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Mock CAT – 04 2018

Scorecard (procreview.jsp?sid=aaa5BycB_LJvH-TdBuPHwSun Jan 20 07:27:54 UTC 2019&qsetId=Dzifw57b9t8=&qsetName=Mock CAT – 04 2018)

Accuracy (AccSelectGraph.jsp?sid=aaa5BycB_LJvH-TdBuPHwSun Jan 20 07:27:54 UTC 2019&qsetId=Dzifw57b9t8=&qsetName=Mock CAT – 04 2018)

Qs Analysis (QsAnalysis.jsp?sid=aaa5BycB_LJvH-TdBuPHwSun Jan 20 07:27:54 UTC 2019&qsetId=Dzifw57b9t8=&qsetName=Mock CAT – 04 2018)

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VARC

LRDI

QA

Sec 1

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

For patient after patient seeking to cure chronic back pain, the experience is years of frustration. Whether they strive to treat their aching muscles, bones and ligaments through physical therapy, massage or rounds of surgery, relief is often elusive – if the pain has not been made even worse. Now a new working hypothesis explains why: persistent back pain with no obvious mechanical source does not always result from tissue damage. Instead, that pain is generated by the central nervous system (CNS) and lives within the brain itself.

I caught my first whiff of this news about eight years ago, when I was starting the research for a book about the back-pain industry. Plus, I'd been dealing with a cranky lower back for a couple of decades, and things were only getting worse. Over the years, I had tried most of what is called 'conservative treatment' such as physical therapy and injections. To date, it had been a deeply unsatisfying journey.

Like most people, I was convinced that the problem was structural: something had gone wrong with my skeleton, and a surgeon could make it right. When a neuroscientist I was interviewing riffed on the classic lyric from *My Fair Lady,* intoning: 'The reign of pain is mostly in the brain'. I was not amused. The pain was real, I assured him, pointing to the precise location, which was a full yard south of my cranium.

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Months would pass before I understood that multiple studies, dating back to the early 1990s, evaluating the usefulness of spinal imaging, had shown that people who did not have even a hint of lower-back pain exhibited the same nasty artifacts as those who were incapacitated. Imaging could help rule out certain conditions, including spinal tumors, infection, fractures and a condition called cauda equina syndrome, in which case the patient loses control of the bowel or bladder, but those diagnoses were very rare. Yet tens of thousands of spinal MRIs were ordered every year in the United States, the United Kingdom and Australia.

Very often, the next stop was surgery. For certain conditions, such as a recently herniated disc that is pressing on a spinal nerve root, resulting in leg pain or numbness coupled with progressive weakness, or foot drop, a nerve decompression can relieve the pain. The problem is that all surgeries carry risks, and substantial time and effort is required for rehabilitation. After a year, studies show, the outcomes of patients who opt for surgery and those who don't are approximately the same. More invasive surgeries carry greater risks.

In the US, about 80,000 spine procedures fail each year, and one in five patients returns for another operation. Typically, second, third and fourth attempts have an even lower chance of success, and patients continue to require painkillers over the long term. Even the procedures that surgeons deem successful, because the bones fuse and look perfect on a scan, are often unhelpful to patients. In one study, two years after spinal fusion, patients' pain had barely been reduced by half, and most patients continued to use painkillers. Given such unimpressive outcomes, second spine surgery costs a fortune, but other approaches, including epidural steroid injections, physical therapy and chiropractic treatment, are also expensive.

Including direct medical expenses and indirect expenses such as lost earnings, spine care costs the US about $100 billion a year. In the UK, that tab is about £10.6 billion (c$13.6 billion). In Australia, it's A$1.2 billion (c$950 million). Many of these costs derive from the loss of productivity, as people take time off from work. Others result from the devastation wrought by addiction to prescription opioids. In Australia, between 1992 and 2012, prescription opioid dispensing increased 15-fold, and the cost to the Australian government increased more than 32-fold.

Q.1

According to the passage, why did the author study about back pain?

1 **His interest was both personal and professional.**

2 **He was suffering from a chronic back pain.**

3 **He wanted to know why relief from back pain is only fleeting.**

4 **He wanted to prove that CNS generates back pain.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
GENRE: Science /Medicine
This question is straightforward and can be easily located in the given passage.
1 - Correct option. The second paragraph of the passage states that the author was starting research for a book about the back pain industry and that he suffered from chronic back pain. Hence his interest was both personal and professional.
2 - States half the fact hence it is incorrect.
3 - This is a vague statement and has no bearing to the given passage.
4 - This was the proven result of a scientific study conducted.

FeedBack

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substantial time and effort is required for rehabilitation. After a year, studies show, the outcomes of patients who opt for surgery and those who don't are approximately the same. More invasive surgeries carry greater risks.

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Q.2

Why does the author not find the statement made by the neuroscientist, amusing?

1 **Because the neuroscientist was quoting from a classical lyric *My Fair Lady.***

2 **Because the author felt that the neuroscientist was talking in a mood of jest and being ironical about the author's pain.**

3 **Because the author assumed that the neuroscientist took his pain to be unreal.**

4 **Because the author wanted to prove that his pain was real.**

Solution:
Correct Answer : 3
This question is moderately easy. The author is cynical about the statement made by the neuroscientist.

Bookmark

Answer key/Solution

1 - is vague and fails to stress on the reason.
2 - is incorrect because irony cannot be associated with the neuroscientist's statement.
3 - Correct. The passage states "The pain was real, I assured him". This indicates that the author assumed that the neuroscientist took his pain to be unreal. Else why would he insist that his "pain was real".
4 - is incorrect because the author's pain was real. Why would he want to prove it? Moreover, if something was found amusing then proving that becomes logically inconsistent.

FeedBack

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Q.3

Which of the following can be directly concluded from the information given in paragraph 5?

1 **It is the brain that generates the pain in the body.**

2 **The correlation between symptoms of back pain and imaging is poor.**

3 **Spinal imaging is futile when it comes to removal of pain.**

4 **Spinal imaging helps to figure out the reason behind so many ailments related to back.**

Solution:
Correct Answer : 2
This is an easy question.

Bookmark

Answer key/Solution

1 - Can be concluded from other sections of the passage, but not here.
2 - The paragraph states- "evaluating the usefulness of spinal imaging, had shown that people who did not have even a hint of lower-back pain exhibited the same nasty artefacts as those who were incapacitated." This makes 2 correct.
3 and 4 - are incorrect as the paragraph states that sometimes spinal imaging is useful. So, it is neither futile nor a right option to depend on. It may help in identifying the reason back ailment.

FeedBack

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Q.4

The main idea of the passage above is:

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1 ○ **to discuss the reasons why one many need to seek a back pain treatment.**

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2 ○ **to explain that it is possible to fix a back pain by going through a thorough spinal imaging test.**

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3 ○ **to elucidate that recuperation from a back pain surgery is not possible unless it is served with proper rest.**

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4 ○ **to explain that back pain can be fixed by understanding that it is produced by the brain.**

Solution:
Correct Answer : 4
This is an easy question ans the central issue is peppered throughout the entire passage.

Bookmark

Answer key/Solution

1 - is not suggested in the passage.
2 - is faulty as the passage states spinal imaging tests may or may not help. Their effectiveness is a matter of speculation.
3 - is incorrect since the passage states that even after proper surgery and rest, back pain is felt again within a span of 1 year.
4 - has been directly and indirectly reiterated in the passage- "pain is generated by the central nervous system (CNS) and lives within the brain itself."; "The reign of pain is mostly in the brain".

FeedBack

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Q.5

Which of the following is true with regards to the after effects of the surgery?

1 **Patients are relieved from the pain for a considerable amount of time.**

2 **There cannot be any difference between those who go for a surgery and those who do not.**

3 **Surgery scarcely makes any difference to patients opting for it.**

4 **Surgery gives a sense of optimism.**

Solution:
Correct Answer : 3
This is an easy question since it can be directly quoted from the data provided.

Bookmark

Answer key/Solution

1 - is subjective and cannot be validated from the data provided. Further it doesn't specify the time.
2- is incorrect since since it mentions 'cannot be any difference' which is incorrect in the light of the passage provided.
3- Correct. The passage states- "After a year, studies show, the outcomes of patients who opt for surgery and those who don't are approximately the same".
4 - is beyond the scope of the passage.

FeedBack

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Q.6

Based on the passage, all the following are true, EXCEPT:

1 **The MRI made the author dismal.**

2 **An impaired tissue is not always the reason for back pain.**

3 **The cost of treating back pain is unacceptably high.**

4 **Painkillers are much better than surgeries, for at least their cost is less.**

Solution:
Correct Answer : 4
This is a medium level difficulty question.

Bookmark

Answer key/Solution

1 - is incorrect since the passage states that the MRI made the author believe that his spine would disintegrate.
2 - is incorrect since in the passage it is stated that, "Persistent back pain with no obvious mechanical source does not always result from tissue damage".
3 - is incorrect since in the passage it is stated that "Given such unimpressive outcomes, second spine surgery costs a fortune".
4 - Correct. Though the author says that patients continue to take pain killers, he doesn't mention if they are better or cost lest.

FeedBack

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

Last month, "Salvator Mundi," Leonardo da Vinci's portrayal of Jesus as Savior of the World, sold at auction for $450.3 million, more than twice the previous record for a work of art sold at auction.

Paying this price for the painting of a man who is said to have told another rich person: "Go, sell your possessions and give to the poor, and you will have treasure in heaven."? Ironical doesn't even begin to sum it.

The Life You Can Save, a nonprofit organization, has a Charity Impact Calculator that enables you to see what can be achieved by donations to charities with a proven record of effective aid for the world's poorest people. It shows that, for $450 million, you could restore sight to nine million people with curable blindness, or provide 13 million families with the tools and techniques to grow 50% more food. For $450 million, you could also buy 180 million bed nets, enough to protect 271 million people from malaria. (For these interventions, the numbers are likely to be somewhat smaller, because the Charity Impact Calculator is not designed for such large sums, and so does not take into account that costs will rise once the needs of those who are easiest to reach have been met.)

Rightly or wrongly, most of us do give much more weight to our own interests, and those of our children and other close relatives and friends, than we do to the interests of others. Yet there is a line at which the discount rate becomes so great, and the interests of others are treated with such indifference, that we must say no, that is going too far. We could argue that most affluent people are on the wrong side of that line.

In 2006, the legendary investor Warren Buffett pledged to give most of his wealth – around $30 billion – to the Bill & Melinda Gates Foundation to help people in extreme poverty. That gift doubled the resources of the foundation. To mark the tenth anniversary of Buffett's pledge, Bill and Melinda Gates recently reported a figure to him.

122 million.

That's the number of children's lives saved since 1990 by progressive reductions in the rate of child mortality. In other words, if the rate of child mortality had remained constant between 1990 and today, 122 million more children would have died than did in fact die over that period. The Gateses claim that every dollar spent on childhood immunization yields $44 in economic benefits, including the money that families otherwise lose when a child gets sick and a parent cannot work. Warren Buffett's contribution to immunizations may be the best investment he has ever made.

What do you think would make a person happier? Owning a painting – even if it were the most marvelous painting in the world – or knowing that you had kept millions of children healthy, saving lives and benefiting families economically at the same time? Both common sense and psychological research suggest that it isn't owning the painting.

Q.7

What is the irony that the author highlights in the second paragraph?

1 ○ **Even though Jesus preached giving away one's possessions to the poor, the seller of his painting has charged such a hefty price for it.**

2 **Even though Leonardo da Vinci said that true treasure can be found in heaven, the buyer paid a treasure-worthy price for the painting on Earth.**

3 **Even though Jesus preached that the rich should sell their possessions, the buyer is accumulating more of them.**

4 **Even though Jesus preached that one should give one's possessions to the poor, the buyer is employing his fortune to buy a painting.**

Solution:
Correct Answer : 4
GENRE: Sociology/ Philosophy

Bookmark

Answer key/Solution

This is a medium level difficulty question.
1 - is incorrect as it talks about the seller and not the buyer.
2 and 3 - are incorrect as they do not talk about the poor.
4 - Correct. The irony is in the fact that the buyer has paid such a huge fortune of his fortune to buy the painting of a man who had preached employing one's fortune to help the poor. Subsequent paragraphs further strengthen this idea.

FeedBack

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

Last month, "Salvator Mundi," Leonardo da Vinci's portrayal of Jesus as Savior of the World, sold at auction for $450.3 million, more than twice the previous record for a work of art sold at auction.

Paying this price for the painting of a man who is said to have told another rich person: "Go, sell your possessions and give to the poor, and you will have treasure in heaven."? Ironical doesn't even begin to sum it.

The Life You Can Save, a nonprofit organization, has a Charity Impact Calculator that enables you to see what can be achieved by donations to charities with a proven record of effective aid for the world's poorest people. It shows that, for $450 million, you could restore sight to nine million people with curable blindness, or provide 13 million families with the tools and techniques to grow 50% more food. For $450 million, you could also buy 180 million bed nets, enough to protect 271 million people from malaria. (For these interventions, the numbers are likely to be somewhat smaller, because the Charity Impact Calculator is not designed for such large sums, and so does not take into account that costs will rise once the needs of those who are easiest to reach have been met.)

Rightly or wrongly, most of us do give much more weight to our own interests, and those of our children and other close relatives and friends, than we do to the interests of others. Yet there is a line at which the discount rate becomes so great, and the interests of others are treated with such indifference, that we must say no, that is going too far. We could argue that most affluent people are on the wrong side of that line.

In 2006, the legendary investor Warren Buffett pledged to give most of his wealth – around $30 billion – to the Bill & Melinda Gates Foundation to help people in extreme poverty. That gift doubled the resources of the foundation. To mark the tenth anniversary of Buffett's pledge, Bill and Melinda Gates recently reported a figure to him.

122 million.

That's the number of children's lives saved since 1990 by progressive reductions in the rate of child mortality. In other words, if the rate of child mortality had remained constant between 1990 and today, 122 million more children would have died than did in fact die over that period. The Gateses claim that every dollar spent on childhood immunization yields $44 in economic benefits, including the money that families otherwise lose when a child gets sick and a parent cannot work. Warren Buffett's contribution to immunizations may be the best investment he has ever made.

What do you think would make a person happier? Owning a painting – even if it were the most marvelous painting in the world – or knowing that you had kept millions of children healthy, saving lives and benefiting families economically at the same time? Both common sense and psychological research suggest that it isn't owning the painting.

Q.8

What is the 'costs' that the author is talking about in the last line of the third paragraph?

1 **The incremental costs of meeting the continuing need for care of the impacted people**

2 **The inflation cost in impacting the needy people over time**

3 **The costs of reaching out to the needy people**

4 **The compliance costs associated with justifying the utilisation of the grants received**

Solution:
Correct Answer : 3
This is a moderately easy question.

Bookmark

Answer key/Solution

1, 2, and 4 - are incorrect as they go beyond the scope of the passage.
3 - Correct. The line clearly states that the costs will rise once the needs of the people who are easiest to reach have been met. This means we are talking about costs associated with accessibility.

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Q.9

Why does the author call Warren Buffet's contribution "maybe the best investment he has ever made"?

1 ○ **The contributions have generated the highest ever returns that Buffet has made on any investment.**

2 ○ **The contributions have helped save the lives of 122 million children since 1990.**

3 **The contributions have enabled millions of parents to work who would otherwise have to take care of a sick child.**

4 **The contributions have generated economic benefits of $44 for every dollar spent.**

Solution:
Correct Answer : 4
This is medium level difficulty question.

Bookmark

Answer key/Solution

1 - is incorrect since it cannot be verified from the given data.
2 and 3 - though true does not lead to the author's calling Buffet's gesture the best 'investment' he has ever made.
4 - Correct. The primary criterion for judging an investment is its returns. These have been talked about in 4. Moreover the economic benefits in 4 cover the money generated through the fact mentioned in 3.

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Q.10

As per the passage, all of the following are true EXCEPT:

1 ○ **The Charity Impact Calculator is not designed for extremely large sums.**

2 ○ **Most of us put our own interests above the interests of our relatives and friends.**

3 **Salvator Mundi has broken the record of every painting sold at an auction earlier.**

4 **Bill and Melinda Gates Foundation helped in reducing child mortality.**

Solution:
Correct Answer : 2
This is a medium level difficulty question.

Bookmark

Answer key/Solution

1- is incorrect since it is mentioned in brackets in the third paragraph.
2 - Correct. The fourth paragraph states that "most of us do give much more weight to our own interests, and those of our children and other close relatives and friends, than we do to the interests of others." But it does not say that we put ours above that of our relatives and friends.
3 - is incorrect since it is mentioned in the first paragraph.
4 - is incorrect since it is mentioned in the second last paragraph.

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Q.11

The author seems critical of the decision of the buyer to deploy a huge sum to own a painting, rather than helping the needy. Which of the following arguments, if true, would change his mind?

1 ○ **The buyer of the painting pledged, $ 40 bn out of his wealth to charitable causes.**

2 **The buyer of the painting has housed it in a museum open to everyone, including the poor. A part of the ticket proceeds of the museum is kept by the buyer.**

3 **The buyer has started leasing the painting to various museums in return for a fee of one-sixth its purchase price. So far, 8 museums have leased it and the buyer has given the revenue to charitable causes.**

4 **The buyer resells the painting at a much higher price and invests the proceeds in the IT sector. A booming sector in his developing nation, it is the highest contributor to the employment.**

Solution:
Correct Answer : 3
This is a moderately difficult question.

Bookmark

Answer key/Solution

1 - is incorrect since, although the buyer donates a huge sum to his community, it doesn't change the fact that he spent $ 450 million on a painting. It also doesn't state whether his community belongs to the underprivileged category.
2 - is incorrect as the buyer is definitely not helping the poor as the museum charges tickets. Also, seeing a painting in a museum is not an 'essential need'.
3 - Correct. Through 3 the buyer has employed the painting for charitable causes. Through leasing it, he has contributed approximately $600 mn to charity, an amount higher than its purchase price.
4 - is incorrect since the buyer indirectly contributes to employment. However, we don't know if the needy people find employment in this sector. Moreover the buyer's decision is motivated by financial gain.

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Q.12

Which of the following can be inferred from the passage?

1 **Sometimes, putting the interest of others over our own can make us happier.**

2 **A rich man should sell his possessions and give away to the poor.**

3 The affluent have a moral responsibility to help the needy.

4 A careful evaluation of alternatives may lead us to good investment decisions.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
This is a moderately easy question.

1 - Correct. 1 can be derived from the fourth and the last paragraph.
2 - is incorrect since it is something that Jesus said. It is not something that the author implied.
3 - is incorrect since the author argues in the fourth paragraph, that while giving more weight to our interests, we should not 'grossly' discount those of others. It does not make a general case for a moral responsibility to help others. It has been twisted.
4 - is incorrect as it talks about investment decisions which is not the focus of the passage.

