottles of each type of lubricants sold on any given day is 1 or 2 or 3. It is also given that, on a particular day, the number of bottles of each variety of lubricants manufactured or sold is different from the number of bottles of any other variety of lubricants manufactured or sold. The following bar graph provides the information about the number of bottles of X, Y and Z left unsold at the end of the first three months of 2014. Assume each month has 30 days and also assume that there were n bottles of X, Y or Z left unsold at the end of the year 2013.**




**Q.38**
**If the ratio of the number of days on which 2, 4 and 5 bottles of Y were manufactured in February was 1 : 2 : 3 and the number of days on which 3 bottles o Y were sold in February was the minimum possible, then find the number of days on which 2 bottles of Y were sold in February.**

Bookmark

Answer key/Solution

**Solution:**
**Correct Answer : 22**
**Ratio of number of days on which 2, 4 and 5 bottles of Y were manufactured in the month of February is 1:2:3. Therefore, the number of days on which 2, 4 and 5 bottles of Y were manufactured is 5, 10 and 15 respectively.**
**Number of bottles of Y manufactured in the month of February = 2(5) + 4(10) + 5(15) = 10 + 40 + 75 = 125.**
**Let the number of days on which 1, 2 and 3 bottles of Y were sold in the month of February be d, e and f respectively.**
**Therefore, 125 – d – 2(30 – d – f) – 3f = 110 – 53**
**Or, f – d = 8**
**Or, f = 8 + d.**
**Therefore on at least 8 days 3 bottles of Y were sold. So, minimum value of 'f' is 8, and in that case d = 0.**
**Number of days on which 2 bottles of Y were sold in February = 30 – 8 = 22.**

FeedBack

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

**In a city, there are ten Police patrolling jeeps for providing security to the residents. Each patrolling jeep has three policemen viz. one Inspector, one Constable and one Driver. Each patrolling jeep has a wireless system to make calls to other patrolling jeeps. Codes are required to activate the wireless system which are different for Inspectors, Constables and Drivers. Four patrolling jeeps receive every call made by an Inspector, two patrolling jeeps receive every call made by a Constable and one patrolling jeep receives every call made by a Driver. The patrolling jeeps can make or receive calls to / fron other patrolling jeeps only. The following table provides information about the number of received and dialed calls by each patrolling jeep at the end of a particular day.**

| Police Patrolling Jeep Number | Number of Received Calls | Number of Dialled Calls |
|---|---|---|
| 1 | 6 | 5 |
| 2 | 15 | 3 |
| 3 | 7 | 2 |
| 4 | 9 | 6 |
| 5 | 6 | 1 |
| 6 | 8 | 3 |
| 7 | 10 | 2 |
| 8 | 9 | 1 |
| 9 | 7 | 4 |
| 10 | 5 | 3 |

**Q.39**

**If Police Patrolling jeep No. 2 had received calls from only three Police Patrolling jeeps, then what could be the lowest possible number of Police Patrolling jeeps from which Police Patrolling jeep No. 7 received calls?**

**Solution:**

**Correct Answer : 2**

Let the total number of dialed calls by all the Inspectors, Constables and Drivers be x, y and z respectively.
By the problem, total number of dialed calls from all the Patrolling jeeps = 30.

Thus, $x + y + z = 30$ ...(i)
Total number of calls received by all the Patrolling jeeps = 82.
$\Rightarrow 4x + 2y + z = 82$ ...(ii)
Solving (i) and (ii), we get $3x + y = 52$.
Thus, the following cases are possible:

| Cases | Possible values | | | Total |
|---|---|---|---|---|
| | x | y | z | |
| 1 | 11 | 19 | 0 | 30 |
| 2 | 12 | 16 | 2 | 30 |
| 3 | 13 | 13 | 4 | 30 |
| 4 | 14 | 10 | 6 | 30 |
| 5 | 15 | 7 | 8 | 30 |
| 6 | 16 | 4 | 10 | 30 |
| 7 | 17 | 1 | 12 | 30 |

By the question, jeep number 2 received calls from jeep numbers 1, 4 and 9.
Assuming that no calls made from jeep numbers 1 and 4 were by a driver, it can be observed that jeep 7 could have received calls only from two jeeps viz. jeep 1 and jeep 4.

FeedBack

Bookmark

Answer key/Solution

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

**In a city, there are ten Police patrolling jeeps for providing security to the residents. Each patrolling jeep has three policemen viz. one Inspector, one Constable and one Driver. Each patrolling jeep has a wireless system to make calls to other patrolling jeeps. Codes are required to activate the wireless system which are different for Inspectors, Constables and Drivers. Four patrolling jeeps receive every call made by an Inspector, two patrolling jeeps receive every call made by a Constable and one patrolling jeep receives every call made by a Driver. The patrolling jeeps can make or receive calls to / from other patrolling jeeps only. The following table provides information about the number of received and dialed calls by each patrolling jeep at the end of a particular day.**

| Police Patrolling Jeep Number | Number of Received Calls | Number of Dialled Calls |
|---|---|---|
| 1 | 6 | 5 |
| 2 | 15 | 3 |
| 3 | 7 | 2 |
| 4 | 9 | 6 |
| 5 | 6 | 1 |
| 6 | 8 | 3 |
| 7 | 10 | 2 |
| 8 | 9 | 1 |
| 9 | 7 | 4 |
| 10 | 5 | 3 |

**Q.40**

**What could be the maximum possible number of calls that can be made by the Constables?**

**Solution:**
**Correct Answer : 19**

Let the total number of dialed calls by all the Inspectors, Constables and Drivers be x, y and z respectively.
By the problem, total number of dialed calls from all the Patrolling jeeps = 30.

Thus, x + y + z = 30 ...(i)
Total number of calls received by all the Patrolling jeeps = 82.
⇒ 4x + 2y + z = 82 ...(ii)
Solving (i) and (ii), we get 3x + y = 52.
Thus, the following cases are possible:

| Cases | Possible values | | | Total |
|---|---|---|---|---|
| | x | y | z | |
| 1 | 11 | 19 | 0 | 30 |
| 2 | 12 | 16 | 2 | 30 |
| 3 | 13 | 13 | 4 | 30 |
| 4 | 14 | 10 | 6 | 30 |
| 5 | 15 | 7 | 8 | 30 |
| 6 | 16 | 4 | 10 | 30 |
| 7 | 17 | 1 | 12 | 30 |

From the table above, the maximum possible number of calls that can be made by the Constables is 19.

FeedBack

Bookmark

Answer key/Solution

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

**In a city, there are ten Police patrolling jeeps for providing security to the residents. Each patrolling jeep has three policemen viz. one Inspector, one Constable and one Driver. Each patrolling jeep has a wireless system to make calls to other patrolling jeeps. Codes are required to activate the wireless system which are different for Inspectors, Constables and Drivers. Four patrolling jeeps receive every call made by an Inspector, two patrolling jeeps receive every call made by a Constable and one patrolling jeep receives every call made by a Driver. The patrolling jeeps can make or receive calls to / from other patrolling jeeps only. The following table provides information about the number of received and dialed calls by each patrolling jeep at the end of a particular day.**

| Police Patrolling Jeep Number | Number of Received Calls | Number of Dialled Calls |
|---|---|---|
| 1 | 6 | 5 |
| 2 | 15 | 3 |
| 3 | 7 | 2 |
| 4 | 9 | 6 |
| 5 | 6 | 1 |
| 6 | 8 | 3 |
| 7 | 10 | 2 |
| 8 | 9 | 1 |
| 9 | 7 | 4 |
| 10 | 5 | 3 |

**Q.41**
**If the total number of calls made by all the Inspectors was not less than the total number of calls made by all the Constables and the total number of calls made by all Constables was not less than the total number of calls made by the all the Drivers, then what was the minimum number of calls that could have been made by the Drivers?**

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

Bookmark

Answer key/Solution

Let the total number of dialed calls by all the Inspectors, Constables and Drivers be x, y and z respectively.
By the problem, total number of dialed calls from all the Patrolling jeeps = 30.

Thus, x + y + z = 30 ...(i)
Total number of calls received by all the Patrolling jeeps = 82.
⇒ 4x + 2y + z = 82 ...(ii)
Solving (i) and (ii), we get 3x + y = 52.
Thus, the following cases are possible:

| Cases | Possible values | | | Total |
|---|---|---|---|---|
| | x | y | z | |
| 1 | 11 | 19 | 0 | 30 |
| 2 | 12 | 16 | 2 | 30 |
| 3 | 13 | 13 | 4 | 30 |
| 4 | 14 | 10 | 6 | 30 |
| 5 | 15 | 7 | 8 | 30 |
| 6 | 16 | 4 | 10 | 30 |
| 7 | 17 | 1 | 12 | 30 |

By the information given in the question only Case 3 and Case 4 are possible. Thus, minimum possible number of calls that can be made by the Drivers is 4.

FeedBack

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

**In a city, there are ten Police patrolling jeeps for providing security to the residents. Each patrolling jeep has three policemen viz. one Inspector, one Constable and one Driver. Each patrolling jeep has a wireless system to make calls to other patrolling jeeps. Codes are required to activate the wireless system which are different for Inspectors, Constables and Drivers. Four patrolling jeeps receive every call made by an Inspector, two patrolling jeeps receive every call made by a Constable and one patrolling jeep receives every call made by a Driver. The patrolling jeeps can make or receive calls to / from other patrolling jeeps only. The following table provides information about the number of received and dialed calls by each patrolling jeep at the end of a particular day.**

| Police Patrolling Jeep Number | Number of Received Calls | Number of Dialled Calls |
|---|---|---|
| 1 | 6 | 5 |
| 2 | 15 | 3 |
| 3 | 7 | 2 |
| 4 | 9 | 6 |
| 5 | 6 | 1 |
| 6 | 8 | 3 |
| 7 | 10 | 2 |
| 8 | 9 | 1 |
| 9 | 7 | 4 |
| 10 | 5 | 3 |

**Q.42**
**If the total number of calls made by all the Inspectors was not less than the total number of calls made by all the Constables and the total number of calls made by all Constables was not less than the total number of calls made by the all the Drivers, then what was the maximum number of calls that could have been made by the Drivers?**

**Solution:**
**Correct Answer : 6**

Bookmark

Answer key/Solution

Let the total number of dialed calls by all the Inspectors, Constables and Drivers be x, y and z respectively.
By the problem, total number of dialed calls from all the Patrolling jeeps = 30.

Thus, x + y + z = 30 ...(i)
Total number of calls received by all the Patrolling jeeps = 82.
⇒ 4x + 2y + z = 82 ...(ii)
Solving (i) and (ii), we get 3x + y = 52.
Thus, the following cases are possible:

| Cases | Possible values | | | Total |
|---|---|---|---|---|
| | x | y | z | |
| 1 | 11 | 19 | 0 | 30 |
| 2 | 12 | 16 | 2 | 30 |
| 3 | 13 | 13 | 4 | 30 |
| 4 | 14 | 10 | 6 | 30 |
| 5 | 15 | 7 | 8 | 30 |
| 6 | 16 | 4 | 10 | 30 |
| 7 | 17 | 1 | 12 | 30 |

By the information given in the question only Case 3 and Case 4 are possible. Thus, maximum possible number of calls that can be made by the Drivers is 6.

FeedBack

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

**A Mathematician is given a task of filling numbers in 10 cells of a grid of dimensions 2 units × 5 units having 2 rows and 5 columns. In the cells of the first row, he has to fill 5 consecutive numbers, say, x, x + 1, x + 2, x + 3, x + 4, lying between 100 and 300. In the cells of the second row, he has to fill 5 numbers that are x + 100, x + 101, x + 102, x + 103, x + 104. It is also known that:**
**• He has to maximize the number of prime numbers in each row.**
**• The average of numbers in the cells of the two rows has to be a prime number.**

**Q.43**
**How many values can x have?**

1 ◯ **0**

2 ◯ **1**

3 ◯ **2**

4 ◯ **3**

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

**Bookmark**

**Answer key/Solution**

For this question, first we need to make a list of prime numbers between 100 and 300.
The prime numbers between 100 and 300 are:
101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199, 211, 223, 227, 229, 233, 239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293.

According to puzzle, if 1st row has number 101, 102, 103, 104, 105 then 2nd row will have numbers 201, 202, 203, 204, 205.
Since, prime numbers will always be odd, and in any 5 consecutive numbers, we can have a maximum of 3 odd numbers. And in any 3 consecutive numbers, one number will always be a multiple of 3.

A row can have a maximum of 2 prime numbers out of 5 numbers. The average of numbers filled in both the rows should also be a prime number. So, looking at the list, following cases are possible:

Case 1: $\begin{bmatrix} 127 & 128 & 129 & 130 & 131 \\ 227 & 228 & 229 & 230 & 231 \end{bmatrix}$ Average = 179.

Case 2: $\begin{bmatrix} 177 & 178 & 179 & 180 & 181 \\ 277 & 278 & 279 & 280 & 281 \end{bmatrix}$ Average = 229.

2

FeedBack

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

**A Mathematician is given a task of filling numbers in 10 cells of a grid of dimensions 2 units × 5 units having 2 rows and 5 columns. In the cells of the first row, he has to fill 5 consecutive numbers, say, x, x + 1, x + 2, x + 3, x + 4, lying between 100 and 300. In the cells of the second row, he has to fill 5 numbers that are x + 100, x + 101, x + 102, x + 103, x + 104. It is also known that:**
**• He has to maximize the number of prime numbers in each row.**
**• The average of numbers in the cells of the two rows has to be a prime number.**

**Q.44**
**What is the largest possible value of x + 104?**

1 **231**

2 **281**

3 **251**

4 **261**

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

Bookmark

Answer key/Solution

For this question, first we need to make a list of prime numbers between 100 and 300.
The prime numbers between 100 and 300 are:
101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199, 211, 223, 227, 229, 233, 239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293.

According to puzzle, if 1st row has number 101, 102, 103, 104, 105 then 2nd row will have numbers 201, 202, 203, 204, 205.
Since, prime numbers will always be odd, and in any 5 consecutive numbers, we can have a maximum of 3 odd numbers. And in any 3 consecutive numbers, one number will always be a multiple of 3.

A row can have a maximum of 2 prime numbers out of 5 numbers. The average of numbers filled in both the rows should also be a prime number. So, looking at the list, following cases are possible:

Case 1: $\begin{matrix} 127 & 128 & 129 & 130 & 131 \\ 227 & 228 & 229 & 230 & 231 \end{matrix}$ Average = 179.

Case 2: $\begin{matrix} 177 & 178 & 179 & 180 & 181 \\ 277 & 278 & 279 & 280 & 281 \end{matrix}$ Average = 229.

281

FeedBack

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

**A Mathematician is given a task of filling numbers in 10 cells of a grid of dimensions 2 units × 5 units having 2 rows and 5 columns. In the cells of the first row, he has to fill 5 consecutive numbers, say, x, x + 1, x + 2, x + 3, x + 4, lying between 100 and 300. In the cells of the second row, he has to fill 5 numbers that are x + 100, x + 101, x + 102, x + 103, x + 104. It is also known that:**
**• He has to maximize the number of prime numbers in each row.**
**• The average of numbers in the cells of the two rows has to be a prime number.**

**Q.45**
**What is a possible value of the average of the numbers in the cells of the first row?**

1 **129**

2 **179**

3 **Both (1) and (2)**

4 **None of these**

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

Bookmark

Answer key/Solution

For this question, first we need to make a list of prime numbers between 100 and 300.
The prime numbers between 100 and 300 are:
101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199, 211, 223, 227, 229, 233, 239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293.

According to puzzle, if 1st row has number 101, 102, 103, 104, 105 then 2nd row will have numbers 201, 202, 203, 204, 205.
Since, prime numbers will always be odd, and in any 5 consecutive numbers, we can have a maximum of 3 odd numbers. And in any 3 consecutive numbers, one number will always be a multiple of 3.

A row can have a maximum of 2 prime numbers out of 5 numbers. The average of numbers filled in both the rows should also be a prime number. So, looking at the list, following cases are possible:

Case 1: $\begin{bmatrix} 127 & 128 & 129 & 130 & 131 \\ 227 & 228 & 229 & 230 & 231 \end{bmatrix}$ Average = 179.

Case 2: $\begin{bmatrix} 177 & 178 & 179 & 180 & 181 \\ 277 & 278 & 279 & 280 & 281 \end{bmatrix}$ Average = 229.

Both 129 and 179 is possible

FeedBack

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

**A Mathematician is given a task of filling numbers in 10 cells of a grid of dimensions 2 units × 5 units having 2 rows and 5 columns. In the cells of the first row, he has to fill 5 consecutive numbers, say, x, x + 1, x + 2, x + 3, x + 4, lying between 100 and 300. In the cells of the second row, he has to fill 5 numbers that are x + 100, x + 101, x + 102, x + 103, x + 104. It is also known that:**
**• He has to maximize the number of prime numbers in each row.**
**• The average of numbers in the cells of the two rows has to be a prime number.**

**Q.46**
**What is the smallest possible value of x?**

1 **101**

2 **127**

3 **129**

4 **137**

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

**Bookmark**

**Answer key/Solution**

For this question, first we need to make a list of prime numbers between 100 and 300.
The prime numbers between 100 and 300 are:
101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199, 211, 223, 227, 229, 233, 239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293.

According to puzzle, if 1st row has number 101, 102, 103, 104, 105 then 2nd row will have numbers 201, 202, 203, 204, 205.
Since, prime numbers will always be odd, and in any 5 consecutive numbers, we can have a maximum of 3 odd numbers. And in any 3 consecutive numbers, one number will always be a multiple of 3.

A row can have a maximum of 2 prime numbers out of 5 numbers. The average of numbers filled in both the rows should also be a prime number. So, looking at the list, following cases are possible:

Case 1: $\begin{bmatrix} 127 & 128 & 129 & 130 & 131 \\ 227 & 228 & 229 & 230 & 231 \end{bmatrix}$ Average = 179.

Case 2: $\begin{bmatrix} 177 & 178 & 179 & 180 & 181 \\ 277 & 278 & 279 & 280 & 281 \end{bmatrix}$ Average = 229.

127

FeedBack

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

**A total of 300 candidates took an aptitude exam, comprising three sections – QA, VA and LRDI. The maximum marks of each section was 60. Each candidat needed to secure a minimum marks i.e. cutoff in each section in order to clear the exam. The numbers of girls who cleared cutoff of DILR only, QA only and of VA only, in the given order, are in an increasing Arithmetic Progression, with the common difference 8. The number of girls who cleared cutoff of QA an VA was equal to the number of girls who cleared cutoff of QA and DILR. The ratio of the number of candidates who cleared cutoff of QA and VA to the number candidates who cleared cutoff of VA and DILR was 31:73. The number of boys who cleared cutoff of QA and VA only was 100% more than the number of boys who cleared cutoff of all the three sections. The ratio of the number of girls to boys who cleared cutoff of VA only was 37: 30. The number of girls who cleared cutoff of all the three sections was 75% more than the number of boys who cleared cutoff of all the three sections. The number of boy who cleared cutoff of VA only was 25% less than the number of boys who cleared cutoff of VA and DILR only. The number of candidates who cleared cutoff of QA and VA only was equal to the number of candidates who cleared cutoffs of QA and DILR only. The number of girls who cleared cutoff of VA and DILR only was 1 more than three times the number of girls who cleared cutoff of all the three sections. At least three boys cleared cutoff of all the three sections. The number of girls who did not clear cutoff in any of the three sections is 20. The number of candidates who cleared cutoff of VA, QA and DILR was 160, 100 and 120 respectively.**

**The cutoff of QA, VA and DILR was 28, 24 and 32 respectively. No candidates scored less than zero marks. The following table gives average marks of girls and boys across three sections in the exam.**

| | QA | VA | DILR |
|---|---|---|---|
| Girl | 24 | 21 | x |
| Boys | 26 | 27 | 24 |
| Total | P | Q | 25 |

**Q.47**
**What was the total number of girls who cleared cutoff of at least two sections?**

1 **51**

2 **52**

3 **53**

4 **54**

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

**Bookmark**

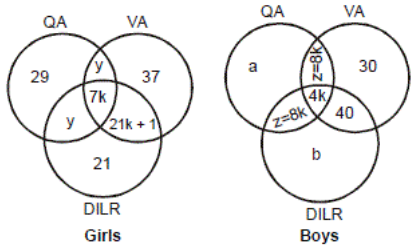
**Answer key/Solution**

The number of girls who cleared cutoff of VA only will be a multiple of 37. If it is 74, then number of girls who cleared cutoffs of QA only and DILR only will be 66 and 58 respectively, (since, number of girls who cleared cut off for QA, VA, DILR is in AP with common difference 8) and number of boys who cleared cutoff of VA only will be 60. This will give us the number of boys who cleared cutoff of VA and DILR only as 80. This will contradict the fact that total number of candidates is 300. Hence, number of girls who cleared cutoff of VA only will be 37. Now, number of girls who cleared cutoffs of QA only and DILR only will be 29 and 21 respectively. Also, the number of boys who cleared cutoff of VA only was 25% less than the number of boys who cleared cutoff of VA and DILR only. Hence, number of boys who cleared cutoff of VA and DILR only will be 40.

Now, the number of girls who cleared cutoff of all the three sections was 75% more than the number of boys who cleared cutoff of all the three sections. Hence, the number of girls and the number of boys who cleared cutoff of all the three sections will be in the ratio 7:4.

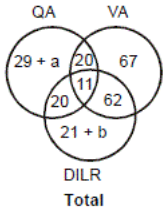
Le the number of girls and number of boys who cleared cut off be 7K and 4K respectively.

From the information of, number of candidates who cleared cut offs of QA and VA only is equal to the number of candidates who cleared cut offs of QA and DILR only, we conclude,
$(y + 7k) + (8k + 4k) = (y + 7k) + (z + 4k) \Rightarrow z = 8k$




Also, $\frac{31}{73} = \frac{y + 7k + 8k + 4k}{7k + 21k + 1 + 4k + 40} \Rightarrow \frac{31}{73} = \frac{y + 19k}{32k + 41}$

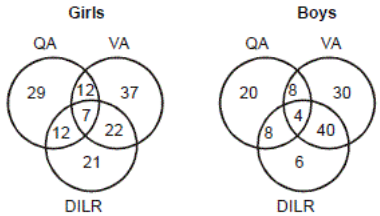
Thus, k has to be 1.
$\therefore y = 12.$




$29 + a + 20 + 11 + 20 = 100$
$\Rightarrow a = 20$

$20 + 11 + 62 + 21 + b = 120$
$\Rightarrow b = 6.$

Thus, analysis leads to the following break-ups of the number of boys and girls who cleared cutoff in various sections:




The number of girls who cleared cutoff of at least two sections = 12 + 7 + 12 + 22 = 53.

FeedBack

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

**A total of 300 candidates took an aptitude exam, comprising three sections – QA, VA and LRDI. The maximum marks of each section was 60. Each candidat needed to secure a minimum marks i.e. cutoff in each section in order to clear the exam. The numbers of girls who cleared cutoff of DILR only, QA only and of VA only, in the given order, are in an increasing Arithmetic Progression, with the common difference 8. The number of girls who cleared cutoff of QA an VA was equal to the number of girls who cleared cutoff of QA and DILR. The ratio of the number of candidates who cleared cutoff of QA and VA to the**

**number candidates who cleared cutoff of VA and DILR was 31:73. The number of boys who cleared cutoff of QA and VA only was 100% more than the number of boys who cleared cutoff of all the three sections. The ratio of the number of girls to boys who cleared cutoff of VA only was 37: 30. The number of girls who cleared cutoff of all the three sections was 75% more than the number of boys who cleared cutoff of all the three sections. The number of boy who cleared cutoff of VA only was 25% less than the number of boys who cleared cutoff of VA and DILR only. The number of candidates who cleared cutoff of QA and VA only was equal to the number of candidates who cleared cutoffs of QA and DILR only. The number of girls who cleared cutoff of VA and DILR only was 1 more than three times the number of girls who cleared cutoff of all the three sections. At least three boys cleared cutoff of all the three sections. The number of girls who did not clear cutoff in any of the three sections is 20. The number of candidates who cleared cutoff of VA, QA and DILR was 160, 100 and 120 respectively.**

**The cutoff of QA, VA and DILR was 28, 24 and 32 respectively. No candidates scored less than zero marks. The following table gives average marks of girls and boys across three sections in the exam.**

| | QA | VA | DILR |
|---|---|---|---|
| Girl | 24 | 21 | x |
| Boys | 26 | 27 | 24 |
| Total | P | Q | 25 |

**Q.48**
**What is the sum of values of P, Q and x?**

1 **74.61**

2 **68.92**

3 **76.25**

4 **72.61**

**Solution:**
**Correct Answer : 1**

**Bookmark**

**Answer key/Solution**

The number of girls who cleared cutoff of VA only will be a multiple of 37. If it is 74, then number of girls who cleared cutoffs of QA only and DILR only will be 66 and 58 respectively, (since, number of girls who cleared cut off for QA, VA, DILR is in AP with common difference 8) and number of boys who cleared cutoff of VA only will be 60. This will give us the number of boys who cleared cutoff of VA and DILR only as 80. This will contradict the fact that total number of candidates is 300. Hence, number of girls who cleared cutoff of VA only will be 37. Now, number of girls who cleared cutoffs of QA only and DILR only will be 29 and 21 respectively. Also, the number of boys who cleared cutoff of VA only was 25% less than the number of boys who cleared cutoff of VA and DILR only. Hence, number of boys who cleared cutoff of VA and DILR only will be 40.

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From the information of, number of candidates who cleared cut offs of QA and VA only is equal to the number of candidates who cleared cut offs of QA and DILR only, we conclude,
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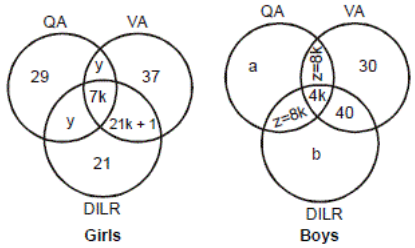
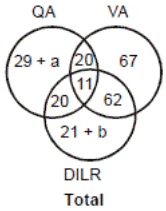






Also, $\frac{31}{73} = \frac{y + 7k + 8k + 4k}{7k + 21k + 1 + 4k + 40} \Rightarrow \frac{31}{73} = \frac{y + 19k}{32k + 41}$

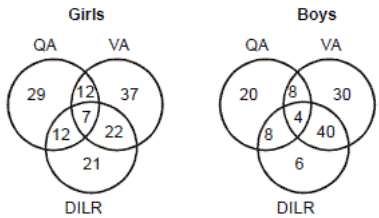
Thus, k has to be 1.
$\therefore$ y = 12.