FeedBack

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

At the time, cardiac transplant surgery was barely a decade old, pioneered by a handful of individuals who had developed a radical method of switching a heart from one body to another – but all previous transplants had been done in dogs. As they worked to stitch the new organ into Washkansky's body and then shock it into life, Barnard and his team were improvising, guided only by a few dozen animal studies, the suggestions of scientific papers and their own instinct. But at 6.13am, after almost four hours of surgery, Washkansky's transplanted heart started to stir. As Barnard would write: "Little by little it began to roll with the lovely rhythm of life."

It would prove to be a defining moment in the history of medical science. While Washkansky himself would die of pneumonia just 18 days later, his body weakened by intensive antirejection treatment, his case paved the way for hundreds of heart transplants in the following years. Now, 50 years on from Barnard's achievement, 4,000 heart transplants are performed around the world each year. But while some patients live for decades, complications persist due to the need for constant immunosuppressant treatment, meaning the survival rate after 12 years is still just 50%. In addition, while studies in the US have found that more than 20,000 Americans could benefit from a heart transplant each year, just 2,000 transplants are performed there due to a shortage of donors.

But many scientists believe we are on the verge of a new medical revolution. Advances in regenerative medicine will allow us to repair damaged hearts instead of replacing them. In all mammals, it's almost impossible for a damaged heart to repair itself. Within minutes of being deprived of oxygen due to a blocked artery, the heart's muscle cells start to die. If surgeons are able to tackle the blockage within one hour, the damage can be reversed. If 12 hours have passed, up to 1bn heart cells may already be lost, replaced only by tough, rigid scar tissue.

"The problem is that the regenerative power of the heart is lower than other organs," says Dr Tim Henry, director of cardiology at the Cedars-Sinai Medical Center in Los Angeles. "If you lose half your liver, it will grow back. Your skin heals completely very quickly. But for people whose heart failure isn't treated in time, or who have already had one heart attack, there's permanent, significant damage which leaves them requiring a transplant."

Over the past 15 years, scientists have experimented with taking stem cells from the blood or bone marrow and injecting them into badly damaged hearts. This typically works well in improving blood flow to the heart, helping patients who have bad blockages in their arteries. But despite numerous attempts, these individual stem cells have been unable to grow back much of the lost heart muscle. The body's immune responses are so hostile to new cells implanted into the heart that even when the patient's own tissue is used, 90% of the cells still die.

"The stem cell approach has shown some benefit, but it's been relatively short-lived," says Prof Richard Farndale of the University of Cambridge. "What generally happens is that the stem cells fail to attach to the heart and are lost into the bloodstream fairly quickly."

However, a new approach appears to hold a lot more promise. Scientists are growing "heart patches", tiny beating pieces of heart muscle, in small dishes in the lab. They are made by taking a drop of blood from a patient and engineering the blood cells into a layer of fully formed cardiac tissue. This is genetically matched to that person, and can be engrafted into the heart to replace damaged areas. This has been tested in mice and will soon be tested in pigs. In the next five years, scientists hope to launch a clinical trial to apply the patches in humans. At a cost of about £70,000 a patient, it promises to be a far more economically viable alternative to heart transplants, which, with the huge surgical teams required, cost the NHS up to £500,000.

"The hope is that by providing a patch of tissue which already beats and contracts, instead of just individual cells, the body's built-in programming will take over and assimilate it into the heart as if it was already there," says Tim Kamp, professor of regenerative biology, who builds heart patches at the University of Wisconsin.

One of the challenges in coming years is to ensure that the new patch electrically integrates with the heart so that both beat in synchrony. Scientists hope that because the patch will be so similar to the existing heart muscle, natural bodily processes will take over.

"We anticipate this will happen, but we have to make sure and be really cautious," Kamp says. "The heart isn't a USB socket which we can just plug things into. For patients with severe heart failure, the whole heart dilates to try to adapt to the damage. It changes shape from being like a football to a big basketball. But we hope these patches will be able to heal a much larger area of damage than single cell injections. And if multiple patches are required to replace multiple areas of scarring, we can put those in. This technology may really provide a whole avenue of hope for people with these conditions who badly need new treatments."

Q.13

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

1 **More than 20,000 Americans could benefit from a heart transplant each year.**

2 **Around 4,000 heart transplants are performed each year in the US.**

3 **The heart can't be compared to a USB socket to some extent.**

4 **Heart patches are expected to be economically more viable than the heart transplants.**

Solution:
Correct Answer : 2
This is an easy question to decipher.

Bookmark

Answer key/Solution

1-Refer to the last line of the 2nd paragraph.
2- 4,000 is the number of transplants performed each year worldwide, and not in the US.
3- Refer to the 1st line of the last paragraph.
4- Refer to this line- "At a cost of about £70,000 a patient, it promises to be a far more economically viable alternative to heart transplants, which, with the huge surgical teams required, cost the NHS up to £500,000. "

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Q.14

According to the passage, the 'heart patches' approach involves all of the following except:

1 **Heart patches are engrafted into the heart to replace damaged areas.**

2 **Heart patches are genetically matched to a person.**

3 **Heart patches are made by taking blood from a donor.**

4 **Blood cells are engineered into a layer of fully formed cardiac tissue.**

Solution:
Correct Answer : 3
This is a moderate level question.

Bookmark

Answer key/Solution

1- Refer to "This is genetically matched to that person, and can be engrafted into the heart to replace damaged areas."
2- Refer to-"his is genetically matched to that person, and can be engrafted into the heart to replace damaged areas. "
3- All except 3 are true according to the passage. According to the passage heart patches are “made by taking a drop of blood from a patient”.
4- Refer to- "They are made by taking a drop of blood from a patient and engineering the blood cells into a layer of fully formed cardiac tissue."

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Over the past 15 years, scientists have experimented with taking stem cells from the blood or bone marrow and injecting them into badly damaged hearts. This typically works well in improving blood flow to

the heart, helping patients who have bad blockages in their arteries. But despite numerous attempts, these individual stem cells have been unable to grow back much of the lost heart muscle. The body's immune responses are so hostile to new cells implanted into the heart that even when the patient's own tissue is used, 90% of the cells still die.

"The stem cell approach has shown some benefit, but it's been relatively short-lived," says Prof Richard Farndale of the University of Cambridge. "What generally happens is that the stem cells fail to attach to the heart and are lost into the bloodstream fairly quickly."

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One of the challenges in coming years is to ensure that the new patch electrically integrates with the heart so that both beat in synchrony. Scientists hope that because the patch will be so similar to the existing heart muscle, natural bodily processes will take over.

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Q.15

The primary purpose of the passage is to:

1 **condemn the outdated methods of heart transplant.**

2 **introduce new methods in lieu of heart transplant.**

3 **convince the reader to try new methods in place of heart transplant.**

4 **elaborate heart transplant and other associated methods.**

Solution:
Correct Answer : 4
This is a moderate level question. One has to scan the entire passage to understand the main purpose.

Bookmark

Answer key/Solution

1- 1 is incorrect because the author is not condemning any method.
2- 2 is incorrect because introducing new methods in lieu of old methods is not the purpose of the passage.
3- 3 again can't be the answer because the author is not trying to convince the reader about anything.
4-passage elaborates heart transplant and other methods used as a substitute which makes 4 correct.

FeedBack

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

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It would prove to be a defining moment in the history of medical science. While Washkansky himself would die of pneumonia just 18 days later, his body weakened by intensive antirejection treatment, his case paved the way for hundreds of heart transplants in the following years. Now, 50 years on from Barnard's achievement, 4,000 heart transplants are performed around the world each year. But while some patients live for decades, complications persist due to the need for constant immunosuppressant treatment, meaning the survival rate after 12 years is still just 50%. In addition, while studies in the US have found that more than 20,000 Americans could benefit from a heart transplant each year, just 2,000 transplants are performed there due to a shortage of donors.

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Q.16

Why is it almost impossible for a damaged heart to repair itself in mammals?

1 **Within minutes of being deprived of oxygen, the heart's muscles start to die.**

2 **Within minutes of being deprived of oxygen due to a blocked artery, the heart's muscle cells start to die.**

3 **Hearts are not capable to regenerate.**

4 **Shape of a heart changes due to blocked arteries.**

Solution:
Correct Answer : 2
This can be directly derived from the 3rd paragraph of the given passage.

Bookmark

Answer key/Solution

1- Incorrect as it cannot be deduced.
2- Refer to the third paragraph. It supports the given context.
3- Refer to -"In all mammals, it's almost impossible for a damaged heart to repair itself. ". It says 'almost impossible' and it says nothing about regenerating. This is an alien option.
4- It cannot be eliminated as it does not talk about the change in the shape of a heart.

FeedBack

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Q.17

What is the assumption behind making heart transplants in dogs?

1 **There is no difference between humans and dogs.**

2 **There is no problem if a dog dies in the process of medical testing.**

3 **Dogs are the only animals which are almost like humans.**

4 **Human body/ body parts tend to react in the same way like that of a dog.**

Solution:
Correct Answer : 4
This is an easy question. The answer is located in the 1st paragraph of the passage.

Bookmark

Answer key/Solution

Refer to- "At the time, cardiac transplant surgery was barely a decade old, pioneered by a handful of individuals who had developed a radical method of switching a heart from one body to another – but all previous transplants had been done in dogs."
Since all the the transplants had been done in dogs to understand the working of a human heart, we can easily assume that Human body/ body parts tend to react in the same way like that of a dog.
Out of the given options only 4 portray this. If we negate this statement, The argument falls apart.

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Q.18

According to the passage why would it "prove to be a defining moment in the history"?

1 ○ **It would be the first time a heart would be successfully transplanted in a human.**

2 ○ **Medical science was set to change completely with this surgery.**

3 ○ **A famous personality was being saved by medical science.**

4 ○ **The medical profession would be respected if the surgery goes well.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
This is a moderate level question as far as the given passage is concerned.

1 is the answer because the first paragraph mentions that all the transplants till then were performed on dogs. It was the first time it was being done for a human being.
2 is an extreme option which we aren't sure about.
3 is not a strong reason which is capable of changing the history of medical science.
4 is also an extreme option.

FeedBack

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

Long gone are the days of a predictable world in which you could take your time to make decisions, manage an organization from the top, or get away with mediocre products and services.

Pointing to today's mind-boggling speed of commerce, exploding computing power, ever-sinking communication costs, and fierce global competition is stating the obvious. We all know that the competitive environment has changed forever. Yet, surprisingly, while surpassing themselves at innovating with products and services, most companies are terribly slow at reinventing their management style, organizational structure, or institutional culture. They remain inapt to a fast-paced and connected world in which customers instantaneously and globally voice their dissatisfaction over anything less than outstanding products and services. These expired ways of organizing often result in unhappy clients, demotivated employees, and missed opportunities for new value creation.

In my work on business model innovation with large, global companies, I am constantly confronted with this. In the face of a changing competitive environment, companies are forced to take action. Smart and energetic executives generate amazingly innovative business models that have the potential to produce future growth, but then the organization is incapable of making things happen. More senior or more established executives get the company to fall back on their historic business model and old ways of working, which made them successful originally. In the short term, this might offer the comfort of a known model, less risk, and maybe even short-term gains. In the longer term, this often represents the roots of a decline into irrelevance or an increased risk of disruption by more nimble and often totally new competitors with innovative business models.

What I have come to realize is that without organizational and management innovation, business model innovation and adaptation to today's fast-changing world rarely happens. To make it happen, we need to build new spaces for experimentation and learning. We need new organizational principles and platforms for autonomous teams to succeed. We need new incentive systems and institutional cultures to get employees motivated again. The core elements that you need to take into account when designing the connected company are: transparent interaction and communication platforms, organizational structures favoring autonomy and adaptation, a culture of experimentation and learning, and a new governance and reward system encouraging new behavior and holding it all together. In short, companies need management innovation.

Q.19
The central point of the 3rd paragraph is that organisations are:

1 changing according to the fast changing world and innovating with it.

2 aware of the fast changing world and keeping pace with it.

3 are changing and innovating but are unable to manage customer expectations.

4 changing and innovating but are slow in altering the managerial style.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
This is a moderate level question. The question stem here is very specific as it asks the readers to scan only the 3rd paragraph.

1 captures only the first half of the paragraph.
2 merely restates option 1 in different words.
3 erroneously mentions managing customer expectations whereas it is not mentioned in the paragraph.
4 captures the paragraph in its entirety.

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Q.20

Organisations fail to implement the ideas of sprightly executives because:

1 **there are very few precedents of management innovation and business model innovation.**

2 **of the reluctance of the senior executives of persisting with the tried and tested methods.**

3 **these ideas are often brought in by the new and inexperienced individuals.**

4 **in the era of mind-boggling speed of commerce, exploding computing power, and ever-sinking communication costs the companies want to play it safe.**

Solution:
Correct Answer : 2
This is a moderate level, fact based question.

Bookmark

Answer key/Solution

1 is mentioned in the last paragraph but it is not presented as the reason behind not implementing the new ideas.
2 is supported by the 3rd paragraph.
3 is not mentioned in the passage.
4 puts companies as a reason whereas according to the passage it is the executives.

FeedBack

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Q.21
The author mentions all of the following as ways to help organisations adapt to today's fast changing world EXCEPT:

1 **letting go of the executives who cling on to the old ways of doing business.**

2 **making room for experimentation and learning.**

3 **the reward structure should be revamped.**

4 **new ways of motivating the employees should be worked upon.**

Solution:
Correct Answer : 1
This is an easy question to answer. The answer is present in the concluding paragraph of the given passage.

The last paragraph basically portrays the necessary requirements needed to help the organizations.
Options 2,3 and 4 are all present in the last paragraph.
Option 1 is not recommended by the author. Hence, it is the incorrect option.

FeedBack

Bookmark

Answer key/Solution

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

The concept of beauty has been a complex topic since antiquity, and this is especially true when tracing the cultural trajectory of our relationship with beauty. Western and Eastern artists tend for instance to use different perspectives to represent the visual world, both in the geometric and in a metaphorical sense. Viewers from different cultures and social groups may have distinct aesthetic experiences to the same visual displays. Cultural differences might explain why beauty is attributed to some things, but not to others. Aesthetic processing can only be understood, if it is also seen as being embedded in cultural contexts and being modulated by social conditions.

Unlike Western painters who since the Renaissance tried to create an exact view of a visual environment, Chinese painters never developed a notion of space as a measurable geometrical entity by developing mathematical rules to organize space and create precise spatial relations. Instead, the Chinese outlook emphasizes a dynamic structure for human relations with the environment, even with the universe, independent of exact physical representations or the proper imitation of objects. Pictorial perspectives employed in Western and Chinese paintings are, thus, fundamentally different. Western painters tried to create an exact view of what they see (or what they believe to see); the geometric perspective was developed to create the illusion of three-dimensionality by means of a single-point or convergent perspective. It should, however, be pointed out that the central perspective in Western art is already an abstraction, and it is not at all a geometrically correct representation of what we see. Mechanisms of size constancy recalibrate the projection of visual stimuli on the retina at the cortical level, and thus distort what is mathematically defined. This neural operation in the early visual pathway serves the purpose to maintain the identity of the perceived object. Thus, the different trajectories of abstraction in the Eastern and Western cultural environments have created unique conceptual frames.

Chinese painters have employed specific ways of emphasizing spatial information compared to Western painters. Besides a typical arrangement of spatial information in a vertical manner (i.e., far objects appear in the upper part while close objects appear in the lower part of a scroll painting), a most common means of suggesting distance was perhaps the use of a perspective, where parallel diagonal lines strike off from the plane of the picture. The distinctive characteristics of parallel projections is that lines parallel in fact are also parallel in the drawing. The angles of these obliques are coherent throughout the plane. Moreover, Western artists are inclined to capture a specific moment in a visual scene and fix the physical position of the viewer. In contrast, when looking at a Chinese landscape painting, there is no distinct point to guide viewers. The Chinese outlook has a dynamic quality that integrates successive time windows, and encompasses a panoramic view of the visual scene, which can be perhaps associated with a floating view.

Q.22

According to the author, what has been the driving cause of the complexities behind the understanding of beauty?

1 ○ **The use of varied techniques to replicate the visual world on paper throughout different regions of the world and different understandings of metaphors.**

2 ○ **The recalibration of the projection of visual stimuli on the retina due to the different geographical conditions across the globe.**

3 ○ **The intertwining of cultural influences and the visual perception of the world.**

4 ○ **The difference in the neural operations in the brains of people living in different parts of the world.**

Solution:
Correct Answer : 3
This is a moderate level question.

Bookmark

Answer key/Solution

Option 1 is rather a direct consequence of unique perceptions of beauty.
Options 2 comment on biological and anatomical makeup of humans, which has not been the point of focus of the passage.
Option 3 effectively states the author's opinion. Refer to -"Cultural differences might explain why beauty is attributed to some things, but not to others. Aesthetic processing can only be understood, if it is also seen as being embedded in cultural contexts and being modulated by social conditions."
Option 4 also states an anatomical view point like option 2.

FeedBack

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

The concept of beauty has been a complex topic since antiquity, and this is especially true when tracing the cultural trajectory of our relationship with beauty. Western and Eastern artists tend for instance to use different perspectives to represent the visual world, both in the geometric and in a metaphorical sense. Viewers from different cultures and social groups may have distinct aesthetic experiences to the same visual displays. Cultural differences might explain why beauty is attributed to some things, but not to others. Aesthetic processing can only be understood, if it is also seen as being embedded in cultural contexts and being modulated by social conditions.

Unlike Western painters who since the Renaissance tried to create an exact view of a visual environment, Chinese painters never developed a notion of space as a measurable geometrical entity by developing mathematical rules to organize space and create precise spatial relations. Instead, the Chinese outlook emphasizes a dynamic structure for human relations with the environment, even with the universe, independent of exact physical representations or the proper imitation of objects. Pictorial perspectives employed in Western and Chinese paintings are, thus, fundamentally different. Western painters tried to create an exact view of what they see (or what they believe to see); the geometric perspective was developed to create the illusion of three-dimensionality by means of a single-point or convergent perspective. It should, however, be pointed out that the central perspective in Western art is already an abstraction, and it is not at all a geometrically correct representation of what we see. Mechanisms of size constancy recalibrate the projection of visual stimuli on the retina at the cortical level, and thus distort what is mathematically defined. This neural operation in the early visual pathway serves the purpose to maintain the identity of the perceived object. Thus, the different trajectories of abstraction in the Eastern and Western cultural environments have created unique conceptual frames.

Chinese painters have employed specific ways of emphasizing spatial information compared to Western painters. Besides a typical arrangement of spatial information in a vertical manner (i.e., far objects appear in the upper part while close objects appear in the lower part of a scroll painting), a most common means of suggesting distance was perhaps the use of a perspective, where parallel diagonal lines strike off from the plane of the picture. The distinctive characteristics of parallel projections is that lines parallel in fact are also parallel in the drawing. The angles of these obliques are coherent throughout the plane. Moreover, Western artists are inclined to capture a specific moment in a visual scene and fix the physical position of the viewer. In contrast, when looking at a Chinese landscape painting, there is no distinct point to guide viewers. The Chinese outlook has a dynamic quality that integrates successive time windows, and encompasses a panoramic view of the visual scene, which can be perhaps associated with a floating view.

Q.23

What can be concluded about the Western world by reading the passage?

1 **The western world had a better understanding of mathematical and geometrical concepts.**

2 **Western art focused on manipulating space and misleading the viewer to believe in presence of depth.**

3 **Western people were driven by realism and tried recreating the world on paper exactly as it looked.**

4 **Westerners had an instantaneous approach to experiences and thus their art encapsulated messages in representation of specific moments.**

Solution:
Correct Answer : 4
This is a moderate level question.

Bookmark

Answer key/Solution

Option 1 is a misinterpretation of the text.
Option 2 is an overstatement since the aim of artists was not to mislead the viewers.
Option 3 loses plausibility due to the author's remark on the intermittent misconception of the visual world by the Westerners.
Option 4 is the correct answer as it portrays the exact voice of the author about interpretation of art by the Western world. Refer to- "...Western artists are inclined to capture a specific moment in a visual scene and fix the physical position of the viewer."

FeedBack

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

The concept of beauty has been a complex topic since antiquity, and this is especially true when tracing the cultural trajectory of our relationship with beauty. Western and Eastern artists tend for instance to use different perspectives to represent the visual world, both in the geometric and in a metaphorical sense. Viewers from different cultures and social groups may have distinct aesthetic experiences to the same visual displays. Cultural differences might explain why beauty is attributed to some things, but not to others. Aesthetic processing can only be understood, if it is also seen as being embedded in cultural contexts and being modulated by social conditions.

Unlike Western painters who since the Renaissance tried to create an exact view of a visual environment, Chinese painters never developed a notion of space as a measurable geometrical entity by developing mathematical rules to organize space and create precise spatial relations. Instead, the Chinese outlook emphasizes a dynamic structure for human relations with the environment, even with the universe, independent of exact physical representations or the proper imitation of objects. Pictorial perspectives employed in Western and Chinese paintings are, thus, fundamentally different. Western painters tried to create an exact view of what they see (or what they believe to see); the geometric perspective was developed to create the illusion of three-dimensionality by means of a single-point or convergent perspective. It should, however, be pointed out that the central perspective in Western art is already an abstraction, and it is not at all a geometrically correct representation of what we see. Mechanisms of size constancy recalibrate the projection of visual stimuli on the retina at the cortical level, and thus distort what is mathematically defined. This neural operation in the early visual pathway serves the purpose to maintain the identity of the perceived object. Thus, the different trajectories of abstraction in the Eastern and Western cultural environments have created unique conceptual frames.

Chinese painters have employed specific ways of emphasizing spatial information compared to Western painters. Besides a typical arrangement of spatial information in a vertical manner (i.e., far objects appear in the upper part while close objects appear in the lower part of a scroll painting), a most common means of suggesting distance was perhaps the use of a perspective, where parallel diagonal lines strike off from the plane of the picture. The distinctive characteristics of parallel projections is that lines parallel in fact are also parallel in the drawing. The angles of these obliques are coherent throughout the plane. Moreover, Western artists are inclined to capture a specific moment in a visual scene and fix the physical position of the viewer. In contrast, when looking at a Chinese landscape painting, there is no distinct point to guide viewers. The Chinese outlook has a dynamic quality that integrates successive time windows, and encompasses a panoramic view of the visual scene, which can be perhaps associated with a floating view.

Q.24

Why does the author believe that cultural and societal differences lead to distinct aesthetic experiences to the same visual displays?

1 **Such differences generate a disparity in the understanding of metaphors.**

2 **It is evident in the different conceptual frames created in the West and the East.**

3 **These cultural and societal differences depend on the viewer's choice.**

4 **Social conditions are the only parameter to understand aesthetic processing.**

Solution:
Correct Answer : 2
This is a moderate level question which is factual in nature.

Bookmark

Answer key/Solution

Option 1 beats around the bush, but does not explain the reason of the author's point of view.
Option 2 hits the nail on its head and is the most plausible interpretation of the author's beliefs.
Option 3 is beyond the scope of the text and has been mentioned anywhere in the passage.
Option 4 is a misinterpretation of the text as the text clearly states social conditions to be one of the various reasons behind the phenomenon.

FeedBack

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

Q.25

Elon Musk, the billionaire founder of the electric car company Tesla, has won approval for a new pay deal that could land him a $55.8bn (£40bn) bonus, smashing all compensation records. Tesla's shareholders voted to approve Musk's pay deal at a meeting in Fremont, California, despite warnings from corporate governance experts who have called the package "staggering". They have also questioned why someone whose wealth is already tied to Tesla's fortunes needs more shares. In order to trigger the maximum payout, Musk, 46, would have to build Tesla into a $650bn company over the next 10 years – making it one of the world's most valuable tech companies. The company is currently valued at $54.6bn.

1. Elon Musk's new pay deal has been approved and defended by Tesla's stake holders as it's contingent upon a major increase in the company's value.
2. Elon Musk's new pay deal has been approved by Tesla's stake holders but its release vests purely over meeting a benchmark.
3. Elon Musk's new pay deal has been approved by Tesla's stake holders, however corporate governance experts are skeptical about the same.
4. Elon Musk's new pay deal has been approved by Tesla's stake holders, however he won't receive the compensation if the company doesn't perform well.

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Option 1 is incorrect as it states 'major increase in the company's value'. To what is the increase compared, is unclear. Moreover, the paragraph doesn't suggest if the stake holders defended that or not. Hence it doesn't capture the essence of the paragraph. Option 3 is incorrect since it captures only one aspect of the paragraph, and ignores the other important part. Option 4 is incorrect as it doesn't mention the reason for the company not performing well. The company's performance is based on Musk's meeting certain benchmarks. This is clearly mentioned in 2. Also, 4 is more of an inference, and not a summary.

FeedBack

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

Q.26

It is necessary that we bring up our children religiously and intellectually, so that we may present them worthy of their vocation, vocation to up bring the next generation. It is necessary that reverent education and educated religion exist side by side, for these two things are the only sure provisions for travelling in this life, provisions that are able to help a man in manifold ways. A one-sided upbringing is reprehensible and leads to the following two unseemly things: either to superstition or to contempt for the things of God. A plight such as these is the natural consequence and direct result of the kind of education that has been given.

1. Children should be acquainted with both religion and education simultaneously, without sacrificing anyone of the two.
2. In order to not call upon unseemly things like superstition or the contempt of God, acquaintance with both religion and education is important.
3. To acquaint children with the responsibility of bringing up the next generation, they should be brought up both religiously and intellectually, for the lack of one can either lead to superstition or contempt for things of God.
4. Children should be brought up both religiously and intellectually so as to acquaint them with the responsibility of bringing up the next generation, without having to compromise either of the former aspect.

Solution:
Correct Answer : 3
Options 1 and 4 are incorrect as they do not specify the reason for not compromising any of those components. Option 2 is distorted as it doesn't capture the main idea – the ideology to be imparted to children. Option 3 alone sums up the entire paragraph.

FeedBack

Bookmark

Answer key/Solution

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

Q.27

The idea of race took on the patina of a scientific enterprise primarily in the early to mid-1800s, as part of what is largely known as the European Enlightenment. Scientists at that time, particularly in biology and botany, were earnest in classifying the diversity of life on Earth, and part of this classification included the human species. Perhaps because of ethnocentrism, the classification of human beings included a rank ordering with Europeans at the top of the scale and Africans at the bottom.

1. Delving into the past of racism enlightens us about the fact that classification of human beings took place in the period of European Enlightenment and lead to the creation of rank ordering, where in the Europeans were at the top and Africans at the bottom.
2. Started during the period of European Enlightenment, racism took its birth as an act of classification practiced by the scientists who were interested in studying the diversity of life on Earth and ranked Europeans at the top and Africans at the bottom.
3. Racism took its birth during the period of European Enlightenment, as an act of diversification practiced by the scientists, who ranked Europeans at the top and Africans at the bottom.
4. Ethnocentrism, a part of diversification practiced by the scientists during European Enlightenment, lead to the birth of racism, in which Europeans were ranked at the top, while the Africans at the bottom.

Solution:
Correct Answer : 4
Option 1 is incorrect as it is not a summary but one's personal understanding of the above paragraph. Options 2 and 3 are incorrect as they do not talk about ethnocentrism. Option 4 alone sums up the entire paragraph.

FeedBack

Bookmark

Answer key/Solution

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

Q.28

1. The real meaning of the universal human rights is that everyone is entitled to the same human rights and to equal human dignity.
2. No one can be denied their human rights because they are different from others, whether by sex, race or ethnicity, work or descent, caste, culture, religion, skin colour or other grounds.
3. One of the great successes of the past century has been the popularity of the idea of universal human rights.
4. The struggle to ensure equality of treatment for everyone is thus at the centre of all efforts to promote the universal protection of human rights.
5. But the full meaning of human rights is often not fully understood, namely equal human rights: not just rights for me and people 'like me', but for each and every one of us, whether you are like me or not.

Solution:
Correct Answer : 35124
3 and 5 create a mandatory pair as 3 states that popularity of universal human rights has been the greatest successes of last century while 5 presents a contradiction stating that its meaning is not understood fully. 5 and 1 also create a mandatory pair as 1 explains what the real meaning is. 2 is an extension of 1. 4 is a concluding statement- presence of 'thus' being a hint.

FeedBack

Bookmark

Answer key/Solution

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

Q.29

1. Hirevue's flagship product, used by global giants such as Unilever and Goldman Sachs, asks candidates to answer standard interview questions in front of a camera.
2. The program turns this data into a score, which is then compared against one the program has already "learned" from top-performing employees.
3. Mondragon is the head psychologist at Hirevue, a company that offers software that screens job candidates using algorithms and artificial intelligence.
4. Meanwhile its software, like a team of hawk-eyed psychologists hiding behind a mirror, makes note of thousands of barely perceptible changes in posture, facial expression, vocal tone and word choice.
5. According to Nathan Mondragon, finding the right employee is all about looking at the little things.

Solution:
Correct Answer : 53142
The correct sequence is 53142. This question can be solved by forming pairs. Statement 5 and 3 form a mandatory pair as 5 provides us the name of Nathan Mondragon and 3 tells us who he is. 5 introduces the topic of discussion- finding the right employee by looking at small things and 3 elaborates on the same. 3 and 1 form a mandatory pair as Hirevue's software is referred to as it's 'flagship product'. 4 follows 1 as 1 talks about candidates answering the questions, while 4 talks about noting the facial expressions while the candidates answer those questions. 2 concludes the paragraph as it talks about calculation of scores and comparison of that with those of already existing good employees.

Bookmark

Answer key/Solution

FeedBack

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

Q.30

1. 'Parenting' may be defined as purposive activities aimed at ensuring the survival and development of children.
2. The connotation of the word is that parenting is a positive, nurturing activity.
3. Thus, parenting is an activity that normally involves the children, parents and other family members in lifelong interaction.
4. The word 'parenting', from its root, is more concerned with the activity of developing and educating than who does it.
5. It derives from the Latin verb 'parere'- 'to bring forth, develop or educate'.

Solution:
Correct Answer : 15423
The correct sequence is 15423. 1 opens the paragraph as it introduces 'parenting'. 1, 5 and 4 form a mandatory pair- 1 introduces the word, 5 talks about its origin from the root word, 4 talks about the word's connection with its root. 2 will come after 4 as it is a summation of all the preceding sentences and calls. parenting as 'positive'. 3 is clearly the concluding sentence.

Bookmark

Answer key/Solution

FeedBack

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

Q.31

1. Though some supervisors may specifically ask for your opinion, others may assume if there is something important they need to know, you will bring it to their attention.
2. Further others may believe that if there is something you are unsure about, you will ask.
3. If an employee and a supervisor learn to communicate well (in whatever method that works), there is a greater likelihood of job retention and promotion.
4. One of the challenges in the workplace is learning the specific communication styles of others and how and when to share your ideas or concerns.
5. Knowing how to listen carefully and when to ask for help is important.

Solution:
Correct Answer : 41253
The correct sequence is 41253. Sentence 4 opens the paragraph as it introduces the topic- challenge of communication style in workplace. 1 and 2 form a mandatory pair as 'some supervisors, 'others' and 'further others' form a proper sequence. Next, 5 and 3 create a mandatory pair. Though 5 appears to be the opening sentence, it is not, because if 5 and 3 appear in the beginning, they will not leave space for other sentences to appear as 3 is more of a concluding statement as it states the key to 'retention' and 'promotion'.

Bookmark

Answer key/Solution

FeedBack

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

Q.32

1. But making a world championship final has elevated him to a new rung of the UK Sport funding ladder, as an athlete with Olympic podium potential.
2. That means more security, and more freedom to train harder and smarter, aiming for that podium finish.
3. Prescott had won the Best New Olympian award at the Sports Journalists' Association sports awards, following in the footsteps of Wayne Rooney and Lewis Hamilton.
4. Support from Nike and others had already allowed him to train full-time.
5. He is now working on his start before next summer's European championships in Glasgow.

Solution:
Correct Answer : 3
3 says Prescott 'had' won the Best Olympian Award, which implies that he had participated in the Olympics in the past. However, sentence 1 calls him a player with Olympic podium potential and uses the present tense. Also, sentence 2 and 5 are in the present tense, so they fit with 1. 2 also talks about the potential to win a medal. 3 is the odd one out. The sequence of the paragraph is 4125.

Bookmark

Answer key/Solution

FeedBack

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

Q.33

1. Prof Michael Norton, Easac's environmental programme director, said that greenhouse gas emissions were "fundamentally responsible for driving these changes".
2. Global floods and extreme rainfall events have surged by more than 50% this decade, and are now occurring at a rate four times higher than in 1980, according to a new report.
3. The paper, based partly on figures compiled by the German insurance company Munich Re, also shows that climate-related loss and damage events have risen by 92% since 2010.
4. Some studies say this could lower land temperatures in the UK, Greenland, Iceland and Scandinavia by up to 9C.
5. Other extreme climatological events such as storms, droughts and heatwaves have increased by more than a third this decade and are being recorded twice as frequently as in 1980, the paper by the European Academies' Science Advisory Council (Easac) says.

Solution:
Correct Answer : 4
The correct sequence is 2531. 2 and 5 form a mandatory pair, as 2 talks only about the immense increase in floods and rainfall, and 5 talks about the increase in other 'climatological' events like storms and droughts. 2 and 3 also form a mandatory pair, as both refer to 'the paper' by EASAC. Statement 1 follows next as it gives a possible reason for the 'changes'- that is the increase in the number of 'climatological events'. Statement 4 may appear somewhere later in the paragraph, but here it fails to connect with any of the given statements. There is no sentence which gives a reason for lowering land temperatures in the places mentioned. The paragraph employs a negative tone by highlighting some ill-effects of climate change. Sentence 4 talks about something which might be positive.

Bookmark

Answer key/Solution

FeedBack

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

Q.34

1. Globalization is connecting people and their standards of living, while inequalities within and between countries are growing.
2. There are, therefore, major objections to merely updating any historical benchmark of poverty on the basis of some index of prices.
3. Over many years the "relativity" of meanings of poverty has come to be recognized, in part if not comprehensively.
4. Adam Smith, for example, recognized the ways in which "necessities" were defined by custom in the early part of the 19th century, citing the labourer's need to wear a shirt as an example.
5. This will lend itself to scientific observation, measurement and analysis of multiple deprivations.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 5
The correct sequence is 1234. 1 is the opening sentence as it talks about Globalization along with existing inequalities. 2 is an explanation of 1. 3 follows 2 as 'benchmark of poverty' in 2 is mentioned as 'relativity of meanings' in 3. 4 provides an example to it. 5 is the odd sentence out as it uses different tense from the rest of the sentences. Secondly, there is no precedent for “this will lend itself” in the paragraph. It is quite vague.

FeedBack

Sec 2

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

DMRC runs metro trains between every two stations among the 4 stations - Anand, Botanical, Chandni and Dwarka. These trains can have 4, 6 or 8 coaches, and the fare between any two stations is Rs.20, Rs.30, Rs.40 or Rs.50. All trains between any particular pair of stations have same number of coaches and also same fare. Some additional information is also known.

I. From both the stations, Anand as well as Dwarka, trains having 4, 6 and 8 coaches run, whereas from Botanical station trains having only 4 coaches run.
II. Trains from the station Anand to all other stations have different fares. The same holds true for station Chandni and Dwarka.
III. No two routes with trains having 6 coaches have same fares. Similarly, no two routes with trains having 8 coaches have same fares.
IV. Total fare for the three different routes from Chandni and Botanical is Rs. 90 and Rs. 100 respectively.
V. The fare from Botanical station to Dwarka station is more than that from Anand station to Botanical station.

Q.35
If the fare from Anand to Chandni is Rs. 30, then what is the fare (in Rs.) from Chandni to Dwarka?

Bookmark

Answer key/Solution

Solution:
Correct Answer : 20
• As from Botanical station trains having only 4 coaches run, from both Anand and Dwarka trains with 4 coaches run to Botanical. Also between Botanical and Chandni trains of 4 coaches run.
• If the trains running between Anand and Dwarka are of 6 coaches then the trains running between Anand and Chandni, and between Dwarka and Chandni must be of 8 coaches because Anand and Dwarka both have trains of 4, 6 and 8 coaches running. The previous statement is also valid, if we interchange 8 and 6.
• Using statement IV, the sum of the fares of trains running from Chandni to the other three stations is 90. As the trains running from Chandni are of 4, 8 and 8 or 4, 6 and 6 coaches, possible fares are 90 = 30 + 30 + 30 OR 20 + 30 + 40. But as it is given that no two routes with 6 or 8 coaches have same fare, the fares must be 20, 30 and 40.
• Similarly, the sum of fares from Botanical is 100 i.e. 20 + 30 + 50 OR 20 + 40 + 40 OR 30 + 30 + 40. So, the possible fares and coaches for the four stations can be tabulated as below. Here, A, B, C and D represents Anand, Botanical, Chandni and Dwarka stations respectively.

Routes	A - B	A - C	A - D	B – C	B - D	C – D
No. of coaches	4	8/6	6/8	4	4	8/6
Fare	20	30	50	40	40	20
	20	40	30	30	50	20
	30	40	20	20	50	30

As we can see from the above table, when A-C is 30 the fare from C-D is 20.

FeedBack

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

DMRC runs metro trains between every two stations among the 4 stations - Anand, Botanical, Chandni and Dwarka. These trains can have 4, 6 or 8 coaches, and the fare between any two stations is Rs.20, Rs.30, Rs.40 or Rs.50. All trains between any particular pair of stations have same number of coaches and also same fare. Some additional information is also known.

I. From both the stations, Anand as well as Dwarka, trains having 4, 6 and 8 coaches run, whereas from Botanical station trains having only 4 coaches run.
II. Trains from the station Anand to all other stations have different fares. The same holds true for station Chandni and Dwarka.
III. No two routes with trains having 6 coaches have same fares. Similarly, no two routes with trains having 8 coaches have same fares.
IV. Total fare for the three different routes from Chandni and Botanical is Rs. 90 and Rs. 100 respectively.
V. The fare from Botanical station to Dwarka station is more than that from Anand station to Botanical station.