29 + a + 20 + 11 + 20 = 100
$\Rightarrow$ a = 20

20 + 11 + 62 + 21 + b = 120
$\Rightarrow$ b = 6.

Thus, analysis leads to the following break-ups of the number of boys and girls who cleared cutoff in various sections:







$$P + Q + x = \frac{(24 \times 160) + (26 \times 140)}{300}$$

$$+ \frac{(21 \times 160) + (27 \times 140)}{300} + \frac{(25 \times 300) - (24 \times 140)}{160}$$

= 24.933 + 23.8 + 25.875 = 74.608

FeedBack

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

**A total of 300 candidates took an aptitude exam, comprising three sections – QA, VA and LRDI. The maximum marks of each section was 60. Each candidat**

**needed to secure a minimum marks i.e. cutoff in each section in order to clear the exam. The numbers of girls who cleared cutoff of DILR only, QA only and of VA only, in the given order, are in an increasing Arithmetic Progression, with the common difference 8. The number of girls who cleared cutoff of QA an VA was equal to the number of girls who cleared cutoff of QA and DILR. The ratio of the number of candidates who cleared cutoff of QA and VA to the number candidates who cleared cutoff of VA and DILR was 31:73. The number of boys who cleared cutoff of QA and VA only was 100% more than the number of boys who cleared cutoff of all the three sections. The ratio of the number of girls to boys who cleared cutoff of VA only was 37: 30. The number of girls who cleared cutoff of all the three sections was 75% more than the number of boys who cleared cutoff of all the three sections. The number of boy who cleared cutoff of VA only was 25% less than the number of boys who cleared cutoff of VA and DILR only. The number of candidates who cleared cutoff of QA and VA only was equal to the number of candidates who cleared cutoffs of QA and DILR only. The number of girls who cleared cutoff of VA and DILR only was 1 more than three times the number of girls who cleared cutoff of all the three sections. At least three boys cleared cutoff of all the three sections. The number of girls who did not clear cutoff in any of the three sections is 20. The number of candidates who cleared cutoff of VA, QA and DILR was 160, 100 and 120 respectively.**

**The cutoff of QA, VA and DILR was 28, 24 and 32 respectively. No candidates scored less than zero marks. The following table gives average marks of girls and boys across three sections in the exam.**

| | QA | VA | DILR |
|---|---|---|---|
| Girl | 24 | 21 | x |
| Boys | 26 | 27 | 24 |
| Total | P | Q | 25 |

**Q.49**
**The number of boys who cleared cutoff of QA only was**

1 **20**

2 **16**

3 **22**

4 **12**

**Solution:**
**Correct Answer : 1**

**Bookmark**

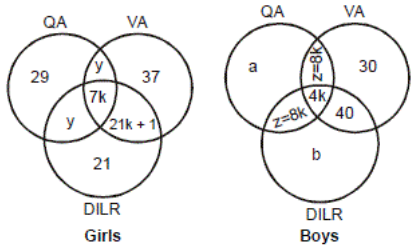
**Answer key/Solution**

The number of girls who cleared cutoff of VA only will be a multiple of 37. If it is 74, then number of girls who cleared cutoffs of QA only and DILR only will be 66 and 58 respectively, (since, number of girls who cleared cut off for QA, VA, DILR is in AP with common difference 8) and number of boys who cleared cutoff of VA only will be 60. This will give us the number of boys who cleared cutoff of VA and DILR only as 80. This will contradict the fact that total number of candidates is 300. Hence, number of girls who cleared cutoff of VA only will be 37. Now, number of girls who cleared cutoffs of QA only and DILR only will be 29 and 21 respectively. Also, the number of boys who cleared cutoff of VA only was 25% less than the number of boys who cleared cutoff of VA and DILR only. Hence, number of boys who cleared cutoff of VA and DILR only will be 40.

Now, the number of girls who cleared cutoff of all the three sections was 75% more than the number of boys who cleared cutoff of all the three sections. Hence, the number of girls and the number of boys who cleared cutoff of all the three sections will be in the ratio 7:4.

Le the number of girls and number of boys who cleared cut off be 7K and 4K respectively.

From the information of, number of candidates who cleared cut offs of QA and VA only is equal to the number of candidates who cleared cut offs of QA and DILR only, we conclude,
$(y + 7k) + (8k + 4k) = (y + 7k) + (z + 4k) \Rightarrow z = 8k$

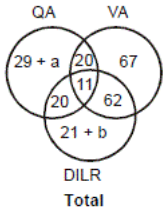






Also, $\frac{31}{73} = \frac{y + 7k + 8k + 4k}{7k + 21k + 1 + 4k + 40} \Rightarrow \frac{31}{73} = \frac{y + 19k}{32k + 41}$

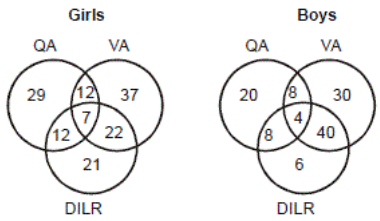
Thus, k has to be 1.
$\therefore y = 12.$




$29 + a + 20 + 11 + 20 = 100$
$\Rightarrow a = 20$

$20 + 11 + 62 + 21 + b = 120$
$\Rightarrow b = 6.$

Thus, analysis leads to the following break-ups of the number of boys and girls who cleared cutoff in various sections:







The number of boys who cleared cutoff of QA only = 20.

FeedBack

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

**A total of 300 candidates took an aptitude exam, comprising three sections – QA, VA and LRDI. The maximum marks of each section was 60. Each candidat needed to secure a minimum marks i.e. cutoff in each section in order to clear the exam. The numbers of girls who cleared cutoff of DILR only, QA only and of VA only, in the given order, are in an increasing Arithmetic Progression, with the common difference 8. The number of girls who cleared cutoff of QA an VA was equal to the number of girls who cleared cutoff of QA and DILR. The ratio of the number of candidates who cleared cutoff of QA and VA to the**

**number candidates who cleared cutoff of VA and DILR was 31:73. The number of boys who cleared cutoff of QA and VA only was 100% more than the number of boys who cleared cutoff of all the three sections. The ratio of the number of girls to boys who cleared cutoff of VA only was 37: 30. The number of girls who cleared cutoff of all the three sections was 75% more than the number of boys who cleared cutoff of all the three sections. The number of boy who cleared cutoff of VA only was 25% less than the number of boys who cleared cutoff of VA and DILR only. The number of candidates who cleared cutoff of QA and VA only was equal to the number of candidates who cleared cutoffs of QA and DILR only. The number of girls who cleared cutoff of VA and DILR only was 1 more than three times the number of girls who cleared cutoff of all the three sections. At least three boys cleared cutoff of all the three sections. The number of girls who did not clear cutoff in any of the three sections is 20. The number of candidates who cleared cutoff of VA, QA and DILR was 160, 100 and 120 respectively.**

**The cutoff of QA, VA and DILR was 28, 24 and 32 respectively. No candidates scored less than zero marks. The following table gives average marks of girls and boys across three sections in the exam.**

| | QA | VA | DILR |
|---|---|---|---|
| Girl | 24 | 21 | x |
| Boys | 26 | 27 | 24 |
| Total | P | Q | 25 |

**Q.50**

**The absolute difference between the number of boys who cleared cutoffs of at least one section and the number of girls who cleared cutoff of not more than one section was**

1 **7**

2 **8**

3 **9**

4 **10**

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

**Bookmark**

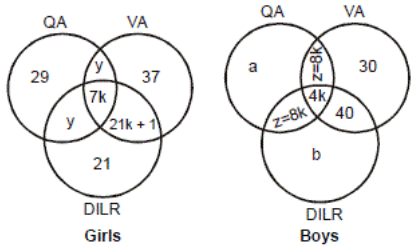
**Answer key/Solution**

The number of girls who cleared cutoff of VA only will be a multiple of 37. If it is 74, then number of girls who cleared cutoffs of QA only and DILR only will be 66 and 58 respectively, (since, number of girls who cleared cut off for QA, VA, DILR is in AP with common difference 8) and number of boys who cleared cutoff of VA only will be 60. This will give us the number of boys who cleared cutoff of VA and DILR only as 80. This will contradict the fact that total number of candidates is 300. Hence, number of girls who cleared cutoff of VA only will be 37. Now, number of girls who cleared cutoffs of QA only and DILR only will be 29 and 21 respectively. Also, the number of boys who cleared cutoff of VA only was 25% less than the number of boys who cleared cutoff of VA and DILR only. Hence, number of boys who cleared cutoff of VA and DILR only will be 40.

Now, the number of girls who cleared cutoff of all the three sections was 75% more than the number of boys who cleared cutoff of all the three sections. Hence, the number of girls and the number of boys who cleared cutoff of all the three sections will be in the ratio 7:4.

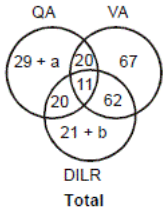
Le the number of girls and number of boys who cleared cut off be 7K and 4K respectively.

From the information of, number of candidates who cleared cut offs of QA and VA only is equal to the number of candidates who cleared cut offs of QA and DILR only, we conclude,
$(y + 7k) + (8k + 4k) = (y + 7k) + (z + 4k) \Rightarrow z = 8k$




Also, $\frac{31}{73} = \frac{y + 7k + 8k + 4k}{7k + 21k + 1 + 4k + 40} \Rightarrow \frac{31}{73} = \frac{y + 19k}{32k + 41}$

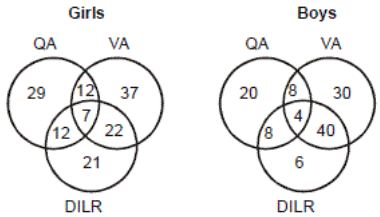
Thus, k has to be 1.
$\therefore y = 12.$




$29 + a + 20 + 11 + 20 = 100$
$\Rightarrow a = 20$

$20 + 11 + 62 + 21 + b = 120$
$\Rightarrow b = 6.$

Thus, analysis leads to the following break-ups of the number of boys and girls who cleared cutoff in various sections:




The required difference = (20 + 8 + 8 + 4 + 30 + 40 + 6) – (29 + 37 + 21 + 20) = 9

FeedBack

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

**Five friends – P, Q, R, S and T – went to Nayi Sarak and bought one book each of Harry Potter series from among Philosopher's Stone, Chamber of Secrets, Goblet of Fire, Prisoner of Azkaban and Order of Phoenix at prices Rs.100, Rs. 70, Rs. 80, Rs. 90 and Rs. 50 – not necessarily in the same order. After reading the books, each of them sold his/her book at a different price from among Rs.100, Rs. 70, Rs. 80, Rs. 90 and Rs. 50. Following information is also available.**

**(i) The absolute difference between the buying and the selling price of a book bought by any friend is denoted by 'x'. The maximum possible value of x was Rs.30.**
**(ii) Philosopher's stone was sold at Rs.20 less than the price at which Chamber of Secrets was sold.**
**(iii) The absolute difference between the buying prices of Prisoner of Azkaban and Goblet of Fire was the same as the absolute difference between the buying prices of Goblet of Fire and Chamber of Secrets, with Chamber of Secrets having the highest buying price among these three books.**
**(iv) None of the books was sold at a price equal to its buying price.**
**(v) S sold his book, Prisoner of Azkaban, at a price that was Rs. 40 less than the price at which Q bought "Goblet of Fire".**

**Q.51**
**For which of the following books, the value of x is certainly not the maximum?**

1 **Order of Phoenix**

2 **Philosopher's Stone**

3 **Goblet of Fire**

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

✔

**Bookmark**

**Answer key/Solution**

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

Let the five mentioned books Philosopher's Stone, Chamber of Secrets, Goblet of Fire, Prisoner of Azkaban and Order of Phoenix be denoted as PS, CS, GF, PA and OP respectively.

From statement (iii), the possible buying prices (in Rs.) of CS, GF and PA can be

| Book | Case I | Case II | Case III |
|---|---|---|---|
| CS | 100 | 90 | 90 |
| GF | 90 | 80 | 70 |
| PA | 80 | 70 | 50 |

From statement (ii), we can say that only the first case is possible. Also the selling price of PA is Rs. 50 only.

As buying price of CS is Rs. 100 so its selling price cannot be Rs. 100, but can be either Rs. 70 or Rs. 90. The corresponding possible selling prices of PS can be either Rs. 50 or Rs. 70.

Since, Rs. 50 is the selling price of PA so it cannot be the selling price of PS. Hence, the selling prices of PS and CS are Rs. 70 and Rs. 90 respectively.

As the selling price of PS is Rs. 70, its buying price cannot be Rs. 70 and the only possible buying price of PS is Rs. 50.

⇒ Buying price of OP = Rs. 70

The final table is given below:

| Book | Buying Price | Selling Price | Profit(+)/Loss(–) |
|---|---|---|---|
| PS | 50 | 70 | +20 |
| CS | 100 | 90 | –10 |
| GF | 90 | 100/80 | ±10 |
| PA | 80 | 50 | –30 |
| OP | 70 | 80/100 | +10/+30 |

From the table, we can see that the value of x is not the maximum for PS, CS and GF. Among the given options, (2) and (3) are correct. Hence, option (4) is the answer.