Q.36
What can be the least possible fare (in Rs.) from Anand to Dwarka if one goes via Chandni?

Bookmark

Answer key/Solution

Solution:
Correct Answer : 50
• As from Botanical station trains having only 4 coaches run, from both Anand and Dwarka trains with 4 coaches run to Botanical. Also between Botanical and Chandni trains of 4 coaches run.
• If the trains running between Anand and Dwarka are of 6 coaches then the trains running between Anand and Chandni, and between Dwarka and Chandni must be of 8 coaches because Anand and Dwarka both have trains of 4, 6 and 8 coaches running. The previous statement is also valid, if we interchange 8 and 6.
• Using statement IV, the sum of the fares of trains running from Chandni to the other three stations is 90. As the trains running from Chandni are of 4, 8 and 8 or 4, 6 and 6 coaches, possible fares are 90 = 30 + 30 + 30 OR 20 + 30 + 40. But as it is given that no two routes with 6 or 8 coaches have same fare, the fares must be 20, 30 and 40.
• Similarly, the sum of fares from Botanical is 100 i.e. 20 + 30 + 50 OR 20 + 40 + 40 OR 30 + 30 + 40. So, the possible fares and coaches for the four stations can be tabulated as below. Here, A, B, C and D represents Anand, Botanical, Chandni and Dwarka stations respectively.

Routes	A - B	A - C	A - D	B – C	B - D	C – D
No. of coaches	4	8/6	6/8	4	4	8/6
Fare	20	30	50	40	40	20
	20	40	30	30	50	20
	30	40	20	20	50	30

All possible fare from A to D via Chandni are 30+20, 40+20, 40+30. So, 50 is the least possible value.

FeedBack

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

DMRC runs metro trains between every two stations among the 4 stations - Anand, Botanical, Chandni and Dwarka. These trains can have 4, 6 or 8 coaches, and the fare between any two stations is Rs.20, Rs.30, Rs.40 or Rs.50. All trains between any particular pair of stations have same number of coaches and also same fare. Some additional information is also known.

I. From both the stations, Anand as well as Dwarka, trains having 4, 6 and 8 coaches run, whereas from Botanical station trains having only 4 coaches run.
II. Trains from the station Anand to all other stations have different fares. The same holds true for station Chandni and Dwarka.
III. No two routes with trains having 6 coaches have same fares. Similarly, no two routes with trains having 8 coaches have same fares.
IV. Total fare for the three different routes from Chandni and Botanical is Rs. 90 and Rs. 100 respectively.
V. The fare from Botanical station to Dwarka station is more than that from Anand station to Botanical station.

Q.37
Which of the following cannot be the fare of a 8 coach train?

1 **20**

2 **30**

3 **40**

4 **None of these**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

• As from Botanical station trains having only 4 coaches run, from both Anand and Dwarka trains with 4 coaches run to Botanical. Also between Botanical and Chandni trains of 4 coaches run.
• If the trains running between Anand and Dwarka are of 6 coaches then the trains running between Anand and Chandni, and between Dwarka and Chandni must be of 8 coaches because Anand and Dwarka both have trains of 4, 6 and 8 coaches running. The previous statement is also valid, if we interchange 8 and 6.
• Using statement IV, the sum of the fares of trains running from Chandni to the other three stations is 90. As the trains running from Chandni are of 4, 8 and 8 or 4, 6 and 6 coaches, possible fares are 90 = 30 + 30 + 30 OR 20 + 30 + 40. But as it is given that no two routes with 6 or 8 coaches have same fare, the fares must be 20, 30 and 40.
• Similarly, the sum of fares from Botanical is 100 i.e. 20 + 30 + 50 OR 20 + 40 + 40 OR 30 + 30 + 40. So, the possible fares and coaches for the four stations can be tabulated as below. Here, A, B, C and D represents Anand, Botanical, Chandni and Dwarka stations respectively.

Routes	A - B	A - C	A - D	B – C	B - D	C – D
No. of coaches	4	8/6	6/8	4	4	8/6
Fare	20	30	50	40	40	20
	20	40	30	30	50	20
	30	40	20	20	50	30

It can be seen from the above table that all the four possible fare amounts given are valid for a 8 coach train in one case or another.

FeedBack

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

DMRC runs metro trains between every two stations among the 4 stations - Anand, Botanical, Chandni and Dwarka. These trains can have 4, 6 or 8 coaches, and the fare between any two stations is Rs.20, Rs.30, Rs.40 or Rs.50. All trains between any particular pair of stations have same number of coaches and also same fare. Some additional information is also known.

I. From both the stations, Anand as well as Dwarka, trains having 4, 6 and 8 coaches run, whereas from Botanical station trains having only 4 coaches run.
II. Trains from the station Anand to all other stations have different fares. The same holds true for station Chandni and Dwarka.
III. No two routes with trains having 6 coaches have same fares. Similarly, no two routes with trains having 8 coaches have same fares.
IV. Total fare for the three different routes from Chandni and Botanical is Rs. 90 and Rs. 100 respectively.
V. The fare from Botanical station to Dwarka station is more than that from Anand station to Botanical station.

Q.38

If the fare of a 4 coach train is more than the fare of all 6 or 8 coach trains, then what is the least possible value for the total fare of all 6 or 8 coach trains taken together?

1 **140**

2 **90**

3 **100**

4 **None of these**

Bookmark

Answer key/Solution

Solution:

Correct Answer : 2

• As from Botanical station trains having only 4 coaches run, from both Anand and Dwarka trains with 4 coaches run to Botanical. Also between Botanical and Chandni trains of 4 coaches run.

• If the trains running between Anand and Dwarka are of 6 coaches then the trains running between Anand and Chandni, and between Dwarka and Chandni must be of 8 coaches because Anand and Dwarka both have trains of 4, 6 and 8 coaches running. The previous statement is also valid, if we interchange 8 and 6.

• Using statement IV, the sum of the fares of trains running from Chandni to the other three stations is 90. As the trains running from Chandni are of 4, 8 and 8 or 4, 6 and 6 coaches, possible fares are 90 = 30 + 30 + 30 OR 20 + 30 + 40. But as it is given that no two routes with 6 or 8 coaches have same fare, the fares must be 20, 30 and 40.

• Similarly, the sum of fares from Botanical is 100 i.e. 20 + 30 + 50 OR 20 + 40 + 40 OR 30 + 30 + 40. So, the possible fares and coaches for the four stations can be tabulated as below. Here, A, B, C and D represents Anand, Botanical, Chandni and Dwarka stations respectively.

Routes	A - B	A - C	A - D	B – C	B - D	C – D
No. of coaches	4	8/6	6/8	4	4	8/6
Fare	20	30	50	40	40	20
	20	40	30	30	50	20
	30	40	20	20	50	30

Maximum fare of a 4-coach train is 50. In both the cases, required total fare of all 6 or 8 coach trains is 40 + 30 + 20 =90.

FeedBack

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

XYZ institute scheduled two seminars, one each on "How to become an entrepreneur" and "Good business sense". The auditorium, they had chosen for the seminar, has sitting available only for 323 people with that many chairs only arranged in the form of grid having dimension 19 × 17. So the first 323 registered students only are allowed to attend the seminars. Each student was given a different registration number from 1 to 323 at the time of registration. Also, it was mandatory for everyone to attend both the seminars and the same registration number is valid for both.

• Rows are numbered as row 1, row 2,..., row 19, and columns are numbered as column 1, column 2,..., column 17.
• For " How to become an entrepreneur", students were asked to sit according to their registration number in row-wise manner. For example, student with registration number 1 sits on the seat in row 1 and column 1; student with registration number 2 sits on the seat in row 1 and column 2; and so on. Then student with registration number 18 sits on the seat in row 2 and column 1; student with registration number 19 sits on the seat in row 2 and column 2; and so on. And hence followed the same pattern till all the students got their seats.
• For "Good business sense", students were asked to sit according to their registration number in column-wise manner. For example, student with registration number 1 sits on the seat in column 1 and row 1; student with registration number 2 sits on the seat in column 1 and row 2; and so on till registration number 19. Then student with registration number 20 sits on the seat in column 2 and row 1; the student with registration number 21 sits on the seat in column 2 and row 2; and so on. And hence followed the same pattern till all the students got their seats.

Q.39
How many students got to sit on the same place in both the seminars?

1 **17**

2 **19**

3 **2**

4 **3**

Bookmark

Answer key/Solution

Solution:

Correct Answer : 4

Sitting arrangement of students during the seminar titled as "How to become an entrepreneur" is as given below, where number mentioned in any cell is the registration number of the student sitting on that seat.

	Column 1	Column 2	Column 3	— — —	Column 16	Column 17
Row 1	1	2	3		16	17
Row 2	18	19	20		33	34
Row 3	35	36	37		50	51
| | |						
Row 18	290	291	292		305	306
Row 19	307	308	309		322	323

If we observe the above table, we can see every row has consecutive numbers starting from 17 × (row - 1).

So, the general term for the above table can be written as Cij = 17(i – 1) + j, where Cij represents the seat in i^{th} row and j^{th} column.

Similarly, sitting arrangement of students during the seminar titled as "Good business sense" is as given below

	Column 1	Column 2	— — —	Column 16	Column 17
Row 1	1	20		286	305
Row 2	2	21		287	306
Row 3	3	22		288	307
| | |					
Row 18	18	37		303	322
Row 19	19	38		304	323

So, the general term for the above table can be written as Cij = 19(j – 1) + i

The student having same Cij value for both the seminars, got to sit on the same place,

i.e., 17(i – 1) + j = 19(j – 1) + i

19j – 19 + i = 17i – 17 + j

18j – 16i = 2

9j – 8i = 1

Only possible positive integer solutions of the above equations are (1,1), (10,9) and (19,17).

Therefore, 3 students got to sit on same place.

FeedBack

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

XYZ institute scheduled two seminars, one each on “How to become an entrepreneur” and “Good business sense”. The auditorium, they had chosen for the seminar, has sitting available only for 323 people with that many chairs only arranged in the form of grid having dimension 19 × 17. So the first 323 registered students only are allowed to attend the seminars. Each student was given a different registration number from 1 to 323 at the time of registration. Also, it was mandatory for everyone to attend both the seminars and the same registration number is valid for both.

• Rows are numbered as row 1, row 2,..., row 19, and columns are numbered as column 1, column 2,..., column 17.
• For “ How to become an entrepreneur”, students were asked to sit according to their registration number in row-wise manner. For example, student with registration number 1 sits on the seat in row 1 and column 1; student with registration number 2 sits on the seat in row 1 and column 2; and so on. Then student with registration number 18 sits on the seat in row 2 and column 1; student with registration number 19 sits on the seat in row 2 and column 2; and so on. And hence followed the same pattern till all the students got their seats.
• For “Good business sense”, students were asked to sit according to their registration number in column-wise manner. For example, student with registration number 1 sits on the seat in column 1 and row 1; student with registration number 2 sits on the seat in column 1 and row 2; and so on till registration number 19. Then student with registration number 20 sits on the seat in column 2 and row 1; the student with registration number 21 sits on the seat in column 2 and row 2; and so on. And hence followed the same pattern till all the students got their seats.

Q.40
If a student got seat in row 11 and column 12 in the seminar "How to become an enterpreneur", and in row 'n' and column 'm' in the seminar "Good business sense", then find the value of (m+n).

1 **20**

2 **23**

3 **22**

4 **21**

Solution:
Correct Answer : 4
Sitting arrangement of students during the seminar titled as “How to become an entrepreneur” is as given below, where number mentioned in any cell is the registration number of the student sitting on that seat.

Bookmark

Answer key/Solution

	Column 1	Column 2	Column 3	— — —	Column 16	Column 17
Row 1	1	2	3		16	17
Row 2	18	19	20		33	34
Row 3	35	36	37		50	51
⋮						
Row 18	290	291	292		305	306
Row 19	307	308	309		322	323

If we observe the above table, we can see every row has consecutive numbers starting from 17 × (row - 1). So, the general term for the above table can be written as Cij = 17(i – 1) + j, where Cij represents the seat in i^{th} row and j^{th} column.

Similarly, sitting arrangement of students during the seminar titled as "Good business sense" is as given below

	Column 1	Column 2	— — —	Column 16	Column 17
Row 1	1	20		286	305
Row 2	2	21		287	306
Row 3	3	22		288	307
⋮					
Row 18	18	37		303	322
Row 19	19	38		304	323

So, the general term for the above table can be written as Cij = 19(j – 1) + i

As the student sat in row 11 and column 12, i = 11 and j = 12.

So, registration number of the student = Cij = 17(11 – 1) + 12 =182

So this student in the other seminar will sit on

182 = 19(m – 1) + n

192 = 19m + n – 19

i.e., 19m + n = 201

As 1 ≤ n ≤ 19 and 1 ≤ m ≤ 17, the only possible solution for the above equation is n = 11, m = 10.

Therefore, n + m = 21

FeedBack

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

XYZ institute scheduled two seminars, one each on "How to become an entrepreneur" and "Good business sense". The auditorium, they had chosen for the seminar, has sitting available only for 323 people with that many chairs only arranged in the form of grid having dimension 19 × 17. So the first 323 registered students only are allowed to attend the seminars. Each student was given a different registration number from 1 to 323 at the time of registration. Also, it was mandatory for everyone to attend both the seminars and the same registration number is valid for both.

• Rows are numbered as row 1, row 2,..., row 19, and columns are numbered as column 1, column 2,..., column 17.
• For " How to become an entrepreneur", students were asked to sit according to their registration number in row-wise manner. For example, student with registration number 1 sits on the seat in row 1 and column 1; student with registration number 2 sits on the seat in row 1 and column 2; and so on. Then student with registration number 18 sits on the seat in row 2 and column 1; student with registration number 19 sits on the seat in row 2 and column 2; and so on. And hence followed the same pattern till all the students got their seats.
• For "Good business sense", students were asked to sit according to their registration number in column-wise manner. For example, student with registration number 1 sits on the seat in column 1 and row 1; student with registration number 2 sits on the seat in column 1 and row 2; and so on till registration number 19. Then student with registration number 20 sits on the seat in column 2 and row 1; the student with registration number 21 sits on the seat in column 2 and row 2; and so on. And hence followed the same pattern till all the students got their seats.

Q.41
If the grid was of dimension 13 × 11 and hence only 143 students were given registration numbers, then how many of them got the chance to sit on the same place in both the seminars?

1 **11**

2 **13**

3 **2**

4 **3**

Solution:
Correct Answer : 4
Sitting arrangement of students during the seminar titled as "How to become an entrepreneur" is as given below, where number mentioned in any cell is the registration number of the student sitting on that seat.

Bookmark

Answer key/Solution

	Column 1	Column 2	Column 3	— — —	Column 16	Column 17
Row 1	1	2	3		16	17
Row 2	18	19	20		33	34
Row 3	35	36	37		50	51
| | |						
Row 18	290	291	292		305	306
Row 19	307	308	309		322	323

If we observe the above table, we can see every row has consecutive numbers starting from 17 × (row - 1). So, the general term for the above table can be written as Cij = 17(i – 1) + j, where Cij represents the seat in i^{th} row and j^{th} column.

Similarly, sitting arrangement of students during the seminar titled as "Good business sense" is as given below

	Column 1	Column 2	— — —	Column 16	Column 17
Row 1	1	20		286	305
Row 2	2	21		287	306
Row 3	3	22		288	307
| | |					
Row 18	18	37		303	322
Row 19	19	38		304	323

So, the general term for the above table can be written as Cij = 19(j – 1) + i

If grid is of dimension 13 × 11, then the two general term become, 11(i – 1)+j and 13(j – 1) + i.

So, 11(i – 1) + j = 13(j – 1) + i

11i – 11 + j = 13j – 13 + i

10i – 12j = –2

5i – 6j = –1

Only possible solutions are (1,1), (7,6), (13,11).

Therefore, 3 students got to sit on same place.

FeedBack

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

XYZ institute scheduled two seminars, one each on "How to become an entrepreneur" and "Good business sense". The auditorium, they had chosen for the seminar, has sitting available only for 323 people with that many chairs only arranged in the form of grid having dimension 19 × 17. So the first 323 registered students only are allowed to attend the seminars. Each student was given a different registration number from 1 to 323 at the time of registration. Also, it was mandatory for everyone to attend both the seminars and the same registration number is valid for both.

• Rows are numbered as row 1, row 2,..., row 19, and columns are numbered as column 1, column 2,..., column 17.
• For " How to become an entrepreneur", students were asked to sit according to their registration number in row-wise manner. For example, student with registration number 1 sits on the seat in row 1 and column 1; student with registration number 2 sits on the seat in row 1 and column 2; and so on. Then student with registration number 18 sits on the seat in row 2 and column 1; student with registration number 19 sits on the seat in row 2 and column 2; and so on. And hence followed the same pattern till all the students got their seats.
• For "Good business sense", students were asked to sit according to their registration number in column-wise manner. For example, student with registration number 1 sits on the seat in column 1 and row 1; student with registration number 2 sits on the seat in column 1 and row 2; and so on till registration number 19. Then student with registration number 20 sits on the seat in column 2 and row 1; the student with registration number 21 sits on the seat in column 2 and row 2; and so on. And hence followed the same pattern till all the students got their seats.

Q.42

Registration number with which a student got a chance to sit on the same place in both the seminars is called as magic number. How many magic numbers are common in grid of size 19 × 17 and 13 × 11?

1 **1**

2 **2**

3 **3**

4 **Cannot be determined**

Bookmark

Answer key/Solution

Solution:

Correct Answer : 1

Sitting arrangement of students during the seminar titled as "How to become an entrepreneur" is as given below, where number mentioned in any cell is the registration number of the student sitting on that seat.

	Column 1	Column 2	Column 3	— — —	Column 16	Column 17
Row 1	1	2	3		16	17
Row 2	18	19	20		33	34
Row 3	35	36	37		50	51
⋮						
Row 18	290	291	292		305	306
Row 19	307	308	309		322	323

If we observe the above table, we can see every row has consecutive numbers starting from 17 × (row - 1).

So, the general term for the above table can be written as Cij = 17(i – 1) + j, where Cij represents the seat in i^{th} row and j^{th} column.

Similarly, sitting arrangement of students during the seminar titled as "Good business sense" is as given below

	Column 1	Column 2	— — —	Column 16	Column 17
Row 1	1	20		286	305
Row 2	2	21		287	306
Row 3	3	22		288	307
⋮					
Row 18	18	37		303	322
Row 19	19	38		304	323

So, the general term for the above table can be written as Cij = 19(j – 1) + i

In the grid of dimension 19 × 17, the magic numbers are 1, 162 and 323.

In 11 × 13 grid, magic numbers are 1, 67, 133.

So, common magic number is only 1.

FeedBack

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

Sanjeev has an ATM card, which has a 4-letter Personal Identification Number (PIN). All the 4 letters in the PIN are different and taken from the 26 letters of english alphabet. While withdrawing money using the card from the ATM machine, Sanjeev must enter that 4-letter PIN correctly.