FeedBack

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

**Five friends – P, Q, R, S and T – went to Nayi Sarak and bought one book each of Harry Potter series from among Philosopher's Stone, Chamber of Secrets, Goblet of Fire, Prisoner of Azkaban and Order of Phoenix at prices Rs.100, Rs. 70, Rs. 80, Rs. 90 and Rs. 50 – not necessarily in the same order. After reading the books, each of them sold his/her book at a different price from among Rs.100, Rs. 70, Rs. 80, Rs. 90 and Rs. 50. Following information is also available.**
**(i) The absolute difference between the buying and the selling price of a book bought by any friend is denoted by 'x'. The maximum possible value of x was Rs.30.**
**(ii) Philosopher's stone was sold at Rs.20 less than the price at which Chamber of Secrets was sold.**
**(iii) The absolute difference between the buying prices of Prisoner of Azkaban and Goblet of Fire was the same as the absolute difference between the buying prices of Goblet of Fire and Chamber of Secrets, with Chamber of Secrets having the highest buying price among these three books.**
**(iv) None of the books was sold at a price equal to its buying price.**

**(v) S sold his book, Prisoner of Azkaban, at a price that was Rs. 40 less than the price at which Q bought "Goblet of Fire".**

**Q.52**
**For which of the following books the value of x was definitely Rs. 10?**

1 **Order of Phoenix**

2 **Philosopher's Stone**

3 **Goblet of Fire**

4 **Prisoner of Azkaban**

**Bookmark**

**Answer key/Solution**

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

Let the five mentioned books Philosopher's Stone, Chamber of Secrets, Goblet of Fire, Prisoner of Azkaban and Order of Phoenix be denoted as PS, CS, GF, PA and OP respectively.

From statement (iii), the possible buying prices (in Rs.) of CS, GF and PA can be

| Book | Case I | Case II | Case III |
|---|---|---|---|
| CS | 100 | 90 | 90 |
| GF | 90 | 80 | 70 |
| PA | 80 | 70 | 50 |

From statement (ii), we can say that only the first case is possible. Also the selling price of PA is Rs. 50 only.

As buying price of CS is Rs. 100 so its selling price cannot be Rs. 100, but can be either Rs. 70 or Rs. 90. The corresponding possible selling prices of PS can be either Rs. 50 or Rs. 70.

Since, Rs. 50 is the selling price of PA so it cannot be the selling price of PS. Hence, the selling prices of PS and CS are Rs. 70 and Rs. 90 respectively.

As the selling price of PS is Rs. 70, its buying price cannot be Rs. 70 and the only possible buying price of PS is Rs. 50.

⇒ Buying price of OP = Rs. 70

The final table is given below:

| Book | Buying Price | Selling Price | Profit(+)/Loss(–) |
|---|---|---|---|
| PS | 50 | 70 | +20 |
| CS | 100 | 90 | –10 |
| GF | 90 | 100/80 | ±10 |
| PA | 80 | 50 | –30 |
| OP | 70 | 80/100 | +10/+30 |

For CS and GF, the value of x is Rs. 10. Among the given choices, option (3) is correct.

FeedBack

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

**Five friends – P, Q, R, S and T – went to Nayi Sarak and bought one book each of Harry Potter series from among Philosopher's Stone, Chamber of Secrets, Goblet of Fire, Prisoner of Azkaban and Order of Phoenix at prices Rs.100, Rs. 70, Rs. 80, Rs. 90 and Rs. 50 – not necessarily in the same order. After reading the books, each of them sold his/her book at a different price from among Rs.100, Rs. 70, Rs. 80, Rs. 90 and Rs. 50. Following information is also available.**
**(i) The absolute difference between the buying and the selling price of a book bought by any friend is denoted by 'x'. The maximum possible value of x was Rs.30.**
**(ii) Philosopher's stone was sold at Rs.20 less than the price at which Chamber of Secrets was sold.**
**(iii) The absolute difference between the buying prices of Prisoner of Azkaban and Goblet of Fire was the same as the absolute difference between the buying prices of Goblet of Fire and Chamber of Secrets, with Chamber of Secrets having the highest buying price among these three books.**
**(iv) None of the books was sold at a price equal to its buying price.**
**(v) S sold his book, Prisoner of Azkaban, at a price that was Rs. 40 less than the price at which Q bought "Goblet of Fire".**

**Q.53**
**What was the profit earned by the seller of the book Philosopher's Stone?**

1 **Rs. 10**

2 **Rs. 20**

3 Rs. 30

4 Cannot be determined

✔

Bookmark

Answer key/Solution

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

Let the five mentioned books Philosopher's Stone, Chamber of Secrets, Goblet of Fire, Prisoner of Azkaban and Order of Phoenix be denoted as PS, CS, GF, PA and OP respectively.

From statement (iii), the possible buying prices (in Rs.) of CS, GF and PA can be

| Book | Case I | Case II | Case III |
|---|---|---|---|
| CS | 100 | 90 | 90 |
| GF | 90 | 80 | 70 |
| PA | 80 | 70 | 50 |

From statement (ii), we can say that only the first case is possible. Also the selling price of PA is Rs. 50 only.

As buying price of CS is Rs. 100 so its selling price cannot be Rs. 100, but can be either Rs. 70 or Rs. 90. The corresponding possible selling prices of PS can be either Rs. 50 or Rs. 70.

Since, Rs. 50 is the selling price of PA so it cannot be the selling price of PS. Hence, the selling prices of PS and CS are Rs. 70 and Rs. 90 respectively.

As the selling price of PS is Rs. 70, its buying price cannot be Rs. 70 and the only possible buying price of PS is Rs. 50.

⇒ Buying price of OP = Rs. 70

The final table is given below:

| Book | Buying Price | Selling Price | Profit(+)/Loss(–) |
|---|---|---|---|
| PS | 50 | 70 | +20 |
| CS | 100 | 90 | –10 |
| GF | 90 | 100/80 | ±10 |
| PA | 80 | 50 | –30 |
| OP | 70 | 80/100 | +10/+30 |

The profit earned by the seller of the book PS is Rs. 20.

FeedBack

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

**Five friends – P, Q, R, S and T – went to Nayi Sarak and bought one book each of Harry Potter series from among Philosopher's Stone, Chamber of Secrets, Goblet of Fire, Prisoner of Azkaban and Order of Phoenix at prices Rs.100, Rs. 70, Rs. 80, Rs. 90 and Rs. 50 – not necessarily in the same order. After reading the books, each of them sold his/her book at a different price from among Rs.100, Rs. 70, Rs. 80, Rs. 90 and Rs. 50. Following information is also available.**
**(i) The absolute difference between the buying and the selling price of a book bought by any friend is denoted by 'x'. The maximum possible value of x was Rs.30.**
**(ii) Philosopher's stone was sold at Rs.20 less than the price at which Chamber of Secrets was sold.**
**(iii) The absolute difference between the buying prices of Prisoner of Azkaban and Goblet of Fire was the same as the absolute difference between the buying prices of Goblet of Fire and Chamber of Secrets, with Chamber of Secrets having the highest buying price among these three books.**
**(iv) None of the books was sold at a price equal to its buying price.**
**(v) S sold his book, Prisoner of Azkaban, at a price that was Rs. 40 less than the price at which Q bought "Goblet of Fire".**

**Q.54**
**If P made a profit of Rs. 30 after selling his book, then which of the following books was bought by P?**

1 Philosopher's Stone

2 Goblet of Fire

3 Prisoner of Azkaban

4 Order of Phoenix

✔

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

Bookmark

Answer key/Solution

Let the five mentioned books Philosopher's Stone, Chamber of Secrets, Goblet of Fire, Prisoner of Azkaban and Order of Phoenix be denoted as PS, CS, GF, PA and OP respectively.

From statement (iii), the possible buying prices (in Rs.) of CS, GF and PA can be

| Book | Case I | Case II | Case III |
|---|---|---|---|
| CS | 100 | 90 | 90 |
| GF | 90 | 80 | 70 |
| PA | 80 | 70 | 50 |

From statement (ii), we can say that only the first case is possible. Also the selling price of PA is Rs. 50 only.

As buying price of CS is Rs. 100 so its selling price cannot be Rs. 100, but can be either Rs. 70 or Rs. 90. The corresponding possible selling prices of PS can be either Rs. 50 or Rs. 70.

Since, Rs. 50 is the selling price of PA so it cannot be the selling price of PS. Hence, the selling prices of PS and CS are Rs. 70 and Rs. 90 respectively.

As the selling price of PS is Rs. 70, its buying price cannot be Rs. 70 and the only possible buying price of PS is Rs. 50.

⇒ Buying price of OP = Rs. 70

The final table is given below:

| Book | Buying Price | Selling Price | Profit(+)/Loss(–) |
|---|---|---|---|
| PS | 50 | 70 | +20 |
| CS | 100 | 90 | –10 |
| GF | 90 | 100/80 | ±10 |
| PA | 80 | 50 | –30 |
| OP | 70 | 80/100 | +10/+30 |

The only possibility is OP.

FeedBack

**Directions for questions 55 to 58: Read the following information and answer the items that follow:**

**The numbers written on T-shirts of eight children are 1, 2, 3, 4, 5, 6, 7 and 8, with one number on a T-shirt.**
**On a particular day, each of the eight children ate exactly one fruit out of three different types of fruits – apple, orange and mango. Each type of fruit is eaten by at least one child but not more than three children. The consecutive time slots of the day in which the eight children ate fruits were I, II, III, IV, V, VI, VII and VIII, in that order.**

**Additional Information Given:**
**A. No two fruits of the same type were eaten in any two consecutive time slots.**
**B. No two children with two consecutive numbers on their T-shirts ate either a mango or an apple.**
**C. Three children with three consecutive numbers on their T-shirts ate an orange each.**
**D. The children with T-shirts numbered 1 and 7 ate an apple and a mango respectively.**

**Q.55**
**Which of the following fruits did child with T-shirt numbered 4 eat?**

1 **Apple**

2 **Orange**

3 **Mango**

4 **Either (1) or (2) or (3)**

✔

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

Bookmark

Answer key/Solution

Let an apple, an orange and a mango be denoted by A, O and M respectively.
From the additional information (B), (C) and (D), the following table lists down the three cases that are possible.

| | Number on T-shirts | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case 1 | A | O | O | O | M | A | M | A |
| Case 2 | A | M | O | O | O | A | M | A |
| Case 3 | A | M | A | O | O | O | M | A |

In all the three cases, child with T-shirt numbered 4 will always eat an Orange.

FeedBack

**Directions for questions 55 to 58: Read the following information and answer the items that follow:**

**The numbers written on T-shirts of eight children are 1, 2, 3, 4, 5, 6, 7 and 8, with one number on a T-shirt.**
**On a particular day, each of the eight children ate exactly one fruit out of three different types of fruits – apple, orange and mango. Each type of fruit is eaten by at least one child but not more than three children. The consecutive time slots of the day in which the eight children ate fruits were I, II, III, IV, V, VI, VII and VIII, in that order.**

**Additional Information Given:**
**A. No two fruits of the same type were eaten in any two consecutive time slots.**
**B. No two children with two consecutive numbers on their T-shirts ate either a mango or an apple.**
**C. Three children with three consecutive numbers on their T-shirts ate an orange each.**
**D. The children with T-shirts numbered 1 and 7 ate an apple and a mango respectively.**

**Q.56**
**If the time slots in which children with T-shirts numbered 3, 1 and 7 ate fruits were IV, V and III respectively, then which of the following MUST be false?**

1 ◯ **The time slot in which child with T-shirt numbered 2 ate fruit was II.**

2 ◯ **The time slot in which children with T-shirts numbered 4 and 5 ate fruits was VI and VII respectively.**

3 ◯ **The time slot in which children with T-shirts numbered 2 and 5 ate fruits was VI and VIII respectively.**

4 ◯ **The time slot in which children with T-shirts numbered 6 and 8 ate fruits was VI and VII respectively.**

**Bookmark**

**Answer key/Solution**

**Solution:**
**Correct Answer : 4**
Let an apple, an orange and a mango be denoted by A, O and M respectively.
From the additional information (B), (C) and (D), the following table lists down the three cases that are possible.

| | Number on T-shirts | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case 1 | A | O | O | O | M | A | M | A |
| Case 2 | A | M | O | O | O | A | M | A |
| Case 3 | A | M | A | O | O | O | M | A |

We are given that the time slots in which children with T-shirts numbered 3, 1 and 7 ate the fruit is IV, V and III respectively.
So, Case 3 is not possible as in Case 3 children with T-shirts numbered 3 and 1 eat an apple and this violates the additional information (A).
Option (1): It is possible in the following manner:

| Number on T-shirts | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Time slot | V | II | IV | VI | VII | VIII | III | I |
| Fruit | A | O | O | O | M | A | M | A |

Option (2): It is possible as shown in the table given for option (1).
Option (3): It is possible in the following manner:

| Number on T-shirts | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Time slot | V | VI | IV | II | VIII | VII | III | I |
| Fruit | A | O | O | O | M | A | M | A |

Option (4): It is not possible because in Case 1 as well as in Case 2; children with T-shirts numbered 6 and 8 ate an apple each and this violates the additional information (A) given.
Hence, option (4) is the correct choice.

FeedBack

**Directions for questions 55 to 58: Read the following information and answer the items that follow:**

**The numbers written on T-shirts of eight children are 1, 2, 3, 4, 5, 6, 7 and 8, with one number on a T-shirt.**
**On a particular day, each of the eight children ate exactly one fruit out of three different types of fruits – apple, orange and mango. Each type of fruit is eaten by at least one child but not more than three children. The consecutive time slots of the day in which the eight children ate fruits were I, II, III, IV, V, VI, VII and VIII, in that order.**

**Additional Information Given:**
**A. No two fruits of the same type were eaten in any two consecutive time slots.**
**B. No two children with two consecutive numbers on their T-shirts ate either a mango or an apple.**
**C. Three children with three consecutive numbers on their T-shirts ate an orange each.**
**D. The children with T-shirts numbered 1 and 7 ate an apple and a mango respectively.**

**Q.57**
**If the time slots in which children with T-shirts numbered 5 and 3 ate fruits were I and II respectively, then each of the following statements could be true, EXCEPT:**

1 ◯ **The time slot in which child with T-shirt numbered 4 ate fruit was III.**

2 ◯ **The time slots in which children with T-shirts numbered 6 and 8 ate fruits were III and IV respectively.**

3 ◯ **The time slots in which children with T-shirts numbered 1 and 8 ate fruits were V and VI respectively.**

4 ◯ **Both (2) and (3)**

✔

**Bookmark**

**Answer key/Solution**

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

Let an apple, an orange and a mango be denoted by A, O and M respectively.
From the additional information (B), (C) and (D), the following table lists down the three cases that are possible.

| | Number on T-shirts | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case 1 | A | O | O | O | M | A | M | A |
| Case 2 | A | M | O | O | O | A | M | A |
| Case 3 | A | M | A | O | O | O | M | A |

Given that the time slots in which children with T-shirts numbered 5 and 3 ate the fruits is I and II respectively. This means that Case 2 is not possible.

Option (1): It is possible in the following manner:

| Number on T-shirts | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Time slot | V | IV | II | III | I | VIII | VI | VII |
| Fruit | A | M | A | O | O | O | M | A |

Option (2): It is possible in the following manner:

| Number on T-shirts | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Time slot | VIII | V | II | VI | I | III | VII | IV |
| Fruit | A | M | A | O | O | O | M | A |

Option (3): Is not possible because in Case 1 as well as in Case 3, children with T-shirts numbered 1 and 8 ate an apple each and henceforth the mentioned two children cannot eat the fruit in time slots V and VI respectively as it violates the additional information (1).
Hence, option (3) is the correct choice.

FeedBack

**Directions for questions 55 to 58: Read the following information and answer the items that follow:**

**The numbers written on T-shirts of eight children are 1, 2, 3, 4, 5, 6, 7 and 8, with one number on a T-shirt.**
**On a particular day, each of the eight children ate exactly one fruit out of three different types of fruits – apple, orange and mango. Each type of fruit is eaten by at least one child but not more than three children. The consecutive time slots of the day in which the eight children ate fruits were I, II, III, IV, V, VI, VII and VIII, in that order.**

**Additional Information Given:**
**A. No two fruits of the same type were eaten in any two consecutive time slots.**
**B. No two children with two consecutive numbers on their T-shirts ate either a mango or an apple.**
**C. Three children with three consecutive numbers on their T-shirts ate an orange each.**
**D. The children with T-shirts numbered 1 and 7 ate an apple and a mango respectively.**

**Q.58**

**Which of the following sequences of fruits eaten by children with T-shirts numbered 2, 3, 5 and 8, in that order, is not possible?**

1 **Orange, Orange, Mango and Apple**

2 **Mango, Orange, Mango and Apple**

3 **Orange, Orange, Apple and Apple**

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

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

Let an apple, an orange and a mango be denoted by A, O and M respectively.
From the additional information (B), (C) and (D), the following table lists down the three cases that are possible.

| | Number on T-shirts | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case 1 | A | O | O | O | M | A | M | A |
| Case 2 | A | M | O | O | O | A | M | A |
| Case 3 | A | M | A | O | O | O | M | A |

Referring the table that lists down all the three possible cases
Option (1): It is possible in Case 1
Option (2): It is not possible
Option (3): It is not possible
Hence, option (4) is the correct choice.

FeedBack

Bookmark

Answer key/Solution

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

**Nine girls – G1, G2, G3, G4, G5, G6, G7, G8 and G9 – belonging to three different colleges participated in five cultural events – Aadhaar, Aagama, Aaghaaz, Aagneya and Aagomani – held in Delhi in 2016. G1 and G2 are from Avanti College; G3, G4, G5 and G6 are from Diksha College; G7, G8 and G9 are from Uday College. G4 and G7 participated in Aadhaar; G1, G2, G3 and G5 in Aagomani; G4, G7 and G9 in Aagama; G6 and G9 in Aaghaaz; and G2 and G8 in Aagneya. In each event, at least one dancer participated and there is exactly one dancer from each college.**

**Q.59**
**Who is definitely a dancer?**

1 **G4**

2 **G9**

3 **G2**

4 **G6**

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

Bookmark

Answer key/Solution

The given information can be tabulated as below:

| College | Students |
|---|---|
| Avanti | G1, G2 |
| Diksha | G3, G4, G5, G6 |
| Uday | G7, G8, G9 |

| Events | Students |
|---|---|
| Aadhaar | G4, G7 |
| Aagomani | G1, G2, G3, G5 |
| Aagama | G4, G7, G9 |
| Aaghaaz | G6, G9 |
| Aagneya | G2, G8 |

Since in each event, at least one dancer participated and there is exactly one dancer from each college, the following two combinations area possible:

| College | Dancer |
|---|---|
| Avanti | G2 |
| Diksha | G4 |
| Uday | G9 |

| College | Dancer |
|---|---|
| Avanti | G2 |
| Diksha | G6 |
| Uday | G7 |

G2 is definitely a dancer.

FeedBack

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

**Nine girls – G1, G2, G3, G4, G5, G6, G7, G8 and G9 – belonging to three different colleges participated in five cultural events – Aadhaar, Aagama, Aaghaaz, Aagneya and Aagomani – held in Delhi in 2016. G1 and G2 are from Avanti College; G3, G4, G5 and G6 are from Diksha College; G7, G8 and G9 are from Uday College. G4 and G7 participated in Aadhaar; G1, G2, G3 and G5 in Aagomani; G4, G7 and G9 in Aagama; G6 and G9 in Aaghaaz; and G2 and G8 in Aagneya. In each event, at least one dancer participated and there is exactly one dancer from each college.**

**Q.60**
**In which of the following events could more than one dancer participate?**

1 **Aagama**

2 **Aaghaaz**

3 **Aagneya**

4 **Aadhaar**

**Solution:**
**Correct Answer : 1**

**Bookmark**

**Answer key/Solution**

The given information can be tabulated as below:

| College | Students |
|---|---|
| Avanti | G1, G2 |
| Diksha | G3, G4, G5, G6 |
| Uday | G7, G8, G9 |

| Events | Students |
|---|---|
| Aadhaar | G4, G7 |
| Aagomani | G1, G2, G3, G5 |
| Aagama | G4, G7, G9 |
| Aaghaaz | G6, G9 |
| Aagneya | G2, G8 |

Since in each event, at least one dancer participated and there is exactly one dancer from each college, the following two combinations area possible:

| College | Dancer |
|---|---|
| Avanti | G2 |
| Diksha | G4 |
| Uday | G9 |

| College | Dancer |
|---|---|
| Avanti | G2 |
| Diksha | G6 |
| Uday | G7 |

In Aagama more than one dancer could participate.

FeedBack

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

**Nine girls – G1, G2, G3, G4, G5, G6, G7, G8 and G9 – belonging to three different colleges participated in five cultural events – Aadhaar, Aagama, Aaghaaz, Aagneya and Aagomani – held in Delhi in 2016. G1 and G2 are from Avanti College; G3, G4, G5 and G6 are from Diksha College; G7, G8 and G9 are from Uday College. G4 and G7 participated in Aadhaar; G1, G2, G3 and G5 in Aagomani; G4, G7 and G9 in Aagama; G6 and G9 in Aaghaaz; and G2 and G8 in Aagneya. In each event, at least one dancer participated and there is exactly one dancer from each college.**

**Q.61**
**Who among the following is definitely not a dancer?**

1 **G2**

2 **G6**

3 **G4**

4 **G3**

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

**Bookmark**

**Answer key/Solution**

The given information can be tabulated as below:

| College | Students |
|---|---|
| Avanti | G1, G2 |
| Diksha | G3, G4, G5, G6 |
| Uday | G7, G8, G9 |

| Events | Students |
|---|---|
| Aadhaar | G4, G7 |
| Aagomani | G1, G2, G3, G5 |
| Aagama | G4, G7, G9 |
| Aaghaaz | G6, G9 |
| Aagneya | G2, G8 |

Since in each event, at least one dancer participated and there is exactly one dancer from each college, the following two combinations area possible:

| College | Dancer |
|---|---|
| Avanti | G2 |
| Diksha | G4 |
| Uday | G9 |

| College | Dancer |
|---|---|
| Avanti | G2 |
| Diksha | G6 |
| Uday | G7 |

G3 is definitely not a dancer.

FeedBack

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

**Nine girls – G1, G2, G3, G4, G5, G6, G7, G8 and G9 – belonging to three different colleges participated in five cultural events – Aadhaar, Aagama, Aaghaaz, Aagneya and Aagomani – held in Delhi in 2016. G1 and G2 are from Avanti College; G3, G4, G5 and G6 are from Diksha College; G7, G8 and G9 are from Uday College. G4 and G7 participated in Aadhaar; G1, G2, G3 and G5 in Aagomani; G4, G7 and G9 in Aagama; G6 and G9 in Aaghaaz; and G2 and G8 in Aagneya. In each event, at least one dancer participated and there is exactly one dancer from each college.**

**Q.62**
**Who is the dancer from Diksha College?**

1 **G4**

2 **G6**

3 **G3**

4 **Either (1) or (2)**

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

**Bookmark**

**Answer key/Solution**

The given information can be tabulated as below:

| College | Students |
|---|---|
| Avanti | G1, G2 |
| Diksha | G3, G4, G5, G6 |
| Uday | G7, G8, G9 |

| Events | Students |
|---|---|
| Aadhaar | G4, G7 |
| Aagomani | G1, G2, G3, G5 |
| Aagama | G4, G7, G9 |
| Aaghaaz | G6, G9 |
| Aagneya | G2, G8 |

Since in each event, at least one dancer participated and there is exactly one dancer from each college, the following two combinations area possible:

| College | Dancer |
|---|---|
| Avanti | G2 |
| Diksha | G4 |
| Uday | G9 |

| College | Dancer |
|---|---|
| Avanti | G2 |
| Diksha | G6 |
| Uday | G7 |

Either G4 or G6 is a dancer from Diksha College.

FeedBack

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

**Eight persons – A, B, C, D, E, F, G and H – are sitting around a circle. Some of them are facing centre while others are facing outwards. Each of them plays exactly one game among 8 different games–Cricket, Badminton, Hockey, Football, Lawn Tennis, Table Tennis, Carrom and Squash– not necessarily in the same order. Further it is also known that:**
**(i) Three persons sit between the one who plays Hockey and the one who plays Squash and the same is true for the one who plays Lawn Tennis and the one who plays Football.**
**(ii) The person who plays Cricket sits second to the right of person who plays squash and the person who plays Table Tennis sits third to the right of the person who plays Cricket.**
**(iii) A plays squash and C plays Table Tennis. E faces away from the centre.**
**(iv) D, who does not play Cricket is sitting fourth to the right of B and A is sitting third to the right of C.**
**(v) The person who plays Hockey sits third to the right of the person who plays Badminton and The person who plays Carrom sits third to the right of the person who plays Football.**
**(vi) G sits fourth to the right of the person who plays Lawn Tenni and the person who plays Hockey sits second to the right of D.**
**(vii) The person who plays Lawn Tennis sits third to the left of the person who plays Hockey and both face the same direction.**

**Q.63**
**Who among the following plays Hockey?**

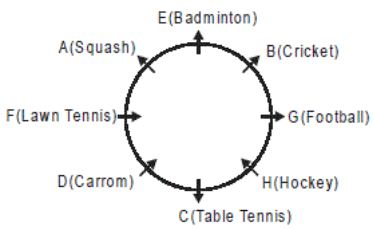
1 ◯ **H**

2 ◯ **B**

3 ◯ **C**

4 ◯ **E**

**Solution:**
**Correct Answer : 1**




FeedBack

**Bookmark**

**Answer key/Solution**

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

**Eight persons – A, B, C, D, E, F, G and H – are sitting around a circle. Some of them are facing centre while others are facing outwards. Each of them plays exactly one game among 8 different games–Cricket, Badminton, Hockey, Football, Lawn Tennis, Table Tennis, Carrom and Squash– not necessarily in the same order. Further it is also known that:**
**(i) Three persons sit between the one who plays Hockey and the one who plays Squash and the same is true for the one who plays Lawn Tennis and the one who plays Football.**
**(ii) The person who plays Cricket sits second to the right of person who plays squash and the person who plays Table Tennis sits third to the right of the person who plays Cricket.**
**(iii) A plays squash and C plays Table Tennis. E faces away from the centre.**
**(iv) D, who does not play Cricket is sitting fourth to the right of B and A is sitting third to the right of C.**
**(v) The person who plays Hockey sits third to the right of the person who plays Badminton and The person who plays Carrom sits third to the right of the person who plays Football.**
**(vi) G sits fourth to the right of the person who plays Lawn Tenni and the person who plays Hockey sits second to the right of D.**
**(vii) The person who plays Lawn Tennis sits third to the left of the person who plays Hockey and both face the same direction.**