• In case, the PIN entered by Sanjeev has all 4 letters same as of the original PIN but not in the right order OR has 3 letters correct also at right places but one wrong letter, the machine flash the message "Please try again" on the screen.
• In case, the PIN entered by Sanjeev is having 3 letters as of the original PIN and one wrong letter, the machine flash the message "Don't try smart" on the screen.

Q.43
Sanjeev forgot his ATM card's PIN completely and hence started putting letters intelligently to get the correct PIN in minimum number of trials. What is the maximum number of trials he might have to put in to take out the money if in his first trial he received a message "Please try again"?

Solution:
Correct Answer : 27
If the message received is "Please try again" this means either all 4 characters are right but the order is wrong or 3 letters are right and at right place but there is 1 wrong letter.
Sanjeev will change the position of any two letters and again put in the PIN. If it still shows "Please try again" it means all 4 letters are correct but not in right order. There are a total of 24 PIN's that can be formed with these 4 letters so 24 attempts. If it shows "Don't try smart" it means 3 letters of the original PIN were in right place and 1 was wrong. Try the PIN one by one every time changing one of the letters to know which letter is wrong. Let us say first three attempts gives wrong PIN this means 4^{th} place letter is wrong. As the PIN has all distinct letters, the 4^{th} place can have 22 possibilities. So it will take a total of 25 attempts plus one attempt as in previous case.
Including the initial attempt, a total of 27 attempts will ensure that Sanjeev can withdraw money from ATM.

Bookmark

Answer key/Solution

FeedBack

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

Sanjeev has an ATM card, which has a 4-letter Personal Identification Number (PIN). All the 4 letters in the PIN are different and taken from the 26 letters of english alphabet. While withdrawing money using the card from the ATM machine, Sanjeev must enter that 4-letter PIN correctly.

• In case, the PIN entered by Sanjeev has all 4 letters same as of the original PIN but not in the right order OR has 3 letters correct also at right places but one wrong letter, the machine flash the message "Please try again" on the screen.
• In case, the PIN entered by Sanjeev is having 3 letters as of the original PIN and one wrong letter, the machine flash the message "Don't try smart" on the screen.

Q.44
Sanjeev puts in a random PIN and gets a message "Please try again". If he knows all 4 letters are not correct, then what is the minimum number of trials (including the one put initially) after which he will be sure to take out the money?

Bookmark

Answer key/Solution

Solution:
Correct Answer : 26
If the message received is “Please try again” this means either all 4 characters are right but the order is wrong or 3 letters are right and at right place but there is 1 wrong letter.
Sanjeev will change the position of any two letters and again put in the PIN. If it still shows “Please try again” it means all 4 letters are correct but not in right order. There are a total of 24 PIN’s that can be formed with these 4 letters so 24 attempts. If it shows “Don’t try smart” it means 3 letters of the original PIN were in right place and 1 was wrong. Try the PIN one by one every time changing one of the letters to know which letter is wrong. Let us say first three attempts gives wrong PIN this means 4^{th} place letter is wrong. As the PIN has all distinct letters, the 4^{th} place can have 22 possibilities. So it will take a total of 25 attempts plus one attempt as in previous case.
As discussed in the previous question, the total number of trials is 26 (subtracting the one in which letters were interchanged).

FeedBack

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

Sanjeev has an ATM card, which has a 4-letter Personal Identification Number (PIN). All the 4 letters in the PIN are different and taken from the 26 letters of english alphabet. While withdrawing money using the card from the ATM machine, Sanjeev must enter that 4-letter PIN correctly.

• In case, the PIN entered by Sanjeev has all 4 letters same as of the original PIN but not in the right order OR has 3 letters correct also at right places but one wrong letter, the machine flash the message “Please try again” on the screen.
• In case, the PIN entered by Sanjeev is having 3 letters as of the original PIN and one wrong letter, the machine flash the message “Don’t try smart” on the screen.

Q.45
Sanjeev puts in a random PIN and gets a message “Don’t try smart”. What is the minimum number of trials after this after which he will be sure to have put in the right PIN?

Bookmark

Answer key/Solution

Solution:
Correct Answer : 48
If the message received is “Please try again” this means either all 4 characters are right but the order is wrong or 3 letters are right and at right place but there is 1 wrong letter.
Sanjeev will change the position of any two letters and again put in the PIN. If it still shows “Please try again” it means all 4 letters are correct but not in right order. There are a total of 24 PIN’s that can be formed with these 4 letters so 24 attempts. If it shows “Don’t try smart” it means 3 letters of the original PIN were in right place and 1 was wrong. Try the PIN one by one every time changing one of the letters to know which letter is wrong. Let us say first three attempts gives wrong PIN this means 4^{th} place letter is wrong. As the PIN has all distinct letters, the 4^{th} place can have 22 possibilities. So it will take a total of 25 attempts plus one attempt as in previous case.
Since, the message that flashed is “don’t try smart’, therefore, 3 of the letters are right and one is wrong. By putting different combinations of these letters we will get 3 right letters at right places and 1 wrong place. A total of 24 combinations can be there. A maximum of 23 combinations will ensure one wrong letter and the right position of 3 other letters. By changing each letter one by one and trying the PIN we get to know which letter is wrong in 3 more trials. Now 22 more possibilities can exist to get the wrong letter right. So, in total 48 trials are needed.

FeedBack

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

Sanjeev has an ATM card, which has a 4-letter Personal Identification Number (PIN). All the 4 letters in the PIN are different and taken from the 26 letters of english alphabet. While withdrawing money using the card from the ATM machine, Sanjeev must enter that 4-letter PIN correctly.

• In case, the PIN entered by Sanjeev has all 4 letters same as of the original PIN but not in the right order OR has 3 letters correct also at right places but one wrong letter, the machine flash the message “Please try again” on the screen.
• In case, the PIN entered by Sanjeev is having 3 letters as of the original PIN and one wrong letter, the machine flash the message “Don’t try smart” on the screen.

Q.46
Sanjeev puts in a random PIN and gets a message “Don’t try smart”. What is the minimum number of trials after this after which he will be sure to get the message “Please try again”?

Bookmark

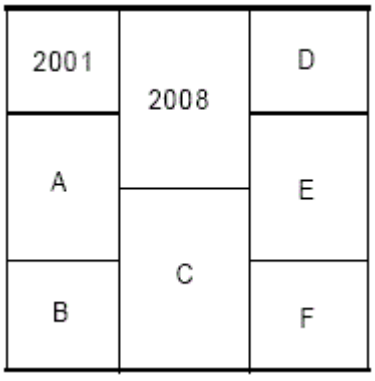
Answer key/Solution

Solution:
Correct Answer : 23
If the message received is "Please try again" this means either all 4 characters are right but the order is wrong or 3 letters are right and at right place but there is 1 wrong letter.
Sanjeev will change the position of any two letters and again put in the PIN. If it still shows "Please try again" it means all 4 letters are correct but not in right order. There are a total of 24 PIN's that can be formed with these 4 letters so 24 attempts. If it shows "Don't try smart" it means 3 letters of the original PIN were in right place and 1 was wrong. Try the PIN one by one every time changing one of the letters to know which letter is wrong. Let us say first three attempts gives wrong PIN this means 4^{th} place letter is wrong. As the PIN has all distinct letters, the 4^{th} place can have 22 possibilities. So it will take a total of 25 attempts plus one attempt as in previous case.
A message of "Don't try smart" means 3 of the letters are correct and 1 letter is wrong. There are 24 possible combinations of these 4 letters. One of them will have 3 right letters at right places and one wrong letter. Hence, after the initial attempt, 23 more attempts are needed to receive this message.

FeedBack

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

In a township called "Eldo County", there are eight houses numbered from 2001 to 2008 . These houses are numbered in such a way that each house must share its boundary with at least one such house which has its house number consecutive to its number.
For example, house number 2003 must share its boundary with at least one of the houses having number 2002 or 2004. The figure given below provides the basic blueprint of the location of 8 houses, with the exact places of house number 2001 and 2008, and the remaining 6 houses in the disguised name as A, B, C, D, E and F.



Q.47
If houses C and E are numbered consecutively with C being the smaller number, then in how many ways can all the houses be numbered?

1 **3**

2 **2**

3 **4**

4 **1**

Bookmark

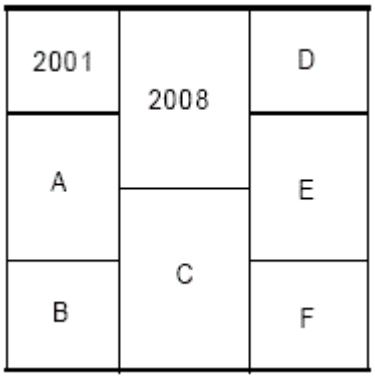
Answer key/Solution

Solution:
Correct Answer : 2
House A must be numbered 2002, as it is the only consecutive number to 2001. Now house C and E can be numbered in four ways as 2003 and 2004, 2004 and 2005, 2005 and 2006 OR 2006 and 2007
Case I: C and E are numbered as 2003 and 2004.
This is not possible as in this case house B cannot be numbered.
Case II: C and E are numbered as 2004 and 2005.
B must be numbered 2003, D must be numbered 2007 and F must be numbered 2006.
Case III: C and E are numbered as 2005 and 2006.
B must be numbered 2003, D must be numbered 2007 and then F must be numbered as 2004.
Case IV: C and E are numbered 2006 and 2007.
B must be numbered 2005 but D and F cannot be numbered.
Hence, only case I and case III is possible.

FeedBack

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

In a township called "Eldo County", there are eight houses numbered from 2001 to 2008 . These houses are numbered in such a way that each house must share its boundary with at least one such house which has its house number consecutive to its number.
For example, house number 2003 must share its boundary with at least one of the houses having number 2002 or 2004. The figure given below provides the basic blueprint of the location of 8 houses, with the exact places of house number 2001 and 2008, and the remaining 6 houses in the disguised name as A, B, C, D, E and F.



Q.48
If house D is numbered as 2007, then in how many possible ways can the other houses be numbered?

Bookmark

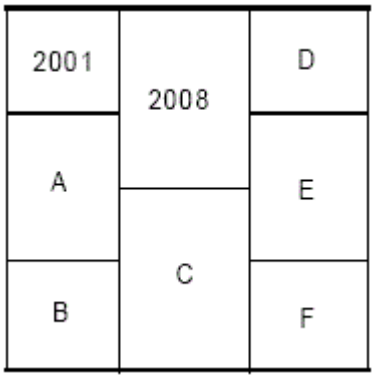
Answer key/Solution

Solution:
Correct Answer : 13
D is numbered 2007 and A must be numbered 2002. Now B, C, E and F are numbered 2003, 2004, 2005 and 2006.
Case I: House B is numbered 2003.
The other three are adjacent to each other and also consecutive, so they can be numbered in any of the 6 ways.
Case II: House C is numbered 2003.
B must be numbered 2004 and E and F can be numbered 2005 and 2006 in any order. So, 2 ways.
Case III: House E is numbered 2003.
Either C or F must be numbered 2004. Also if C is 2004, neither B nor F can be 2006 so only 2 ways.
Case IV: House F is numbered 2003.
Either C or E must be numbered 2004. Also if C is 2004, B cannot be 2006 so only 3 ways.
Hence, possible ways are (6 + 2 + 2 + 3) = 13.

FeedBack

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

In a township called "Eldo County", there are eight houses numbered from 2001 to 2008 . These houses are numbered in such a way that each house must share its boundary with at least one such house which has its house number consecutive to its number.
For example, house number 2003 must share its boundary with at least one of the houses having number 2002 or 2004. The figure given below provides the basic blueprint of the location of 8 houses, with the exact places of house number 2001 and 2008, and the remaining 6 houses in the disguised name as A, B, C, D, E and F.



Q.49
If the house numbers of A and C differ by 4, then in how many ways can the houses be numbered?

1 **2**

2 **3**

3 **4**

4 **1**

Solution:
Correct Answer : 3
As A is definitely numbered 2002, C must be numbered 2006.
Now house B can be numbered 2003 or 2005 but not 2007 as 2007 must be adjacent to 2008. If house B is numbered 2003, D should be numbered 2007 and E and F must be numbered 2004 and 2005, in any order. So, 2 ways.
Also, if house B is numbered 2005, D should be numbered 2007 and E and F must be numbered 2003 and 2004 in any order. So, 2 ways.
Hence, total 4 ways are there.

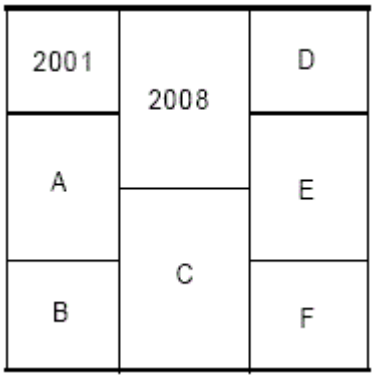
Bookmark

Answer key/Solution

FeedBack

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

In a township called "Eldo County", there are eight houses numbered from 2001 to 2008 . These houses are numbered in such a way that each house must share its boundary with at least one such house which has its house number consecutive to its number.
For example, house number 2003 must share its boundary with at least one of the houses having number 2002 or 2004. The figure given below provides the basic blueprint of the location of 8 houses, with the exact places of house number 2001 and 2008, and the remaining 6 houses in the disguised name as A, B, C, D, E and F.



Q.50
What is the absolute difference between the maximum and the minimum possible number of house F?

Solution:
Correct Answer : 3
As house A is numbered as 2002 and house F cannot be numbered as 2007, the difference between maximum and minimum value of house F's number is 3 i.e. 2006 – 2003.

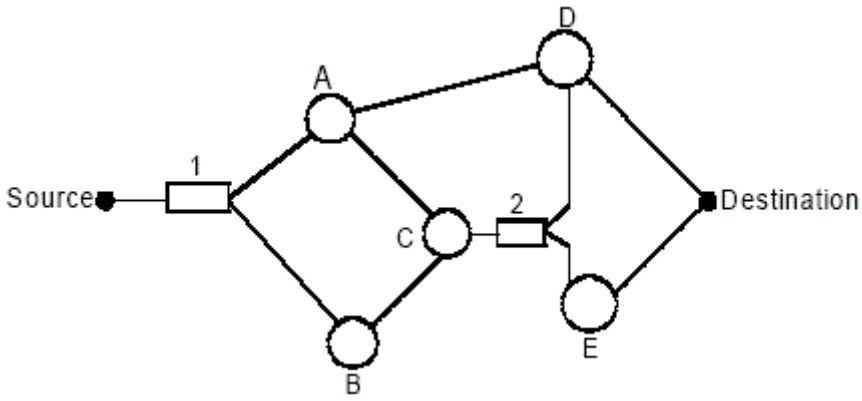
Bookmark

Answer key/Solution

FeedBack

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

A chemical scientist wanted to design a machine to do the mixes and then deliver him a required byproduct. So, he designed a machine, which delivers the required chemical byproduct at the destination point while started from the source in accurate quantities, the outlay of which is as shown below.



Description of his design is as follows:

• All circular figures represent concentrators namely A, B, C, D and E. Each concentrator increases the concentration of the mixture, which passes through it, by 10 percentage points.
• All rectangular figures represent mixers namely 1 and 2. Each mixer reduces the concentration of the mixture, which passes through it, by 5 percentage points. Every mixer has one inlet and two outlets.
• When there are two inlets the concentration taken, upon which the change in concentration point is carried out by the mixer or concentrator, will be the average of the two inlet's concentrations.
• When there are two outlets, the output concentration is the same in each of them as it would be with just one outlet.
• The byproduct obtained from destination will be the average of the outlet concentrations of concentrator D and E.
• The flow of the machine is from left to right unless stated otherwise.

Q.51

If a mixture named 'Cad B' enters the machine from the source point with 30% concentration, what will be the concentration of the byproduct available at the destination?

1 **91.25%**

2 **77.5%**

3 **62.5%**

4 **48.75%**

Bookmark

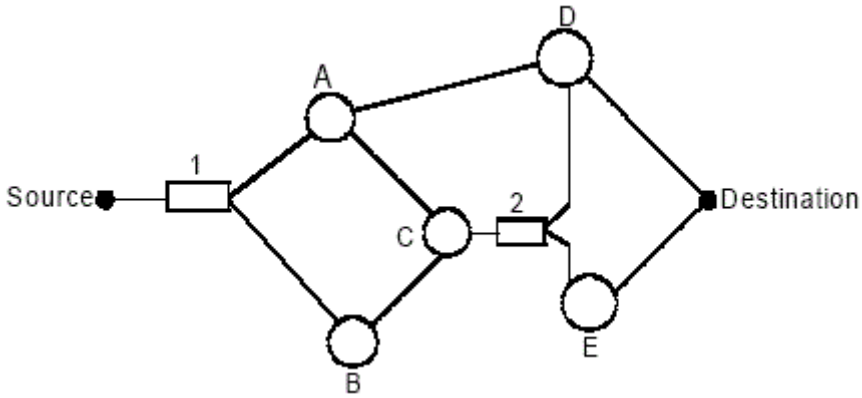
Answer key/Solution

Solution:
Correct Answer : 4
The mixture enters from the source with 30% concentration.
At mixer 1, it's concentration will be reduced to 25%.
At concentrators A and B the output concentration will be 35%.
The output of A will reach C and D with 35% concentration each, while the output of B will reach C with 35% concentration.
At C, the two inputs will be averaged (35+35)/2 = 35 and the concentrator will increase the concentration to 45%.
This output will then go to the mixer 2, and its concentration will be reduced to 40% which will be taken to concentrators D and E.
Also, D receives the 35% output of A, So output of D will be = (35 + 40)/2 + 10 = 37.5 + 10 = 47.5.
At E, the output of mixer 2, will be increased in concentration by 10% points giving a resultant concentration of 50%.
At destination we have two inputs, one of 47.5% and one of 50%. Therefore, their average will be = (47.5 + 50)/2 = 97.5/2 = 48.75, which is the concentration of the byproduct.

FeedBack

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

A chemical scientist wanted to design a machine to do the mixes and then deliver him a required byproduct. So, he designed a machine, which delivers the required chemical byproduct at the destination point while started from the source in accurate quantities, the outlay of which is as shown below.



Description of his design is as follows:

• All circular figures represent concentrators namely A, B, C, D and E. Each concentrator increases the concentration of the mixture, which passes through it, by 10 percentage points.
• All rectangular figures represent mixers namely 1 and 2. Each mixer reduces the concentration of the mixture, which passes through it, by 5 percentage points. Every mixer has one inlet and two outlets.
• When there are two inlets the concentration taken, upon which the change in concentration point is carried out by the mixer or concentrator, will be the average of the two inlet's concentrations.
• When there are two outlets, the output concentration is the same in each of them as it would be with just one outlet.
• The byproduct obtained from destination will be the average of the outlet concentrations of concentrator D and E.
• The flow of the machine is from left to right unless stated otherwise.

Q.52

If the function of mixers and concentrators was interchanged, what would be the concentration of the byproduct available at the destination from a mixture 'Cad B' which entered the source with 40% concentration?

1 **43.75%**

2 **33.75%**

3 **44.25%**

4 **32.5%**

Bookmark

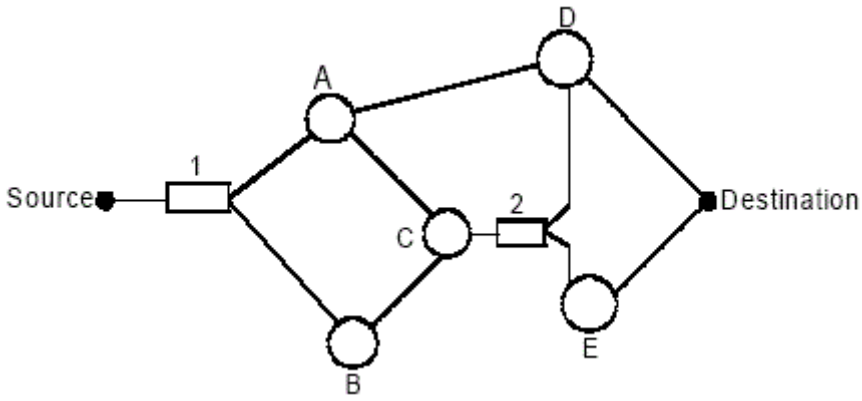
Answer key/Solution

Solution:
Correct Answer : 1
The mixture enters from the source with 40% concentration.
At mixer 1, it's concentration will be increased to 50%.
At concentrators A and B the output concentration will be 45%.
The output of A will reach C and D with 45% concentration each, while the output of B will reach C with 45% concentration.
At C, the two inputs will be averaged (45+45)/2 = 45 and the concentrator will decrease the concentration to 40%.
This output will then go to the mixer 2, and its concentration will be increased to 50% which will be taken to concentrators D and E.
Also D receives the 45% output of A, So output of D will be = (45 + 50)/2 –5 = 47.5-5 = 42.5
At E, the output of mixer 2, will be decreased in concentration by 5% points giving a resultant concentration of 45%.
At destination we have two inputs, one of 42.5% and one of 45%.
Therefore, the average will be = (42.5 + 45)/2 = 87.5/2 = 43.75.

FeedBack

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

A chemical scientist wanted to design a machine to do the mixes and then deliver him a required byproduct. So, he designed a machine, which delivers the required chemical byproduct at the destination point while started from the source in accurate quantities, the outlay of which is as shown below.



Description of his design is as follows:

• All circular figures represent concentrators namely A, B, C, D and E. Each concentrator increases the concentration of the mixture, which passes through it, by 10 percentage points.
• All rectangular figures represent mixers namely 1 and 2. Each mixer reduces the concentration of the mixture, which passes through it, by 5 percentage points. Every mixer has one inlet and two outlets.
• When there are two inlets the concentration taken, upon which the change in concentration point is carried out by the mixer or concentrator, will be the average of the two inlet's concentrations.
• When there are two outlets, the output concentration is the same in each of them as it would be with just one outlet.
• The byproduct obtained from destination will be the average of the outlet concentrations of concentrator D and E.
• The flow of the machine is from left to right unless stated otherwise.

Q.53
With what concentration should a mixture named 'Cad B' enters the source so as to have a byproduct of concentration 50% delivered at the destination?

1 **20.75%**

2 **28.25%**

3 **31.25%**

4 **36.75%**

Bookmark

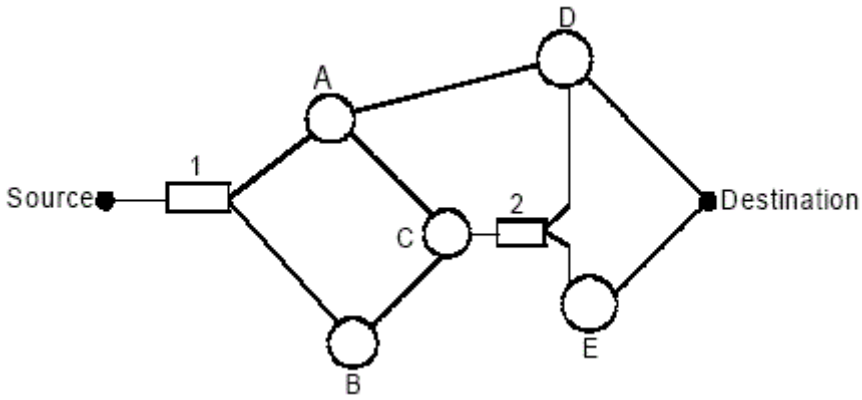
Answer key/Solution

Solution:
Correct Answer : 3
Let 'X'% be the concentration of the mixture that enters the source.
At mixer 1, the concentration will be reduced to (X – 5)%.
At concentrators A and B the output concentration will be (X + 5)%.
The output of A will reach C and D with (X + 5)% concentration each, while the output of B will reach C with (X + 5)% concentration.
At C, the two inputs will be averaged (X + 5 + X + 5)/2 = X + 5 and the concentrator will increase the concentration to (X + 15)%.
This output will then go to the mixer 2, and its concentration will be reduced to X+10% which will be taken to concentrators D and E.
Also D receives the (X + 5)% output of A. So, output of D will be: = (X + 5 + X + 10)/2 + 10 = X + 7.5 + 10 = X + 17.5
At E, the output of mixer 2, will be increased in concentration by 10% giving a resultant concentration of (X + 20)%.
At destination we have two inputs one of (X + 17.5)% and one of (X + 20)%.
Their average will be = (X + 17.5 + X + 20)/2 = (2X + 37.5)/2 = (X + 18.75)%.
But this concentration is given to be equal to 50, hence X + 18.75 = 50 i.e, X = 31.25%.

FeedBack

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

A chemical scientist wanted to design a machine to do the mixes and then deliver him a required byproduct. So, he designed a machine, which delivers the required chemical byproduct at the destination point while started from the source in accurate quantities, the outlay of which is as shown below.



Description of his design is as follows:

• All circular figures represent concentrators namely A, B, C, D and E. Each concentrator increases the concentration of the mixture, which passes through it, by 10 percentage points.
• All rectangular figures represent mixers namely 1 and 2. Each mixer reduces the concentration of the mixture, which passes through it, by 5 percentage points. Every mixer has one inlet and two outlets.
• When there are two inlets the concentration taken, upon which the change in concentration point is carried out by the mixer or concentrator, will be the average of the two inlet's concentrations. • When there are two outlets, the output concentration is the same in each of them as it would be with just one outlet.
• The byproduct obtained from destination will be the average of the outlet concentrations of concentrator D and E.
• The flow of the machine is from left to right unless stated otherwise.

Q.54

Designer tries to improve his design and hence make the following two amendments,
(i) Each concentrator increases the concentration of the mixture, which passes through it, by 10 percent.
(ii) Each mixer reduces the concentration of the mixture, which passes through it, by 5 percent.

If the designer passes 'Cad X', having concentration 50%, once with the original machine and once with the improved version, then what is the approximate difference between the percentage points of the two outputs at destination?

1 **9.3%**

2 **12.3%**

3 **8%**

4 **10.8%**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Scenario in improved version:
The mixture enters the source with 50% concentration.

At mixer 1, its concentrations will be reduced by 5 percent, i.e., $50\left[1-\frac{5}{100}\right]\% = 47.5\%$.

This will then reach A and B, and the output concentration will be increased by 10% i.e., $47.5\left[1+\frac{10}{100}\right] = 52.25\%$.

The output of A will reach C and D with 52.25% concentration each, while the output of B will reach C with 52.25% concentration.

At C, the two inputs will be averaged as $\frac{(52.25+52.25)}{2} = 52.25\%$ and its concentration will increase to $52.25\left[1+\frac{10}{100}\right] = 57.475\%$.

This will then go to the mixer 2 and its concentration will be reduced to $57.475\left[1-\frac{5}{100}\right] = 54.60125\%$, which will be taken to concentrators D and E.

Also, D receives the 52.25% output of A, so concentration at D will be = $\frac{(52.25+54.6012)}{2} = 53.425\%$ and output from D will be 58.7681875%.
At E, the output of mixer 2, will be increased in concentration by 10% giving a resultant concentration of 60.061375%.
At destination we have two inputs one of 58.7681875% and one of 60.061375%.
Their average will be 59.41478125%.
Scenario in original version:
The final concentration at the destination would be 68.75%.
Therefore, the approximate difference would be 9.3%.

FeedBack

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

A cricket match was played between India and Australia on 24th May 2018. Only ten players – Virat, Rohit, Shikhar, Hardik, Dinesh, David, Glenn, Chris, Aaron and Steve – taken together from both the teams got a chance to bat and therefore scored – 73, 53, 59, 43, 37, 31, 23, 19, 17 and 11– runs in the match, not necessarily in the given order. Out of these ten players – Virat, Rohit, Shikhar, Hardik and Dinesh are from Indian team, while the remaining five are from Australian team. No other run was scored by any other batsmen or by any other means i.e, wide ball, no ball etc. Further, it is known that:

(i) Rohit made a half century but was not the highest scorer among the ten batsmen.
(ii) The highest scorer with 73 runs was not from the Australian team.
(iii) Virat scored more runs than that of scored by any Australian batsman.
(iv) The match ended in a tie i.e., both teams had scored the equal number of total runs.

Q.55

If the least run scoring batsman was neither Steve nor Shikhar, then the lowest score could belong to which of the following batsman?

1 **Aaron**

2 **Chris**

3 **Dinesh**

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

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

A total of 366 runs are scored, as 73 + 53 + 59 + 43 + 37 + 31 + 23 + 19 + 17 + 11 = 366, and since match ended in a tie therefore both the teams scored half of the total runs i.e., $\frac{366}{2}$ = 183 runs.

Statement I implies, Rohit scored a half century but not the highest which means possible score for him is either 53 or 59.
Statement II implies, a score of 73 runs also belong to an Indian batsmen. But all the top 3 scores cannot belong to India since their sum is 185 (i.e., 73 + 59 + 53) which is more than 183 runs, so either it is (73 and 59) or (73 and 53) that belong to India.

Case 1:
Score board of India → 73 runs + 59 runs + 51 more runs needed, which can be achieved by (23 + 17 + 11)
Score board of Australia → 53 runs + 43 runs + 37 runs + 31 runs + 19 runs = 183 runs
So, using statement III, Virat's score must be 73 runs.

Case 2:
Score board of India → 73 runs + 53 runs + 57 more runs needed, which cannot be achieved by adding any of the 3 numbers.
So, this case is not possible.

Since lowest score i.e, 11 belongs to an Indian batsman, so it could be Dinesh only out of the given options.

FeedBack

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

A cricket match was played between India and Australia on 24th May 2018. Only ten players – Virat, Rohit, Shikhar, Hardik, Dinesh, David, Glenn, Chris, Aaron and Steve – taken together from both the teams got a chance to bat and therefore scored – 73, 53, 59, 43, 37, 31, 23, 19, 17 and 11– runs in the match, not necessarily in the given order. Out of these ten players – Virat, Rohit, Shikhar, Hardik and Dinesh are from Indian team, while the remaining five are from Australian team. No other run was scored by any other batsmen or by any other means i.e, wide ball, no ball etc. Further, it is known that:

(i) Rohit made a half century but was not the highest scorer among the ten batsmen.
(ii) The highest scorer with 73 runs was not from the Australian team.
(iii) Virat scored more runs than that of scored by any Australian batsman.
(iv) The match ended in a tie i.e., both teams had scored the equal number of total runs.

Q.56
Which of the following is the maximum runs scored by an Australian batsman?

1 **43**

2 **59**

3 **53**

4 **Cannot be determined**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

A total of 366 runs are scored, as 73 + 53 + 59 + 43 + 37 + 31 + 23 + 19 + 17 + 11 = 366, and since match ended in a tie therefore both the teams scored half of the total runs i.e., $\frac{366}{2}$ = 183 runs.

Statement I implies, Rohit scored a half century but not the highest which means possible score for him is either 53 or 59.
Statement II implies, a score of 73 runs also belong to an Indian batsmen. But all the top 3 scores cannot belong to India since their sum is 185 (i.e., 73 + 59 + 53) which is more than 183 runs, so either it is (73 and 59) or (73 and 53) that belong to India.

Case 1:
Score board of India → 73 runs + 59 runs + 51 more runs needed, which can be achieved by (23 + 17 + 11)
Score board of Australia → 53 runs + 43 runs + 37 runs + 31 runs + 19 runs = 183 runs
So, using statement III, Virat's score must be 73 runs.

Case 2:
Score board of India → 73 runs + 53 runs + 57 more runs needed, which cannot be achieved by adding any of the 3 numbers.
So, this case is not possible.

Maximum runs scored by an Australian batsman is 53.

FeedBack

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

A cricket match was played between India and Australia on 24th May 2018. Only ten players – Virat, Rohit, Shikhar, Hardik, Dinesh, David, Glenn, Chris, Aaron and Steve – taken together from both the teams got a chance to bat and therefore scored – 73, 53, 59, 43, 37, 31, 23, 19, 17 and 11– runs in the match, not necessarily in the given order. Out of these ten players – Virat, Rohit, Shikhar, Hardik and Dinesh are from Indian team, while the remaining five are from Australian team. No other run was scored by any other batsmen or by any other means i.e, wide ball, no ball etc. Further, it is known that:

(i) Rohit made a half century but was not the highest scorer among the ten batsmen.
(ii) The highest scorer with 73 runs was not from the Australian team.
(iii) Virat scored more runs than that of scored by any Australian batsman.
(iv) The match ended in a tie i.e., both teams had scored the equal number of total runs.

Q.57

If 'X' be the maximum possible difference between the runs scored by an Indian batsman and the runs scored by an Australian batsman, and 'Y' be the minimum possible such difference, then the value of |X-Y| is

1 **46**

2 **52**

3 **40**

4 **None of these**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

A total of 366 runs are scored, as 73 + 53 + 59 + 43 + 37 + 31 + 23 + 19 + 17 + 11 = 366, and since match ended in a tie therefore both the teams scored half of the total runs i.e., $\frac{366}{2}$ = 183 runs.

Statement I implies, Rohit scored a half century but not the highest which means possible score for him is either 53 or 59.
Statement II implies, a score of 73 runs also belong to an Indian batsmen. But all the top 3 scores cannot belong to India since their sum is 185 (i.e., 73 + 59 + 53) which is more than 183 runs, so either it is (73 and 59) or (73 and 53) that belong to India.

Case 1:
Score board of India → 73 runs + 59 runs + 51 more runs needed, which can be achieved by (23 + 17 + 11)
Score board of Australia → 53 runs + 43 runs + 37 runs + 31 runs + 19 runs = 183 runs
So, using statement III, Virat's score must be 73 runs.

Case 2:
Score board of India → 73 runs + 53 runs + 57 more runs needed, which cannot be achieved by adding any of the 3 numbers.
So, this case is not possible.

X = maximum difference between run of any two batsmen of the two teams = 73 - 19
Y = minimum difference between run of any two batsmen of the two teams = 19 - 17
Therefore, value of |X – Y| = |(73 – 19) – (19 – 17)| = 52

FeedBack

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

A cricket match was played between India and Australia on 24th May 2018. Only ten players – Virat, Rohit, Shikhar, Hardik, Dinesh, David, Glenn, Chris, Aaron and Steve – taken together from both the teams got a chance to bat and therefore scored – 73, 53, 59, 43, 37, 31, 23, 19, 17 and 11– runs in the match, not necessarily in the given order. Out of these ten players – Virat, Rohit, Shikhar, Hardik and Dinesh are from Indian team, while the remaining five are from Australian team. No other run was scored by any other batsmen or by any other means i.e, wide ball, no ball etc. Further, it is known that:

(i) Rohit made a half century but was not the highest scorer among the ten batsmen.
(ii) The highest scorer with 73 runs was not from the Australian team.
(iii) Virat scored more runs than that of scored by any Australian batsman.
(iv) The match ended in a tie i.e., both teams had scored the equal number of total runs.

Q.58
Which of the following can be a possible sum of scores of Shikhar and Steve?

1 **96**

2 **42**

3 **37**

4 **40**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

A total of 366 runs are scored, as 73 + 53 + 59 + 43 + 37 + 31 + 23 + 19 + 17 + 11 = 366, and since match ended in a tie therefore both the teams scored half of the total runs i.e., $\frac{366}{2}$ = 183 runs.

Statement I implies, Rohit scored a half century but not the highest which means possible score for him is either 53 or 59.
Statement II implies, a score of 73 runs also belong to an Indian batsmen. But all the top 3 scores cannot belong to India since their sum is 185 (i.e., 73 + 59 + 53) which is more than 183 runs, so either it is (73 and 59) or (73 and 53) that belong to India.

Case 1:
Score board of India → 73 runs + 59 runs + 51 more runs needed, which can be achieved by (23 + 17 + 11)
Score board of Australia → 53 runs + 43 runs + 37 runs + 31 runs + 19 runs = 183 runs
So, using statement III, Virat's score must be 73 runs.

Case 2:
Score board of India → 73 runs + 53 runs + 57 more runs needed, which cannot be achieved by adding any of the 3 numbers.
So, this case is not possible.

Possible sum of scores of Shikhar and Steve could be (23 + 19) = 42 runs.

FeedBack

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

Shows based on seven cartoon characters – Flintstones, Tom, Scooby Doo, Popeye, Richie Rich, Jerry and Yogi Bear – are telecast in a week on seven different days – Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday - not necessarily in the same order. Each of these characters eats one food out of the seven different foods – honey, cactus, radish, carrot, bread, biscuit and cheese - in any order. Sunday being the day 1 and Saturday being the day 7 of the week.

Following information is also known:
(i) Richie Rich eats bread and Jerry's show telecasts on someday after Monday.
(ii) The show of Yogi Bear telecasts on Saturday and Flintstones eats honey.
(iii) Scooby Doo eats radish, and carrot is eaten by a character whose show telecasts on Wednesday.
(iv) Tom and Jerry eat cactus and biscuit respectively, and shows on both of them telecast on even numbered days of the week. Show on Popeye also telecasts on an even numbered day.
(v) The day on which Tom's show telecasts is not immediately followed by the Flintstone's show day.
(vi) Biscuit is eaten by a character whose show telecasts on the immediate next day of Richie Rich's show.

Q.59
Which cartoon character eats cheese?

1 **Popeye**

2 **Yogi Bear**

3 **Scooby Doo**

4 **Flintstones**

Solution:
Correct Answer : 2
Using the data given in the question, we can form the following table:

DAY	CHARACTER	FOOD
Sunday	Flintstones	Honey
Monday	Tom	Cactus
Tuesday	Scooby Doo	Radish
Wednesday	Popeye	Carrot
Thursday	Richie Rich	Bread
Friday	Jerry	Biscuits
Saturday	Yogi Bear	Cheese

Yogi Bear eats Cheese.