**Q.64**
**If E is related to C and B is related to D, then in the same way A is related to?**

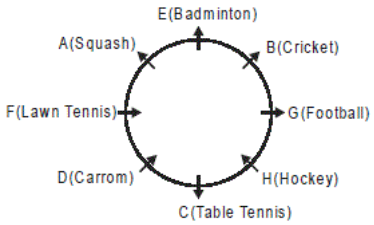
1 **A**

2 **B**

3 **H**

4 **E**

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




FeedBack

Bookmark

Answer key/Solution

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

**Eight persons – A, B, C, D, E, F, G and H – are sitting around a circle. Some of them are facing centre while others are facing outwards. Each of them plays exactly one game among 8 different games–Cricket, Badminton, Hockey, Football, Lawn Tennis, Table Tennis, Carrom and Squash– not necessarily in the same order. Further it is also known that:**
**(i) Three persons sit between the one who plays Hockey and the one who plays Squash and the same is true for the one who plays Lawn Tennis and the one who plays Football.**
**(ii) The person who plays Cricket sits second to the right of person who plays squash and the person who plays Table Tennis sits third to the right of the person who plays Cricket.**
**(iii) A plays squash and C plays Table Tennis. E faces away from the centre.**
**(iv) D, who does not play Cricket is sitting fourth to the right of B and A is sitting third to the right of C.**
**(v) The person who plays Hockey sits third to the right of the person who plays Badminton and The person who plays Carrom sits third to the right of the person who plays Football.**
**(vi) G sits fourth to the right of the person who plays Lawn Tenni and the person who plays Hockey sits second to the right of D.**
**(vii) The person who plays Lawn Tennis sits third to the left of the person who plays Hockey and both face the same direction.**

**Q.65**
**Who among the following sits third to the right of the person who plays Squash?**

1 **F**

2 **D**

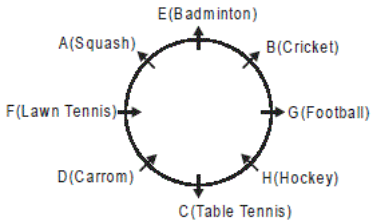
3 **G**

4 **H**

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

Bookmark

Answer key/Solution




FeedBack

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

**Eight persons – A, B, C, D, E, F, G and H – are sitting around a circle. Some of them are facing centre while others are facing outwards. Each of them plays exactly one game among 8 different games–Cricket, Badminton, Hockey, Football, Lawn Tennis, Table Tennis, Carrom and Squash– not necessarily in the same order. Further it is also known that:**
**(i) Three persons sit between the one who plays Hockey and the one who plays Squash and the same is true for the one who plays Lawn Tennis and the one who plays Football.**
**(ii) The person who plays Cricket sits second to the right of person who plays squash and the person who plays Table Tennis sits third to the right of the person who plays Cricket.**
**(iii) A plays squash and C plays Table Tennis. E faces away from the centre.**
**(iv) D, who does not play Cricket is sitting fourth to the right of B and A is sitting third to the right of C.**
**(v) The person who plays Hockey sits third to the right of the person who plays Badminton and The person who plays Carrom sits third to the right of the person who plays Football.**
**(vi) G sits fourth to the right of the person who plays Lawn Tenni and the person who plays Hockey sits second to the right of D.**
**(vii) The person who plays Lawn Tennis sits third to the left of the person who plays Hockey and both face the same direction.**

**Q.66**
**Which of the following is a correct combination?**

1 **E-Cricket**

2 **C-Hockey**

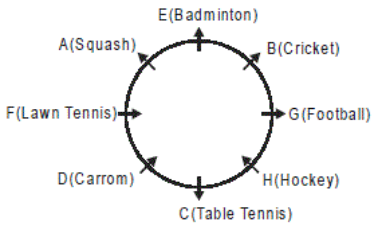
3 **D-Carrom**

4 **F-Football**

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

**Bookmark**

**Answer key/Solution**




D-Carrom

FeedBack

## Sec 3

**Q.67**
**Rajkishor can do a piece of work in 10 days working 8 hrs per day. Brijkishor, who is a friend of Rajkishor, is two-thirds as efficient as Rajkishor. If the two work alternately, without a break, for one hour each, how long (in hours) will it take to complete the work?**

✔

**Solution:**
**Correct Answer : 96**
**Your Answer : 96**

**Bookmark**

**Answer key/Solution**

Rajkishor can do a piece of work in 80 hours. Brijkishor works with two-third of the efficiency with which Rajkishor works. So he can do the same piece of work in $\frac{80\times3}{2}=120$ hours.

Now, when they work alternately for 1 hour each, the amount of work done by them in first two hours

$=\frac{1}{80}+\frac{1}{120}=\frac{1}{48}$

∴ Total time required = 48 × 2 = 96 hours.

FeedBack

**Q.68**

**If a + b = 9, where 'a' and 'b' are positive integers, then which of the following cannot be the digit at unit place of $a^{243} + b^{243} - (ab)^{243}$ ?**

1 **1**

2 **9**

3 **7**

4 **3**

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

Bookmark

Answer key/Solution

FeedBack

**Q.69**

**A perfect line is defined as a straight line the absolute value of which slope is equal to its shortest distance from the origin. Find the area enclosed by all such 'perfect' lines having absolute value of its slope equal to unity.**

1 **2 sq. units**

2 **4 sq. units**

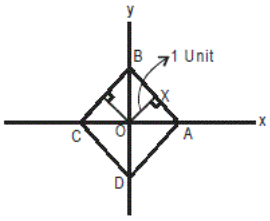
3 **8 sq. units**

4 **16 sq. units**

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

Bookmark

Answer key/Solution




Consider the line AB with absolute value of its slope equal to unity. OX = 1 unit. In right angle ΔOXA and ΔOXB, OX = XA = XB = 1 unit.
∴ AB = 2 units.

Consider the lines BC, CD and DA. All of them are 'perfect' straight lines and ABCD will form a square of area 4 sq. units.

FeedBack

**Q.70**

**The cost price of wheat increases by 20% and the selling price remains constant. To maintain the same percentage profit, the shopkeeper makes a mixture 12 kg by mixing some wheat with y kg of impurity, which comes at free of cost. Find the value of y.**

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

Price is increased by 20%, it has become $\frac{6P}{5}$.

So to neutralize this effect, he should give $\frac{5}{6}$ of the original quantity. That means impurity should be $\frac{1}{6}$ of the weight. Amount of impurity

$= \frac{1}{6} \times 12 = 2\text{kgs}.$

FeedBack

Bookmark

Answer key/Solution

**Q.71**

**$S_1$ and $S_2$ are two sets of parallel lines. The number of lines in $S_1$ is more than the number of lines in $S_2$. They intersect at 12 points. The number of parallelograms that can be formed by lines in $S_1$ and that in $S_2$ is**

1 **12 or 6**

2 **8 or 4**

3 **18**

4 **18 or 15**

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

Let there be m lines is $S_1$ and n lines in $S_2$ . The lines will intersect in mn points.
Therefore mn = 12.
**Case I:** m = 6, n = 2
The number of parallelograms that can be formed is
${}^6c_2 \times {}^2c_2 = 15 \times 1 = 15.$
**Case II:** m = 4, n = 3,
The number of parallelograms that can be formed is
${}^4c_2 \times {}^3c_2 = 6 \times 3 = 18$

FeedBack

Bookmark

Answer key/Solution

**Q.72**

**Chord AB of a circle, with centre 'O' and radius √5 units, is extended to point P. PT, which makes an angle of 45° with BT, is a tangent to the circle. The lengths of AB and TB are the same. Find the length of OP.**

1 **√10 units**

2 **2√5 units**

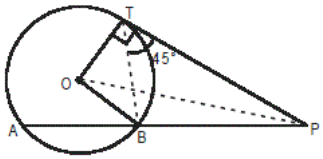
3 **5 units**

4 $\frac{5}{\sqrt{2}}$ units

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

Bookmark

Answer key/Solution




In the figure given above,
OT ⊥ PT as PT is a tangent.
Also, ∠BTP = 45°
⇒ ∠OTB = 45° (∠OTB is isosceles Δ)
Now ∠BOT = 90°
∴ ∠AOB = 90° [AB = BT]
∴ AT is diameter
In Δ ATP
∠ATP = 90°
∠TAP = 45°
∴ AT = TP = $2\sqrt{3}$
From ΔOTP,
$OP^2 = OT^2 + TP^2$
⇒ OP = 5 units.

FeedBack

**Q.73**

**The age (in years) of the three students in a class is 'x', 'y' and 'z' respectively. If $\frac{x}{y}=\frac{2}{7}$, then which of the following can be the value of $\left(\frac{x}{y}+\frac{x}{z}+\frac{z}{y}+\frac{z}{x}+\frac{y}{x}+\frac{y}{z}\right)$?**

1 **30/7**

2 **61/7**

3 **6**

4 **41/7**

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

**Bookmark**

**Answer key/Solution**

Given that $\frac{x}{y}=\frac{2}{7}$

$\Rightarrow \frac{y}{x}=\frac{7}{2}$

Since A.M ≥ G.M

$\frac{\frac{x}{z}+\frac{z}{x}}{2} \geq \sqrt{\frac{x}{z}\times\frac{z}{x}}$

$\Rightarrow \frac{x}{z}+\frac{z}{x} \geq 2$

Similarly,

$\frac{y}{z}+\frac{z}{y} \geq 2$

Thus, $\frac{x}{y}+\frac{y}{x}+\frac{x}{z}+\frac{z}{x}+\frac{y}{z}+\frac{z}{y} \geq \frac{2}{7}+\frac{7}{2}+2+2$

$\geq \frac{109}{14}$.

Only option (2) $\geq \frac{109}{14}$.

FeedBack

**Q.74**

$N_1 + N_2 + N_3 + \ldots + N_n = 100$, where $N_1, N_2, N_3, \ldots, N_n$ are n (n > 1) consecutive natural numbers such that $N_1 < N_2 < N_3 < N_4 \ldots\ldots < N_n$. How many values of n are possible?

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

**Bookmark**

**Answer key/Solution**

$N_1, N_2, \ldots N_n$ are 'n' numbers in Arithmetic Progression with common difference 1.

$\therefore N_n = N_1 + (n-1)1 = N_1 + n - 1$

$N_1 + N_2 + \ldots + N_n = \frac{n}{2}\{N_1 + N_n\}$

$= \frac{n}{2}\{2N_1 + (n-1)\}$

Now, $N_1 + N_2 + \ldots N_n = 100$

$\therefore n(2N_1 + n - 1) = 200$

200 can be broken into factors in the following ways:

$$200 = \begin{cases} 1\times200 \\ 2\times100 \\ 4\times50 \\ 5\times40 \\ 8\times25 \\ 10\times20 \\ 25\times8 \end{cases}$$

Only for n = 5 and n = 8 we get integral values of $N_1$

For, n = 5 : $2N_1 + n - 1 = 40 \Rightarrow 2N_1 = 36, N_1 = 18$

For, n = 8 : $2N_1 = 18 \Rightarrow N_1 = 9$

Hence, possible number of values of n is 2.

FeedBack

**Q.75**

**A milk vendor has two cans – C1 and C2 – of capacity of 300 litres each. Both the cans are full to the brim with milk-water solution. The concentration of milk in C1 is 75% and that in C2 is 50%. How much quantity of solution should the vendor mix from the C1 and C2 such that he gets 180 litres of solution having water and milk in the ratio of 3:5?**

1 ◯ **90 litres, 90 litres**

2 ◯ **72 litres, 108 litres**

3 ◯ **45 litres, 135 litres**

4 ◯ **40 litres, 140 litres**

✔

**Solution:**

**Correct Answer : 1**

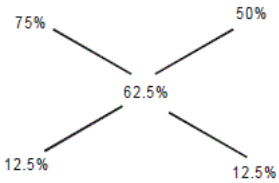
**Your Answer : 1**

Concentration of milk in the first can is 75%.

Concentration of milk in the second can is 50%.

Required concentration of milk is $\left(\frac{5}{8}\right) \times 100 = 62.5\%$.

Using allegation, we get




⇒ Ratio of the quantity of the milk solution from the two cans is 1:1.

FeedBack

**Bookmark**

**Answer key/Solution**

**Q.76**

**Single copy of a book costs $16, but a purchase of 20 or more books costs only $13 per book. How many values of n (n ≠ 0), less than 20 exist for which on could buy 20 copies at a lower total cost than one could buy exactly n copies of that book?**

1 ◯ **3**

2 ◯ **4**

3 ◯ **5**

4 ◯ **None of these**

**Solution:**

**Correct Answer : 1**

Bookmark

Answer key/Solution

n has to be less than 20.
Total cost of 20 copies = 13 × 20 = $260
Total cost of n copies = $16 × n
Now, $13 × 20 < $16 × n
⇒ n > 16.
Hence, n can take three values 17, 18 and 19.

FeedBack

**Q.77**

**'N' is a two-digit number more than 35 such that when the units digit of 'N' is erased, the resulting number is a factor of 'N'. What is the sum of all the possible values of 'N'?**

✖

**Solution:**

**Correct Answer : 942**

**Your Answer : 552**

Bookmark

Answer key/Solution

Let 'N' = AB, where A and B are digits.
N = 10A + B.
Now, since A is a factor of AB, A should divide (10A + B) completely.
This also means that A should divide B completely.
For B = 9, the possible values of A are 1, 3 and 9.
For B = 8, the possible values of A are 1, 2, 4 and 8.
Similarly, when the value of B is 7, 6, 5, 4, 3, 2 and 1 the values of A are the factors of each of the possible values of B.
For B = 0, the possible values of A are 1, 2, 3 ..., 8 and 9.
Let the sum of all such two-digit numbers more than 35 = S
⇒ S = 40 + 50 + 60 + 70 + 80 + 90 + 44 + 55 + 36 + 66 + 77 + 48 + 88 + 39 + 99 = 942.

FeedBack

**Q.78**

**A solid cone of radius 2 cm and height 6 cm is cut into two parts by making a cut parallel to its base such that the height of the upper part is twice that of the lower part. Find the volume of the lower part.**

1 $\frac{16}{27}\pi$ cm$^3$

2 $\frac{152}{27}\pi$ cm$^3$

3 $8\pi$ cm$^3$

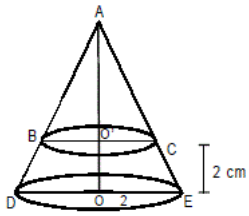
4 $\frac{64}{27}\pi$ cm$^3$

**Solution:**

**Correct Answer : 2**

Bookmark

Answer key/Solution




ΔAO'C and ΔAOE are similar.

Then $\frac{AO'}{AO}=\frac{O'C}{OE}$

$\Rightarrow \frac{4}{6}=\frac{O'C}{2} \Rightarrow O'C=\frac{4}{3}$ cm

Volume of cone ADE $=\frac{1}{3}\pi\times 2^2\times 6$

Volume of cone ABC $=\frac{1}{3}\times\pi\times\left(\frac{4}{3}\right)^2\times 4=\frac{64\pi}{27}$ cm³

Therefore, volume of frustum BCED
= Volume of ADE – Volume of ABC

$=\frac{24\pi}{3}-\frac{64\pi}{27}=\frac{216\pi-64\pi}{27}=\frac{152}{27}\pi$ cm³.

FeedBack

**Q.79**

**In a box containing 15 apples, there are 6 rotten apples. Each day one apple is taken out randomly from the box. What is the probability that after four day there are exactly 8 apples in the box that are not rotten?**

1 **12/91**

2 **1/7**

3 **2/13**

4 **2/7**

**Solution:**

**Correct Answer : 1**

Bookmark

Answer key/Solution

According to the condition, 3 rotten apples and 1 apple that is not rotten are taken out on first four days.
The one apple that is not rotten could be taken out on any of the four days.

**Case I:**
Probability of taking out the apple that is not rotten on the first day $=\frac{9}{15}\times\frac{6}{14}\times\frac{5}{13}\times\frac{4}{12}$

**Case II:**
Probability of taking out the apple that is not rotten on the second day $=\frac{6}{15}\times\frac{9}{14}\times\frac{5}{13}\times\frac{4}{12}$

**Case III:**
Probability of taking out the apple that is not rotten on the third day $=\frac{6}{15}\times\frac{5}{14}\times\frac{9}{13}\times\frac{4}{12}$

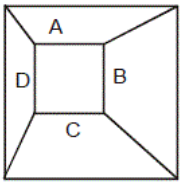
**Case IV:**
Probability of taking out the apple that is not rotten on the fourth day $=\frac{6}{15}\times\frac{5}{14}\times\frac{4}{13}\times\frac{9}{12}$

Required Probability $=4\times\left(\frac{9}{15}\times\frac{6}{14}\times\frac{5}{13}\times\frac{4}{12}\right)=\frac{12}{91}$.

FeedBack

**Q.80**

**In the given figure, consider a square inside a bigger square and the four vertices of the smaller square are joined to the vertices of the bigger square. The area of the four regions thus obtained are represented by A, B, C and D. Which of the following statements is necessarily TRUE regarding areas A, B, C and D?**




1 **A + B > C + D**

2 **A + B < C + D**

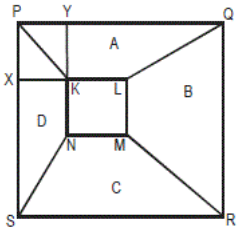
3 **A + C = B + D**

4 **Data insufficient**

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

Bookmark

Answer key/Solution




Let any side of the bigger square be 'a' and that of smaller square be 'b'
Also let KX = x and KY = y

Area A = ar(Trapezium PQLK) = $\frac{a+b}{2} \times y$

Area C = ar(Trapezium SNMR) = $\frac{(a+b)}{2}[a-b-y]$

$\therefore A + C = \frac{a+b}{2}[y + a - y - b] = \frac{(a+b)}{2}(a-b)$

Similarly Area B = ar(Trapezium QLMR)

$= \frac{(a+b)}{2}[a-x-b]$

and Area D = ar(Trapezium PKNS) = $\left(\frac{a+b}{2}\right)x$

$\Rightarrow B + D = \frac{1}{2}(a+b)[a-x-b+x]$

$= \frac{(a+b)}{2}(a-b)$

$\therefore A + C = B + D$

**Alternate method:**
All the four regions(A, B, C and D) are trapezium with parallel sides being identical.
Now, sum of heights of trapezium A and C
= sum of heights of trapezium B and D
= side of bigger square – side of smaller square
$\Rightarrow A + C = B + D$.

FeedBack

**Q.81**
**For how many values of ordered pair (a, b), where 'a' and 'b' are integers, and a ≠ 1 and b ≠ −1, the following system of linear equations will never have a unique solution?**
**(a − 1) x + 3y = 5**
**2x + (b + 1) y = 7**

1 **2**

2 **4**

3 **6**

4 **8**

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

Bookmark

Answer key/Solution

The condition for unique solution is $\frac{a-1}{2} \neq \frac{3}{b+1}$. As $b \neq -1$, we can write, $(a-1)(b+1) \neq 6$. Hence, [(a –1), (b + 1)] cannot be any of the following: (1, 6), (2, 3), (3, 2), (6, 1), (–1, –6), (–2, –3), (–3, –2) and (–6, –1). Accordingly, (a, b) can never be: (2, 5), (3, 2), (4, 1), (7, 0), (0, –7), (–1, –4), (–2, –3), (–5, –2). Hence there are eight such ordered pairs of (a, b) for which the two equations will not have a unique solution.

FeedBack

**Q.82**

**When a natural number P is multiplied by 9, the number obtained contains only 1's. Which of the following is definitely not a digit of P?**

1 ◯ **9**

2 ◯ **6**

3 ◯ **7**

4 ◯ **8**

✔

Bookmark

Answer key/Solution

**Solution:**

**Correct Answer : 4**

**Your Answer : 4**

9 × P = 1111...(n times)
The units digits of P has to be 9(∵ 9 × 9 = 81)
Thus, the tens digit of P, say x, should be such that
(9 × x) + 8 = 10k + 1, where k is a natural number.
⇒ x = 7 and k = 7.
The hundreds digit, say y, is such that
(9 × y) + 7 = 10a + 1, where a is a natural number.
⇒ y = 6.
Thus, 9, 7 and 6 are possible digits.

**Alternate method:**
For 8 to be a possible digit, 72 + b = 81, where b is a natural number.
⇒ b = 9.
⇒ there exists a single digits number which when multiplied by 9 gives a value 91.
This is not possible.
Thus, 8 is not a possible digit.

FeedBack

**Q.83**

**A function f is even if f(t) = f(–t), and it is odd if f(t) = –f(–t). Let f(x) = g(x) + h(x) and f(–x) = g(x) – h(–x). Which of the following is definitely correct?**

1 ◯ **Both f and h are even functions.**

2 ◯ **Both f and h are odd functions.**

3 ◯ **f is an even function and h is an odd function.**

4 ◯ **h is an even function and f is an odd function.**

Bookmark

Answer key/Solution

**Solution:**

**Correct Answer : 3**

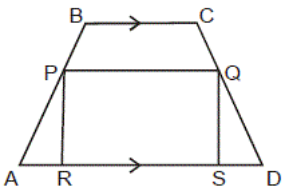
f(x) = g(x) + h(x) ...(i)
or f(–x) = g(–x) + h(–x) ...(ii) (substituting x = – x in (i))
And f(–x) = g(x) – h(–x) ...(iii)
Or f(x) = g(–x) – h(x) ...(iv) (substituting x = – x in (iii))
Adding (i) and (iv), 2f(x) = g(x) + g(–x)

Now adding (ii) and (iii), 2 f(–x) = g(x) + g(–x)
So f(x) = f(–x). Therefore f is an even function.
Subtracting (iv) from (i), 0 = g(x) – g(–x) + 2 h(x)
Now subtracting (ii) from (iii),
0 = g(x) – g(–x) – 2h(–x)
So h(x) = –h(–x). Therefore h is odd function.

FeedBack

**Q.84**

**In the figure given below, ABCD is an isosceles trapezium and PQSR is a square. If the length of BC, PQ and AD is 2, 3 and 6 units respectively, find the area of trapezium ABCD.**




1 **14 sq. units**

2 **12 sq. units**

3 **16 sq. units**

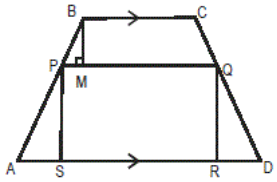
4 **18 sq. units**

**Solution:**

**Correct Answer : 3**

**Bookmark**

**Answer key/Solution**




Drop a perpendicular from point B on PQ.

∵ ABCD is an isosceles trapezium, therefore AS = RD.

$\Rightarrow AS = RD = \frac{AD - PQ}{2} = \frac{3}{2}$ units.

Also, $\Delta BMP \sim \Delta PSA \Rightarrow \frac{BM}{MP} = \frac{PS}{SA}$

$\Rightarrow BM = \frac{3}{\frac{3}{2}} \times \left(\frac{PQ - BC}{2}\right)$

$\Rightarrow BM = \frac{2 \times 1}{2} = 1$ units

Area of trapezium ABCD

$= \frac{1}{2}(BC + AD) \times (BM + PS)$

$= \frac{1}{2} \times 8 \times 4 = 16$ sq. units.

FeedBack

**Q.85**

**What is the probability that (a × b), where 'a' and 'b' are natural numbers not more than 6, is a perfect square?**

1 **5/36**

2 **2/9**

3 **7/36**

4 **1/6**

**Solution:**

**Correct Answer : 2**

**Bookmark**

**Answer key/Solution**

The only possible perfect squares which can be obtained are 1, 4, 9, 16, 25 and 36.
These perfect squares can be obtained in the following ways:
(1, 1), (2, 2), (3, 3), (4, 4), (5, 5), (6, 6), (1, 4) and (4, 1)
⇒ Therefore, total of 8 cases.

Hence, required probability $= \frac{8}{36} = \frac{2}{9}$.

FeedBack

**Q.86**

**Find the number of integral solutions of the equation $\frac{x^2}{y} = 4x - 3$, where x and y are non-zero real numbers.**

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

**Bookmark**

**Answer key/Solution**

$\frac{x^2}{y} = 4x - 3 \Rightarrow x^2 - 4xy + 3y = 0$

$y = \frac{x^2}{4x-3}$

$\Rightarrow x = 2y \pm \sqrt{4y^2 - 3y}$

For x to be an integer $4y^2 - 3y$ should be the perfect square of an integer.

$4y^2 - 3y = k^2 \Rightarrow y = \frac{3 \pm \sqrt{16k^2 + 9}}{8}$, where k is an integer.

$\therefore 16k^2 + 9 = m^2$, where m is an integer.

$\Rightarrow (4k - m)(4k + m) = -9$.

The only permissible values of k and m are 1 and $\pm 1$ respectively.

Thus, the only possible value of k for which y is a integer is k = 1.

$\Rightarrow y = \frac{3+5}{8} = 1$

$\Rightarrow x = 2 \pm \sqrt{1} = 1, 3$.

FeedBack

**Q.87**

**What is the remainder when $[7!]^k$, where $k = 1 + 2^2 + 2^3 + 2^4 + 2^5 + 2^6 + 2^7 + 2^8 + 2^9 + 2^{10}$, is divided by 76?**

1 **36**

2 **12**

3 **44**

4 **8**

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

**Bookmark**

**Answer key/Solution**

$7! = 5040$

$$\frac{[7!]^k}{76} = \frac{[5040]^k}{76} = \frac{[5040 \times (5040)^{k-1}]}{76}$$

$$= \frac{[1260 \times (5040)^{k-1}]}{19}.$$

Remainder when $5040^{(k-1)}$ divided by 19:

$$\frac{5040^{(k-1)}}{19} = \frac{[(5035 + 5)^{(k-1)}]}{19}.$$

5035 is a multiple of 19. So the net remainder is when $5^{(k-1)}$ is divided by 19.
$(k-1) = 2^2 + 2^3 + 2^4 + \ldots + 2^9 + 2^{10} = 4(1 + 2 + 2^2 + 2^3 + \ldots + 2^7 + 2^8) = 4m$, where 'm' =511.

$$\frac{5^{4m}}{19} = \frac{625^m}{19} = \frac{(627-2)^m}{19} = -\frac{2^m}{19}$$

$$= -\frac{2^{511}}{9} = -\frac{[(2)^7 \times (512)^{56}]}{19}$$

$$= -\frac{[(128) \times (513-1)^{56}]}{19}.$$

Now 513 is a multiple of 19. 128, when divided by 19, leaves a remainder of 14.
Therefore, when $5^{4m}$ is divided by 19, the remainder = 5.
Remainder when 1260 is divided by 19 = 6.
$6 \times 5 = 30$.

So, remainder when $[1260 \times (5040)^{k-1}]$ is divided by 19 is 11.
Since we have cancelled a common factor of 4 from the numerator and denominator, the net remainder $= 11 \times 4 = 44$.