FeedBack

Bookmark

Answer key/Solution

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

Shows based on seven cartoon characters – Flintstones, Tom, Scooby Doo, Popeye, Richie Rich, Jerry and Yogi Bear – are telecast in a week on seven different days – Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday - not necessarily in the same order. Each of these characters eats one food out of the seven different foods – honey, cactus, radish, carrot, bread, biscuit and cheese - in any order. Sunday being the day 1 and Saturday being the day 7 of the week.

Following information is also known:
(i) Richie Rich eats bread and Jerry's show telecasts on someday after Monday.
(ii) The show of Yogi Bear telecasts on Saturday and Flintstones eats honey.
(iii) Scooby Doo eats radish, and carrot is eaten by a character whose show telecasts on Wednesday.
(iv) Tom and Jerry eat cactus and biscuit respectively, and shows on both of them telecast on even numbered days of the week. Show on Popeye also telecasts on an even numbered day.
(v) The day on which Tom's show telecasts is not immediately followed by the Flintstone's show day.
(vi) Biscuit is eaten by a character whose show telecasts on the immediate next day of Richie Rich's show.

Q.60
Which cartoon's show appears on TV on the day immediately preceding the day on which Popeye appears?

1 **Flintstones**

2 **Yogi Bear**

3 **Scooby Doo**

4 **Richie Rich**

Solution:
Correct Answer : 3
Using the data given in the question, we can form the following table:

DAY	CHARACTER	FOOD
Sunday	Flintstones	Honey
Monday	Tom	Cactus
Tuesday	Scooby Doo	Radish
Wednesday	Popeye	Carrot
Thursday	Richie Rich	Bread
Friday	Jerry	Biscuits
Saturday	Yogi Bear	Cheese

Scooby Doo's show telecast on the day preceding the Popeye's show day.

FeedBack

Bookmark

Answer key/Solution

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

Shows based on seven cartoon characters – Flintstones, Tom, Scooby Doo, Popeye, Richie Rich, Jerry and Yogi Bear – are telecast in a week on seven different days – Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday - not necessarily in the same order. Each of these characters eats one food out of the seven different foods – honey, cactus, radish, carrot, bread, biscuit and cheese - in any order. Sunday being the day 1 and Saturday being the day 7 of the week.

Following information is also known:
(i) Richie Rich eats bread and Jerry's show telecasts on someday after Monday.
(ii) The show of Yogi Bear telecasts on Saturday and Flintstones eats honey.
(iii) Scooby Doo eats radish, and carrot is eaten by a character whose show telecasts on Wednesday.
(iv) Tom and Jerry eat cactus and biscuit respectively, and shows on both of them telecast on even numbered days of the week. Show on Popeye also telecasts on an even numbered day.
(v) The day on which Tom's show telecasts is not immediately followed by the Flintstone's show day.
(vi) Biscuit is eaten by a character whose show telecasts on the immediate next day of Richie Rich's show.

Q.61
Which are the characters appearing on odd numbered days of week, with days in ascending order?

1 **Richie Rich, Scooby Doo, Flintstones, Yogi Bear**

2 **Tom, Popeye, Jerry, Flintstones**

3 **Flintstones, Scooby Doo, Richie Rich, Yogi Bear**

4 **Flintstones, Richie Rich, Scooby Doo, Yogi Bear**

Solution:
Correct Answer : 3
Using the data given in the question, we can form the following table:

DAY	CHARACTER	FOOD
Sunday	Flintstones	Honey
Monday	Tom	Cactus
Tuesday	Scooby Doo	Radish
Wednesday	Popeye	Carrot
Thursday	Richie Rich	Bread
Friday	Jerry	Biscuits
Saturday	Yogi Bear	Cheese

Flintstones, Scooby Doo, Richie Rich, Yogi Bear is the correct order.

FeedBack

Bookmark

Answer key/Solution

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

Shows based on seven cartoon characters – Flintstones, Tom, Scooby Doo, Popeye, Richie Rich, Jerry and Yogi Bear – are telecast in a week on seven different days – Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday - not necessarily in the same order. Each of these characters eats one food out of the seven different foods – honey, cactus, radish, carrot, bread, biscuit and cheese - in any order. Sunday being the day 1 and Saturday being the day 7 of the week.

Following information is also known:
(i) Richie Rich eats bread and Jerry's show telecasts on someday after Monday.
(ii) The show of Yogi Bear telecasts on Saturday and Flintstones eats honey.
(iii) Scooby Doo eats radish, and carrot is eaten by a character whose show telecasts on Wednesday.
(iv) Tom and Jerry eat cactus and biscuit respectively, and shows on both of them telecast on even numbered days of the week. Show on Popeye also telecasts on an even numbered day.
(v) The day on which Tom's show telecasts is not immediately followed by the Flintstone's show day.
(vi) Biscuit is eaten by a character whose show telecasts on the immediate next day of Richie Rich's show.

Q.62
Whose show telecasts on TV on a day immediately after the day on which Jerry's show telecasts?

1 **Popeye**

2 **Tom**

3 **Yogi Bear**

4 **Flintstones**

Solution:
Correct Answer : 3
Using the data given in the question, we can form the following table:

DAY	CHARACTER	FOOD
Sunday	Flintstones	Honey
Monday	Tom	Cactus
Tuesday	Scooby Doo	Radish
Wednesday	Popeye	Carrot
Thursday	Richie Rich	Bread
Friday	Jerry	Biscuits
Saturday	Yogi Bear	Cheese

Yogi Bear's show telecast after Jerry's show day.

FeedBack

Bookmark

Answer key/Solution

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

There are twelve taps connected to a tank to fill it with water. Rate (in liters per hour) at which the taps fills water in the tank is different for all the twelve taps, where the minimum and the maximum rate is 5 liters per hour and 60 liters per hour respectively. Rate of any of the taps is a multiple of 5. In a day, any of the pipes can work for a maximum of two hours, and also that two hours work of a pipe can be done at a single stretch only. No two taps are opened at the same time. Sequence of the twelve taps for filling the tank remains same for all the days, and all the taps fill the tank on their scheduled timing everyday till the tank is full. Total capacity of the tank is 800 liters.

Q.63

If it takes exactly 26 hours to fill the tank completely, find the rate (in liters per hour) of the tap which fills the tank lastly.

1 **10**

2 **20**

3 **5**

4 **15**

Solution:
Correct Answer : 1
Since the rate of all the twelve taps is multiple of 5, for which the minimum and maximum value is 5 and 60, it can be deduced that the 12 taps are having a rate of 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 and 60 liters/hour. Also, if each of the taps is opened for two hours in a day, the capacity of the tank which got filled is 780 liters.
In the first day i.e, 24 hours all the taps filled a total of 780 liters of water in the tank.
Therefore, in the last two hour total water to be filled is 20 liters.
Therefore the capacity of the tap which worked in the last two hours is 10 liters per hour.

Bookmark

Answer key/Solution

FeedBack

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

There are twelve taps connected to a tank to fill it with water. Rate (in liters per hour) at which the taps fills water in the tank is different for all the twelve taps, where the minimum and the maximum rate is 5 liters per hour and 60 liters per hour respectively. Rate of any of the taps is a multiple of 5. In a day, any of the pipes can work for a maximum of two hours, and also that two hours work of a pipe can be done at a single stretch only. No two taps are opened at the same time. Sequence of the twelve taps for filling the tank remains same for all the days, and all the taps fill the tank on their scheduled timing everyday till the tank is full. Total capacity of the tank is 800 liters.

Q.64

If it takes exactly 27 hours to fill the tank completely, find the rate (in liters per hour) of the tap which fills the tank secondly in a day.

1 **5**

2 **10**

3 **20**

4 **15**

Solution:
Correct Answer : 2
Since the rate of all the twelve taps is multiple of 5, for which the minimum and maximum value is 5 and 60, it can be deduced that the 12 taps are having a rate of 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 and 60 liters/hour. Also, if each of the taps is opened for two hours in a day, the capacity of the tank which got filled is 780 liters.
In the first day i.e, 24 hours all the taps filled a total of 780 liters of water in the tank.
Therefore, in the last three hour total water to be filled is 20 liters.
So in the first two hour of the second day water filled is 10 liters by the tap having rate of 5 liters per hour, and in the 27th hour water filled is 10 liters.
Therefore, capacity of the tap which works secondly in a day is 10 liters, as the schedule remains same for all the days.

Bookmark

Answer key/Solution

FeedBack

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

There are twelve taps connected to a tank to fill it with water. Rate (in liters per hour) at which the taps fills water in the tank is different for all the twelve taps, where the minimum and the maximum rate is 5 liters per hour and 60 liters per hour respectively. Rate of any of the taps is a multiple of 5. In a day, any of the pipes can work for a maximum of two hours, and also that two hours work of a pipe can be done at a single stretch only. No two taps are opened at the same time. Sequence of the twelve taps for filling the tank remains same for all the days, and all the taps fill the tank on their scheduled timing everyday till the tank is full. Total capacity of the tank is 800 liters.

Q.65
If one of the last five working taps in a day, as per the sequence of the first day, gets blocked for some time, then instead of taking 26 hours it took exactly 28 hours to fill the tank completely. Which of the following cannot be the time for which the given tap was blocked?

1 **15 minutes**

2 **75 minutes**

3 **90 minutes**

4 **120 minutes**

Solution:
Correct Answer : 4
Since the rate of all the twelve taps is multiple of 5, for which the minimum and maximum value is 5 and 60, it can be deduced that the 12 taps are having a rate of 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 and 60 liters/hour. Also, if each of the taps is opened for two hours in a day, the capacity of the tank which got filled is 780 liters.
As because of blockage in any of the last five working taps total extra time taken is 2 hours, therefore, if the blocked pipe was blocked for two hours, compensated time can't be 2 hours. Either it should be more than 2 hours or less than two hours.
Therefore, 120 minutes cannot be the time for which the given tap was blocked.

Bookmark

Answer key/Solution

FeedBack

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

There are twelve taps connected to a tank to fill it with water. Rate (in liters per hour) at which the taps fills water in the tank is different for all the twelve taps, where the minimum and the maximum rate is 5 liters per hour and 60 liters per hour respectively. Rate of any of the taps is a multiple of 5. In a day, any of the pipes can work for a maximum of two hours, and also that two hours work of a pipe can be done at a single stretch only. No two taps are opened at the same time. Sequence of the twelve taps for filling the tank remains same for all the days, and all the taps fill the tank on their scheduled timing everyday till the tank is full. Total capacity of the tank is 800 liters.

Q.66
If the tank is to be filled completely in 'x' hours where 'x' is an integer, then the rate (in liters per hour) of the tap which starts after (x-1)th hour such that value of 'x' is minimum possible is

1 **10**

2 **15**

3 **20**

4 **None of these**

Solution:
Correct Answer : 3
Since the rate of all the twelve taps is multiple of 5, for which the minimum and maximum value is 5 and 60, it can be deduced that the 12 taps are having a rate of 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 and 60 liters/hour. Also, if each of the taps is opened for two hours in a day, the capacity of the tank which got filled is 780 liters.
If the tank got filled in 'x' hours, the minimum possible integral value for x would be 25.
Now tap which starts after (25 - 1)th hour i.e, during 25th hour had to fill 20 liters in the tank in 1 hour.
So, the rate of tap which is opened during 25th hour is 20 liters/hour.

Bookmark

Answer key/Solution

FeedBack

Sec 3

Q.67

'abcde' is a five digit number, with all distinct digits, such that a + c + e = 17 and b + d = 10. If value of (a × c × e) + (b × d) is minimum, then which of the following can be the five digit number?

1 **94167**

2 **92781**

3 **31896**

4 **89712**

Solution:
Correct Answer : 2
The best way to solve such problems is to go through each option.
First check whether the given options satisfy the conditions: a + c + e =17 and b + d = 10.
Then, further look for the minimum value
For 94167, the required sum = (9 × 1 × 7) + (4 × 6) = 87
For 92781, the required sum = (9 × 7 × 1) + (2 × 8) = 79
For 31896, the required sum = (3 × 8 × 6) + (1 × 9) = 153
For 89712, the required sum = (8 × 7 × 2) + (9 × 1) = 121

Bookmark

Answer key/Solution

FeedBack

Q.68

If all the roots of cubic equations $x^3 + ax \pm 70 = 0$ are integers, then which of the following is true?

1 **'a' has two different integral values**

2 **'a' is a positive even integer**

3 **Value of 'a' is a unique negative integer**

4 **Data is insufficient to say anything about 'a'**

Bookmark

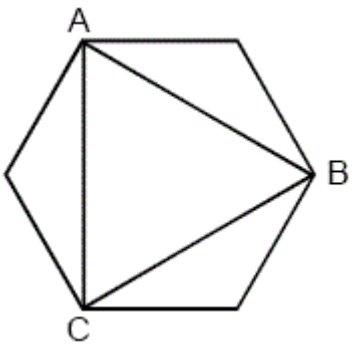
Answer key/Solution

Solution:
Correct Answer : 3
Let roots of the given equation be p, q and r.
So p + q + r = 0, and pqr = ± 70
Therefore, possible triplets, (p, q, r), with integral values are (2, 5, −7) and (−2, −5, 7).
Since a = pq + qr + pr,
a = (2 × 5) + (2 × −7) + (5 × −7) = 10 − 14 − 35 = − 39
or a = (-2 × −5) + (−2 × 7) + (−5 × 7) = 10 − 14 − 35 = − 39
As we got same value from both the possible triplets, a can have only a unique integer value.

FeedBack

Q.69

An equilateral triangle ABC is inscribed in a regular hexagon as shown in the figure below. Find the ratio of the length of inradius of ΔABC to that of the side of the hexagon.



1 **1 : 2**

2 **2 : 1**

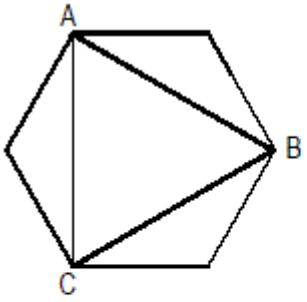
3 **1 : √3**

4 **√3 : 1**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution



Inradius of an equilateral triangle, having side 'a', is $\frac{a}{2\sqrt{3}}$.

Let side of the hexagon be 's' units.

Then, in triangle AOC, AC = a = $s\sqrt{3}$.

So, the required ratio = 1 : 2

FeedBack

Q.70

If $x = 1 - \frac{1}{x}$, then find the value of $(x^6 + 1 + 2x^3)$.

Solution:
Correct Answer : 0

Bookmark

Answer key/Solution

$$x + \frac{1}{x} = 1$$

$$\Rightarrow x^3 + \frac{1}{x^3} + 3\left(x + \frac{1}{x}\right) = 1 \Rightarrow \frac{x^6 + 1}{x^3} = -2$$

$$\Rightarrow x^6 + 1 = -2x^3 \Rightarrow x^6 + 1 + 2x^3 = 0$$

FeedBack

Q.71

Find the remainder when $F(a) = a^{15} + a^{14} + a^{13} + \ldots\ldots + a^2 + a$ is divided by $(a^2 - 1)$.

1 **7a + 8**

2 **8a + 7**

3 **9a + 6**

4 **5a + 8**

Solution:
Correct Answer : 2

$f(a) = a^{15} + a^{14} + a^{13} + ... + a^2 + a$
We need to divide it with $(a + 1)(a - 1)$
The remainder when expression divided by $(a - 1) = 15$
and when divided by $(a + 1) = -1$
Only option (2) satisfy the criteria.

FeedBack

Bookmark

Answer key/Solution

Q.72

Number of lines with equation $\frac{x}{a}+\frac{y}{b}=1$ is drawn such that $a + b = 4$. The locus of the midpoint of the portion of lines intercepted between the axes is

1 **$x + y = 4$**

2 **$x^2 + y^2 = 8$**

3 **$x^2 + y^2 = 10$**

4 **$x + y = 2$**

Solution:
Correct Answer : 4

$\frac{x}{a}+\frac{y}{b}=1$ and $a + b = 4$

Take $a = 1, b = 3 \Rightarrow \frac{x}{1}+\frac{y}{3}=4$, hence $\left(\frac{1}{2},\frac{3}{2}\right)$ be the mid-point.

Take $a = 4, b = 0 \Rightarrow \frac{x}{3}+\frac{y}{1}=4$, hence $\left(\frac{3}{2},\frac{1}{2}\right)$ be the mid-point.

Using the above two points, we can write the equation of line as $x + y = 2$.

FeedBack

Bookmark

Answer key/Solution

Q.73
The sum of all the real roots of the equation $|x - 4|^2 + |x - 4| - 6 = 0$ is

1 **6**

2 **8**

3 **10**

4 **12**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

$|x-4|^2 + |x-4| - 6 = 0$
Putting $|x-4| = k$, equation becomes
$k^2 + k - 6 = 0$
$\Rightarrow (k+3)(k-2) = 0$
$\Rightarrow k = -3$ or 2
i.e. $|x-4| = 2$, as it can't be equal to a negative value.
$\Rightarrow$ $x = 6$ and 2
Therefore, the required sum $= 6 + 2 = 8$

FeedBack

Q.74

A bus arrives at Tintin bus stop in every 5 minutes starting from 6:30 am. Arya is equally likely to reach Tintin bus stop at any time between 7:45 am to 8:05 am, and hence boards the next bus that arrives after reaching. Sansa is equally likely to reach the bus stop at any time between 7:55 am to 8:10 am and therefore boards the next bus after reaching. What is the probability that both of them board the same bus?

1 **1/4**

2 **1/12**

3 **1/6**

4 **1/8**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Arya can board a bus at 7:50, 7:55, 8:00 or 8:05,
While Sansa can board at 8:00, 8:05 or 8:10.
Both can board the same bus if both have boarded either the 8:00 am bus or the 8:05 am bus.

Probability for Arya boarding the bus at 8:00 = $\frac{1}{4}$

and probability for Sansa boarding the bus at 8:00 = $\frac{1}{3}$

Similarly, for 8:05 am their respective probability will be same.

Therefore, the required probability $= \frac{1}{4} \times \frac{1}{3} + \frac{1}{4} \times \frac{1}{3} = \frac{1}{6}$.

FeedBack

Q.75

A person can complete a job in 128 days. He started working alone on Monday. On Tuesday, he was joined by another person who can complete the same job in 64 days. On Wednesday, these 2 were joined by a 3rd person who can complete the same job in 32 days, and so on. If Sunday is a holiday, on which day would the job get completed?

1 **Tuesday**

2 **Monday**

3 **Saturday**

4 **None of these**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Let total work be 128 units.
Person A can do 1 unit work in a day;
Person B can do 2 unit work in a day
Person C can do 4 unit work in a day; and so on.
Hence total work done on 1st day = 1 unit,
on 2nd day = 1 + 2 = 3 units,
on 3rd day = 1 + 2 + 4 = 7 units and so on
So, work done on each subsequent day is increased by numbers in GP.
Adding upto 6th day, we get 120 units of work completed. So, the remaining will get completed on 7th working day i.e., Monday.

FeedBack

Q.76

The square of the fourth term of an AP is equal to half of the product of its second and sixteenth term. Which of the following can be the ratio of the first term and the common difference of the AP?