**Alternate method:**
$7! = 5040$

$$\text{Let } P = \text{Rem}\left(\frac{[7!]^k}{76}\right) = \text{Rem}\left(\frac{[5040]^k}{76}\right)$$

$$= \text{Rem}\left(\frac{[5040 \times (5040)^{k-1}]}{76}\right)$$

$$= 4 \times \text{Rem}\left(\frac{[1260 \times (5040)^{k-1}]}{19}\right)$$

$$= 4 \times \left\{6 \times \text{Rem}\left(\frac{(5040)^{2044}}{19}\right)\right\},$$

(Where $k = (1 + 2^2 + 2^3 + \ldots + 2^{10})$
$= (2 + 2^2 + 2^3 + \ldots + 2^{10}) - 1 = 2^{11} - 2 - 1 = 2045$.)

5040 and 19 are coprime, by Euler's Theorem,

$$\text{Rem}\left(\frac{(5040)^{18}}{19}\right) = 1.$$

$$\therefore P = 4 \times \left\{6 \times \text{Rem}\left(\frac{(5040^{18})^{113} \times 5040^{10}}{19}\right)\right\}$$

$$= 4 \times \left\{6 \times 1 \times \text{Rem}\left(\frac{5040^{10}}{19}\right)\right\}$$

$$= 4 \times \left\{6 \times \text{Rem}\left(\frac{5^{10}}{19}\right)\right\}$$

$$= 4 \times \left\{\text{Rem}\left(\frac{6 \times -2 \times -2 \times 6}{19}\right)\right\}$$

$$= 4 \times \left\{\text{Rem}\left(\frac{6 \times 4 \times 6}{19}\right)\right\}$$

$$= 4 \times \left\{\text{Rem}\left(\frac{6 \times 4 \times 6}{19}\right)\right\}$$

$$= 4 \times \left\{\text{Rem}\left(\frac{144}{19}\right)\right\}$$

$= 4 \times 11 = 44$.

FeedBack

**Q.88**
**The product of two numbers, whose H.C.F. is 36, is 1260. How many such pairs of numbers are possible?**

**Solution:**
**Correct Answer : 0**
Let the numbers be 36a and 36b, where a, b ∈ N.
⇒ 36a × 36b = 1260

⇒ a × b = $\frac{35}{36}$, which is not possible.

FeedBack

Bookmark

Answer key/Solution

**Q.89**
**In ΔABC, G is the orthocentre and D is the midpoint of BC. The area of ΔABC is five times the area of ΔGDC, and ∠ABC = 60°. If the minimum distance between BC and point A is 10 cm, find the length of GC?**

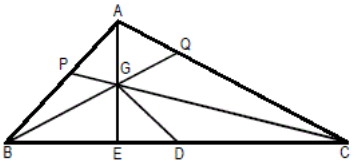
1 $\frac{4\sqrt{3}}{3}$ cm

2 **4 cm**

3 **8 cm**

4 $\frac{8\sqrt{3}}{3}$ cm

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




The figure is as shown above.
Minimum distance between A and BC is the perpendicular distance. If AE ⊥ BC, it passes through G and AE = 10 cm.

$\frac{\text{Area of } (\Delta GDC)}{\text{Area of } (\Delta ABC)} = \frac{1}{5}$

But Area of (ΔGDC) = Area of (ΔGDB)

$\Rightarrow \frac{\text{Area of } (\Delta GBC)}{\text{Area of } (\Delta ABC)} = \frac{2}{5}$

Both the triangles (ΔGBC and ΔABC) are on the same base BC.

$\Rightarrow \frac{\frac{1}{2} \times BC \times GE}{\frac{1}{2} \times BC \times AE} = \frac{2}{5} \Rightarrow \frac{GE}{AE} = \frac{2}{5}$

$\Rightarrow GE = \frac{2}{5} \times 10 = 4$ cm

Now in ΔCPB,
∠CPB = 90°
∠PBC = 60°
⇒ ∠BCP = 30°
So in right angled ΔGEC,
GE = 4 cm and ∠ECG = 30°

$\Rightarrow GC = \frac{GE}{\sin \angle ECG} = \frac{4}{\sin 30°} = 8$ cm.

FeedBack

Bookmark

Answer key/Solution

**Q.90**
**If $\log_{x(6-x)}(x^2 - 5x) = \log_{x(6-x)} 6$, how many values 'x' can have?**

1 **1**

2 **2**

3 **3**

4 **None of these**

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

$\log_{x(6-x)}(x^2-5x) = \log_{x(6-x)} 6$
$\Rightarrow x^2 - 5x = 6$
$\Rightarrow (x-6)(x+1) = 0$
$\Rightarrow x = 6, -1$
If $x = -1$, then $x(6-x) = -7$
and if $x = 6$, then $x(6-x) = 0$.
Both are not possible.
$\therefore$ No value of x is possible.

FeedBack

Bookmark

Answer key/Solution

**Q.91**
**Find the value of the following expression:**

$\sqrt{a+\sqrt{a^3+\sqrt{a^7+\sqrt{a^{15}+.....}}}}$, where $a \geq 0$.

1 $\frac{a+\sqrt{a(a+4)}}{4}$

2 $\frac{a-\sqrt{a(a+4)}}{4}$

3 $\frac{a+\sqrt{a(a+4)}}{2}$

4 $\frac{a-\sqrt{a(a+4)}}{2}$

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

$x = \sqrt{a+\sqrt{a^3+\sqrt{a^7+\sqrt{a^{15}}}}}$.....
$\Rightarrow x^2 = a + \sqrt{a^3+\sqrt{a^7+\sqrt{a^{15}+....}}}$
$\Rightarrow x^2 = a + a\sqrt{a+\sqrt{a^3+\sqrt{a^7+....}}}$
$\Rightarrow x^2 = a + ax.$
$\Rightarrow x^2 - ax - a = 0$
$\Rightarrow x = \frac{a+\sqrt{a^2+4a}}{2}$

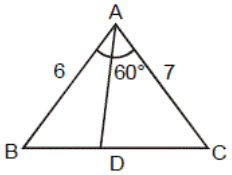
**Short cut:**
Put a = 1
$x = \sqrt{1+\sqrt{1+\sqrt{1+....}}}$
$\Rightarrow x^2 = 1 + x$
$\Rightarrow x^2 - x - 1 = 0$
$\Rightarrow x = \frac{1+\sqrt{5}}{2}$

FeedBack

Bookmark

Answer key/Solution

**Q.92**




**In ΔABC, AD, which is the angle bisector of ∠BAC, meets side BC at D. AB = 6 cm, AC = 7 cm and ∠BAC = 60°. Find the length of side AD.**

1 $\frac{42\sqrt{3}}{26}$

2 ○ $\frac{40\sqrt{3}}{13}$

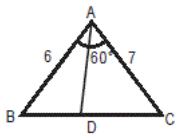
3 ○ $\frac{42\sqrt{3}}{13}$

4 ○ $\frac{21\sqrt{3}}{13}$

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

Bookmark

Answer key/Solution




Let the length of AD = x cm
Area of ΔABD + Area of ΔADC = Area of ΔABC

$\Rightarrow \left(\frac{1}{2}\times 6\times x\times \sin 30^\circ\right)+\left(\frac{1}{2}\times 7\times x\times \sin 30^\circ\right)$

$= \left(\frac{1}{2}\times 6\times 7\times \sin 60^\circ\right)$

$\Rightarrow x = \frac{42\sqrt{3}}{13}$ cm

$\therefore AD = \frac{42\sqrt{3}}{13}$ cm.

FeedBack

**Q.93**
**How many integers exist such that not only are they multiples of $2008^{2008}$ but also are factors of $2008^{2020}$?**

1 ○ **12**

2 ○ **481**

3 ○ **587**

4 ○ **$2008^{12}$**

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

Bookmark

Answer key/Solution

The number of such integers will satisfy

$2008^{2008} \le n \le 2008^{2020}$

Also, the number of such integers will be equal to the number of factors of

$\frac{2008^{2020}}{2008^{2008}} = 2008^{12} = \left(2^3\times 251\right)^{12}$

Therefore, number of such integers = 37 × 13 = 481.

FeedBack

**Q.94**
**$T_n$ is the $n^{th}$ term of a Geometric Progression such that $T_n = T_{n-1} + T_{n-2}$ for n > 2. If the first term and the common ratio of the progression are positive real numbers, then find the common ratio.**

1 ○ $\frac{\sqrt{5}-1}{2}$

2 ○ $\frac{\sqrt{5}+1}{2}$

3 ○ $\frac{\sqrt{3}-1}{2}$

4 ○ $\frac{\sqrt{3}+1}{2}$

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

Let the first term and the common ratio of the G.P. be 'a' and 'r' respectively.

$T_n = T_{n-1} + T_{n-2} \Rightarrow ar^{n-1} = ar^{n-2} + ar^{n-3}$

$\Rightarrow r^2 - r - 1 = 0 \Rightarrow r = \frac{1 \pm \sqrt{5}}{2}$

Since r is a positive real number, $r = \frac{1+\sqrt{5}}{2}$.

FeedBack

Bookmark

Answer key/Solution

**Q.95**
**The area of the region bounded between |x + y| = 1 and |x| =1 is**

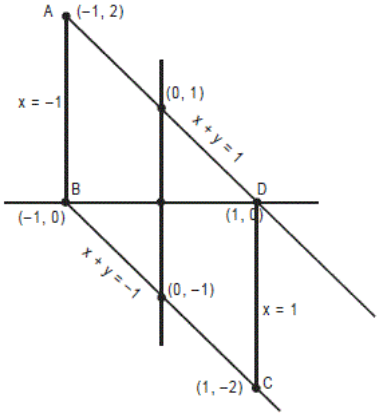
1 **6 sq. units**

2 **1 sq. units**

3 **2 sq. units**

4 **4 sq. units**

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




As shown in the figure above, the region bounded by |x + y| = 1 and |x| = 1 is parallelogram ABCD.

Area of ABCD = 2 area of $\Delta ABD$

$= 2\left\{\frac{1}{2} \times AB \times BD\right\}$

$= AB \times BD = 2 \times 2 = 4$ sq. units.

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Answer key/Solution

**Q.96**
**Aman and eight of his friends took a test of 100 marks. Each of them got a different integer score and the average of their scores was 86. The score of Ama was 90 and it was more than that of exactly three of his friends. What could have been the maximum possible absolute difference between the scores of two of his friends?**

**Solution:**
**Correct Answer : 83**

In order to maximize the difference between the highest and the lowest scores, the top eight scores must have had the maximum possible values i.e.100, 99, 98, 97, 96, 90, 89 and 88.
The value of lowest score
= 86 × 9 – (100 + 99 + 98 + 97 + 96 + 90 + 89 + 88)
= 17.
Hence, the required difference = 100 – 17 = 83.

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Answer key/Solution

**Q.97**

**If the volume of a sphere is 12 times that of a cone with same radius as that of the sphere, then find the ratio of the height to the radius of the cone.**

1 **1 : 3**

2 **4 : 1**

3 **1 : √3**

4 **1 : 2**

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

Let the radius of the sphere and the cone be 'r' units.
Let the height of the cone be 'h' units.

Volume of the sphere $=\frac{4}{3}\pi r^3$ = 12 × Volume of the cone

$\Rightarrow \frac{4}{3}\pi r^3 = 12 \times \frac{1}{3}\pi r^2 h \Rightarrow r = 3h$

Hence, h : r = 1 : 3.

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Answer key/Solution

**Q.98**

**There is a leak which can empty the completely filled container in 10 hours. If the container is full of milk and a tap is opened that fills 4 liters of milk per minute in the container, then the leak takes 15 hours to empty the container. How many liters of milk does the container hold?**

**Solution:**
**Correct Answer : 7200**

Work done by the tap in 15 hrs = work done by the leak in (15 – 10) = 5 hrs.
Thus, the ratio of their efficiencies = 1 : 3
Now, milk filled by the tap in 15 hrs = 4 × 15 × 60 = 3600L
Hence, the capacity of the tank = 3600 × 2 = 7200 L

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Answer key/Solution

**Q.99**

**Two trees of heights $\frac{50}{\sqrt{3}}$ m m and 25√2 m stand on a plane ground. If the trees are inclined towards each other at respective angles 60° and 45° with respect to the ground and the distance between their tops is 12 m, then the distance between their bottoms will be**

1 $\frac{50}{\sqrt{3}}(\sqrt{3}-1)$

2 $\frac{25}{\sqrt{3}}(\sqrt{3}+1)$

3 $37+\frac{25}{\sqrt{3}}$

4 $12+\frac{50}{\sqrt{3}}$

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

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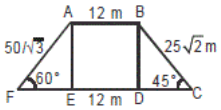
Answer key/Solution




Let AF and BC be two trees.

CD = 25 m and FE = $\frac{25}{\sqrt{3}}$

Distance between their bases

$= \frac{25}{\sqrt{3}} + 12 + 25 = 37 + \frac{25}{\sqrt{3}}$ m.

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**Q.100**

**A man covers a certain distance of 13 km in 2 hrs and 24 minutes and another distance of 29 km in 6 hours, then in how much time will it cover a distance o 17 km if he travels at the average speed of previous two cases?**

1 **3 hrs 15 min**

2 **4 hrs 45 min**

3 **4 hrs 10 min**

4 **3 hrs 24 min**

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

Average speed of the man = $\frac{13+29}{2.4+6}$ = 5 km/hr

Time taken to cover 17 km = $\frac{17}{5}$ = 3 hours 24 minutes.

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**Answer key/Solution**