1 **1 : 1**

2 **3 : 1**

3 **4 : 3**

4 **Both (1) and (2)**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

$(a + 3d)^2 = \frac{1}{2}(a + d)(a + 15d)$

$\Rightarrow a^2 + 9d^2 + 6ad = \frac{1}{2}(a^2 + 16ad + 15d^2)$

$\Rightarrow \frac{a^2}{2} + 9d^2 - \frac{15d^2}{2} - 2ad = 0 \Rightarrow \frac{a^2}{2} + \frac{3d^2}{2} - 2ad = 0$

$\Rightarrow a^2 + 3d^2 - 4ad = 0 \Rightarrow (a - 3d)(a - d) = 0$

Either $a - d = 0 \Rightarrow \frac{a}{d} = \frac{1}{1}$ or, $\frac{a}{d} = \frac{3}{1}$.

FeedBack

Q.77

A boat has a maximum capacity to carry 1200 kg. There are 20 children and 20 adults waiting on the river bank to cross the river in the boat. Each child weighs 30kg and each adult weighs 50kg. Ten of the children are also carrying a school bag weighing 5kg. If every child on the boat must be accompanied by an adult, what is the maximum number of people who can board the boat?

Solution:
Correct Answer : 29

Bookmark

Answer key/Solution

Children without bag weighs = 10 × 30 = 300 kg
and are accompanied by 10 adults weighing = 10 × 50 = 500 kg
Therefore, capacity left on boat = 1200 – 800 kg = 400 kg
Now a child with bag accompanied with an adult weighs= 35 + 50 = 85 kg
∴ 85 × 4 = 340 kg is also occupied, but still 60 kg is left.
Therefore, 1 adult could bow the boat.
∴ Number of people = 10 + 10 + 8 + 1 = 29

FeedBack

Q.78

Lala Hari invests 60% of his monthly savings in mutual funds, 20% of the remaining in life insurance and the rest in his savings account. If the total amount in his mutual funds and saving accounts taken together is Rs. 46000, then find the monthly savings (in Rs.) of Lala Hari.

Solution:

Correct Answer : 50000

Suppose Lala Hari's monthly savings is Rs.100
Amount in his mutual funds = Rs.60

$$\text{Amount in life insurance} = 40 \times \frac{20}{100} = \text{Rs.8}$$

Amount in saving accounts = Rs.32

$\therefore$ Total in mutual funds and savings accounts = Rs.(60 + 32) = Rs.92

$$\therefore \frac{92}{100} = \frac{48000}{\text{Real savings}}$$

Hence, his monthly savings = Rs.50000

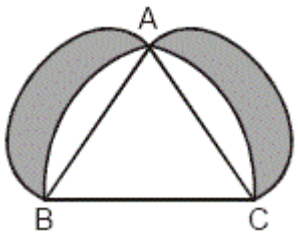
FeedBack

Bookmark

Answer key/Solution

Q.79

ABC is a triangle inscribed in a semicircle with BC as its diameter. If further two semicircles are drawn taking AB and AC as their diameters as shown below, then which of the following represents the area of the shaded region?



1 **Area of ΔABC**

2 **Twice the area of ΔABC**

3 **Area of semicircle BAC**

4 **None of these**

Solution:

Correct Answer : 1

Suppose sides of the right angle triangle ABC as AB = a, AC = b and BC = c.

$$\therefore \text{Area of shaded region} = \frac{b^2}{8}\pi + \frac{a^2}{8}\pi - \left(\frac{\pi}{8}(a^2+b^2) - \frac{ab}{2}\right) = \frac{1}{2}ab = \text{Area of } \Delta ABC.$$

FeedBack

Bookmark

Answer key/Solution

Q.80

Sanjay bought 250 pens at the rate of Rs.15 per pen. He sold 100 pens at a gain of 10%. By how much percent above the cost price he must sell the remaining pens to earn a profit of 20% on the whole lot?

1 **25%**

2 $24\frac{4}{3}\%$

3 $26\frac{2}{3}\%$

4 $33\frac{1}{3}\%$

Solution:
Correct Answer : 3

Let the cost/pen be Rs.1

Total profit $= 250 \times \frac{20}{100} = 100 \times \frac{10}{100} + 150 \times \frac{x}{100}$

(where x% be the profit percent he sells the remaining pens on)

$\Rightarrow 50 = 10 + \frac{3x}{2} \Rightarrow x = \frac{80}{3}\% = 26\frac{2}{3}\%$

FeedBack

Bookmark

Answer key/Solution

Q.81

In a Carom competition, involving some boys and some girls, every person had to play exactly one game with every other person. It was found that in 45 games both the players were girls and in 190 games both were boys. The number of games in which both, a girl and a boy, were present is (assume competition had to be held only between two players at a time)

Solution:
Correct Answer : 200

Let m and n be the number of boys and girls respectively.

${}^{n}C_2 = \frac{n(n-1)}{2} = 45$

$\Rightarrow n(n-1) = 90 \Rightarrow n = 10$

Similarly, ${}^{m}C_2 = \frac{m(m-1)}{2} = 190$

$\Rightarrow m(m-1) = 380 \Rightarrow m = 20$

As every girl has to play with each of the boys,

required number of games $= {}^{10}C_1 \times {}^{20}C_1 = 10 \times 20 = 200.$

FeedBack

Bookmark

Answer key/Solution

Q.82

How many three digit numbers, having all distinct digits, are there such that the ratio of hundred digit to unit digit is same as that of the unit digit to tens digit?

Solution:
Correct Answer : 8

Bookmark

Answer key/Solution

$\frac{h}{u}=\frac{u}{t}\Rightarrow u^2=h\times t$

As u, h and t are distinct digits the minimum value of u is 2.
Now $2^2 = 1 \times 4$ or 4×1 so 2 cases;
$3^2 = 1 \times 9$ or 9×1 so 2 cases;
$4^2 = 2 \times 8$ or 8×2 so 2 cases;
$6^2 = 4 \times 9$ or 9×4 so 2 cases.
So total 8 numbers are possible.

FeedBack

Q.83

Surya has to pay back the total loan plus interest, where the interest is of Rs. 441 earned at the rate of 10% compounded annually in 2 years, on the loan. Had Surya decided to pay it in two equal installments at same rate of interest then he would have saved Rs. x. Find the value of x.

1 **121**

2 **210**

3 **41**

4 **110**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

$P\left(1+\frac{10}{100}\right)^2-P=441$

On solving, P = 2100
Let the value of each installment is I.

So, $2100=\frac{I}{(1.1)}+\frac{I}{(1.1)^2}$

Therefore, I = 1210
Total amount paid is Rs.2420 in which interest paid is Rs.320.
∴ Difference of the interest = 441 – 320 = 121.

FeedBack

Q.84

When a rectangular sheet is trisected along its length, the new length and breadth has the same ratio as of the original rectangle and the same process continues infinitely. If the area of the original rectangle is 36 sq. units, then find the sum of areas of all such rectangles (including the original rectangle).

Solution:
Correct Answer : 54

Bookmark

Answer key/Solution

The ratio of length and breadth is such that after trisecting the length the ratio of new length (i.e. original breadth) and new breadth is same. So we can say that

$\frac{L}{B}=\frac{B}{L/3}$

$\frac{L^2}{B^2}=\frac{3}{1}\Rightarrow L:B=\sqrt{3}:1$

Area = $\sqrt{3}a\times a=\sqrt{3}a^2$ = 36 sq. units.

The new length and breadth ratio would be $a:\frac{a}{\sqrt{3}}$, and hence area = $\frac{a^2}{\sqrt{3}}$.

We need to find the sum of all possible rectangles having area $\sqrt{3}a^2,\frac{a^2}{\sqrt{3}},\frac{a^2}{3\sqrt{3}},\ldots$

Total area is 36 + 12 + 4 + ...

$\therefore$ Sum of the series is = $\frac{36}{1-\frac{1}{3}}$ = 54 sq. units.

FeedBack

Q.85
How many 3-digit perfect square are there in base 7, which are also equivalent to a 4-digit perfect square while converted in base 5?

1 **7**

2 **9**

3 **12**

4 **Cannot be determined**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

The minimum and maximum value of a three digit number in base 7 is $(100)_7$ and $(666)_7$. On converting these values in base 10, we get the minimum value as 49 and maximum as 342.
Similarly, the minimum and maximum value of a 4-digit number in base 5 is $(1000)_5$ and $(4444)_5$, which on converting in base 10 take values as 125 and 624.
So we need to look for those perfect squares which lies between 125 and 342. A total of 7 such values i.e, 144, 169, 196, 225, 256, 289 and 324, are there.

FeedBack

Q.86

4 men and 6 women can complete a task in 14 days whereas 3 men and 4 women can do the same task in 20 days. In how many days 5 men and 5 women together can complete the twice of the same task?

Bookmark

Answer key/Solution

Solution:

Correct Answer : 28

4 m + 6w = 14 days
3m + 4w = 20 days
So we can say that, 56m + 84w = 60m + 80w
$\Rightarrow$ 1m = 1w

Let the total work be 140 units. So 5 men and 5 women are equivalent to 10 men.
As twice the work has to be completed,

it will take $\frac{140\times 2}{10}$ = 28 days.

FeedBack

Q.87

Find the maximum value of (A + B + C) such that A, B, C are prime numbers and AB + BC + CA = 360.

1 **24**

2 **30**

3 **45**

4 **Not possible**

Bookmark

Answer key/Solution

Solution:

Correct Answer : 4

As A, B, C are prime numbers, two cases arise either all three are odd number or one of them is 2 and other two are odd numbers. In both the cases (AB + BC + CA) will be odd and cannot be equal to 360, which is an even number.

FeedBack

Q.88

In a right angled triangle ABC, right angled at B, angular bisector and median drawn from B intersect AC at X and Y respectively. If the distance between X and Y is 7/2 cm, and AC is 49 cm, find the approximate area of triangle ABC.

1 **35**

2 **576**

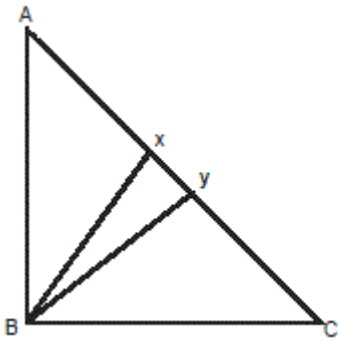
3 **525**

4 **23**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution



Median divides the opposite side in equal parts, and angular bisector divides the sides in the ratio of adjacent sides.
So, AY = YC and XY = 3.5 (given)
On solving, we get AX = 21 and CX = 28
$\Rightarrow$ AB : BC = AX : CX = 3 : 4
Hence, in triangle ABC
$(3a)^2 + (4a)^2 = 49^2 \Rightarrow 25a^2 = 49^2$

$\Rightarrow a^2 = \frac{49^2}{25}$

So, Area of triangle = $\frac{1}{2} \times 3a \times 4a = 6a^2 = 6 \times \frac{49^2}{25} = 576$

FeedBack

Q.89
If p is a non negative integer such as $(p^2 - 18p + 80)(p^2 - 20p + 99) = 7920$, then find the value of p.

1 **0**

2 **19**

3 **12**

4 **both (1) and (2)**

Solution:
Correct Answer : 4
Factorizing the given expression, we get
(p – 8) (p – 10) (p– 9) (p– 11) = 7920 = 8 × 9 × 10 × 11
So, only p= 0 and p= 19 will satisfy the equation.

Bookmark

Answer key/Solution

FeedBack

Q.90

An isosceles cyclic trapezium is circumscribed around a circle with integral sides. Parallel sides of the trapezium are in ratio 1:5. If perimeter of the trapezium is 12 cm, then which of the following could be the area of trapezium?

1 **$6\sqrt{5}$**

2 **$2\sqrt{5}$**

3 **$3\sqrt{5}$**

4 **$\sqrt{5}$**

Solution:

Correct Answer : 3

Let the parallel side of trapezium be a and 5a respectively, and the non-parallel side be b.
Perimeter of trapezium = a + 5a + b + b = 12
i.e., 6a + 2b = 12
Now the only possible integral solution for this is a = 1 and b = 3.
So, sides are 5, 3, 3, 1.

Hence, Area of cyclic quadrilateral = $\sqrt{(6-5)(6-3)(6-3)(6-1)} = 3\sqrt{5}$.

FeedBack

Bookmark

Answer key/Solution

Q.91

A man cheats while buying as well as selling an item. At the time of buying he takes x% more than what he pays for ,while selling he uses a weight of 800 gms at the place of 1000 gms. If he sells the item at 10% above the cost price and earn an overall profit of 65%, then find the value of x.

1 **25**

2 **20**

3 **35**

4 **30**

Solution:

Correct Answer : 2

Bookmark

Answer key/Solution

The profit on price is 10% and profit he earns by using a faulty weight is 2.5%. So by applying successive change formula $\left(p+q+\frac{pq}{100}\right)$, total profit earned so far $\left(25\%+10\%+\frac{25\times10}{100}\right)=37.5\%$ but overall profit he earns is 65% and also at x% while buying. So again we can apply the same formula, and get $x+37.5+\frac{37.5\times x}{100}=65$

On solving we get x = 20%.

FeedBack

Q.92

If $\log_{(0.125)}(0.25) = \log_{\sqrt[3]{4}} 4 + \log_{\sqrt{x}} 343\sqrt{7}$, then find the value of x.

1 **343**

2 **1/343**

3 **1/49**

4 **1/7**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

$$\log_{(.125)}(0.25) = \log_{\sqrt[3]{4}}(4) + \log_{\sqrt{x}} 343\sqrt{7}$$

$$\Rightarrow \frac{2}{3} = 3 + \log_x 7^7$$

$$\Rightarrow -\frac{7}{3} = \log_x 7^7 \Rightarrow x^{\frac{-7}{3}} = 7^7$$

$$\Rightarrow x = (7^7)^{\frac{-3}{7}} = 7^{-3} = \frac{1}{343}$$

FeedBack

Q.93
Find the number of integral solutions of the equation 2x – y + z = 20, where x ≥ 1, z ≥ 1 and y ≤ 18.

1 **380**

2 **306**

3 **342**

4 **190**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

$2x + z = y + 20$
If $y = 18$, $2x + z = 38$
$\Rightarrow$ [$x = 1$, $z = 36$; $x = 2$, $z = 34$;...; $x = 18$, $z = 2$]. So, 18 values
If $y = 17$, $2x + z = 37$
$\Rightarrow$ [$x = 1$, $z = 35$; $x = 2$, $z = 33$;...; $x = 18$, $z = 1$]. So, 18 values
Going in the same way, we get same number of values as 17, 16, and so on, for two consecutive values of y.
If $y = -17$, $2x + z = 3$
$\Rightarrow$ [$x = 1$, $z = 1$]. So, 1 value.
So total possible solutions = (36 + 34 + ... + 2)
= 2(1 + 2 + 3 + ...18)

$= 2 \times \frac{18 \times 19}{2} = 342$

FeedBack

Q.94
If $f(x) = x^2 + 1$ and $g(x) = 2x - 3$ be two functions, then find value of $f[g(f(g(f(x))))] + g[f(g(f(g(x))))]$ at $x = 1$.

Solution:
Correct Answer : 3
Firstly, f(g(f(g(f(x))))) at x = 1 is f(g(f(g(2)))), as f(1) = 2.
Now as g(2) = 1, f(g(f(1))) = f(g(2)) = f(1) = 2.
Similarly, g(f(g(f(g(x))))) = 1.
So, the required result = 2 + 1 = 3

Bookmark

Answer key/Solution

FeedBack

Q.95
The average salary of marketing department, having 22 employees working, of ABC company is 3.7 lac more than the average salary of operations department, having 15 employees working, of same company. If the average salary of all 37 employees is 5.6 lacs, find the average salary (in lac) of marketing department.

1 **5.6**

2 **4.1**

3 **7.1**

4 **7.8**

Solution:
Correct Answer : 3
Let average salary of operations department be x lac.
Then, average salary of marketing department becomes (x + 3.7) lac.
So, 22(x + 3.7) + 15x = 37 × 5.6
⇒x= 3.4
Hence, average salary of marketing department = 7.1 lac

FeedBack

Bookmark

Answer key/Solution

Q.96

'n' is a positive integer which has at least two prime factors. If the product of all the unique positive divisors of n is n^3, then the product of all the unique positive divisors of n^2 is

1 **n^3**

2 **n^6**

3 **n^{12}**

4 **n^{15}**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Product of factors of n = $n^{\left(\frac{\text{number of factors of n}}{2}\right)} = n^3$
So, number of factors of n = 6 = (1 + 1)(2 + 1)
There is only one way of expressing 6 as product of two natural numbers without using 1.
i.e., n will be of the form $a^1 \times b^2$. So, n^2 will be of the form $a^2 \times b^4$. Number of factors of n^2 will be thus (2 + 1)(4 + 1) = 15.

FeedBack

Q.97

John, while going from home to work, travels first hour at 20 km/hr, second hour at 40 km/hr and third hour at 60 km/hr, and reaches his office. While coming back from work, he travels first hour at 20 km/hr and every subsequent hours at 2 km/hr more than the previous hour and reaches home.
Find John's average speed (in km/hr) for the entire journey.

Solution:
Correct Answer : 30

Bookmark

Answer key/Solution

While going for work, average speed = 40 km/hr (average of 20, 40 and 60).
While going from work to home, average speed = 24 km/h (average of 20, 22, 24, 26 and 28).

Total average speed for the entire journey = $\frac{2\times40\times24}{40+24} = 30$ km/h

FeedBack

Q.98

How many litres of water needs to be added to 14 litres of solution, having milk and water in ratio 4 : 3, such that the resultant solution has milk and water in ratio 1 : 2?

Solution:
Correct Answer : 10

Let x litres of water to be added.
As milk remains constant in both solution,

$\left(\frac{4}{7}\right)\times14 = \left(\frac{1}{3}\right)\times(x+14) \Rightarrow x = 10$

Bookmark

Answer key/Solution

FeedBack

Q.99

A thief absconded a prison at 3 am with speed 30 km/hr. Police realised his escape after some time and hence started chasing him at the speed of 45 km/hr. Thief was caught at 10.30 am, the same day. Find out the duration (in hours) after which police started chasing the thief?

1 **2**

2 **1.5**

3 **2.5**

4 **3**

Solution:
Correct Answer : 3
As the thief and the police travelled the same distance with their speeds in ratio 2 : 3, so time taken by them will be in ratio 3 : 2.
So, difference of their time = 2.5 hr

Bookmark

Answer key/Solution

FeedBack

Q.100

A clock was 10 minutes behind the actual time at 1 pm on Monday. It was 20 minutes ahead the actual time in the next 144 hrs. When would it be 5 minutes ahead of actual time?

1 **Tuesday, 1 pm**

2 **Wednesday, 1 pm**

3 **Thursday, 1 pm**

4 **Friday, 1 pm**

Solution:
Correct Answer : 3
As per data, 30 minutes gain is happening in 144 hrs. It would have taken 72 hours for 15 minutes gain. On Thursday at 1 pm, it would be 5 mins ahead.

FeedBack

Bookmark

Answer key/Solution