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Flexi Mock CAT - 12 (2020)

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VARC

LRDI

QA

Sec 1

Direction for questions (1-4): Read the given passage and answer the questions that follow.

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The fly was so small that it didn't offer the least resistance to the pressure of my finger. Compliantly, it transformed itself into a dark smudge. Not a gory or bloody smudge; not one with the least detail or variation – not to my naked eye, anyway. Just a small, uniform, rather faint mark.

Now, I'm not a biologist, but I know that a fly is an animal, and more specifically, an insect. As such, it has (or had) wings, legs, eyes, antenna and a host of internal organs. Those parts are in turn made of cells, each one of which is hugely complex. And in those cells, among many other things, are – or were – the fly's genes, which in turn embody an astonishing intricacy and an ancient, multi-million-year history, while in the fly's gut would have been countless bacteria with their own genes, their own goals. Worlds within worlds, now squidged together into a single dark smudge that I am already finding hard to pinpoint among the scratches and coffee rings. A history of life spread out before me, if only I were able to read it.

At this point, I guess that readers will be dividing into two parties. One party, probably the majority, will be thinking, 'Get over it, it's a fly.' This, it seems to me, is a very reasonable position. Flies die in large numbers all the time – some, indeed, at my hand, whether I intend it or not (and I sometimes do). And in the summer evenings, when I sit on our terrace and watch swifts in their spectacle of swooping and screeching, this beautiful display is, of course, at the same time an orgy of insect death.

The other party of readers, probably the minority, will be horrified at my casual killing of this delicate life-form. They will be appalled at the waste and stupidity of my carelessness. To them, I must be an oaf; at best ignorant, at worst malevolent. And this, it seems to me, is also a very reasonable position. Even though I habitually write – sometimes about complex subjects – it is certain that with one mistimed finger-swipe I destroyed complexity and beauty many orders of magnitude greater than any I will ever create.

Thus, it seems to me quite reasonable to think that the death of the fly is entirely insignificant and that it is at the same time a kind of catastrophe. To entertain such contradictions is always uncomfortable, but in this case the dissonance echoes far and wide, bouncing off countless other decisions about what to buy, what to eat – what to kill; highlighting the inconsistencies in our philosophies, our attempts to make sense of our place in the world and our relations to our co inhabitants on Earth. The reality is that we do not know what to think about death: not that of a fly, or of a dog or a pig, or of ourselves.

Which is a problem, because nature is a non-stop party of death. For example, I regularly take my children to a large park with a series of ponds, where in spring we look for frogspawn. Each batch contains many hundreds, even thousands of eggs. The next time we visit, the pond will be full of tadpoles. But the time after that, there will be many fewer. Those we find are the few survivors, whose numbers will be thinned still more before any get as far as restarting the cycle with their own spawn.

Q.1 [11594329]

The main reason for the author of the passage to introduce the example of the fly is to

1 ○ talk about why even a fly is an important insect, with a multi-million year history.

2 ○ introduce and discuss the concept of death in general, starting with that of a fly.

3 ○ show how even the killing of a fly divides readers into two equal groups.

4 ○ illustrate and compare the killing of flies with that of frogspawn and tadpoles.

✔

Answer key/Solution

Solution:
Correct Answer : 2
Your Answer : 2
This is a disguised main idea question. The example of the fly takes up a large chunk of the passage. The author talks about the fly, its death, its importance, and then talks further about death. The entire passage is about the significance of death. This makes option 2 correct.
Option 1 is discussed by the author, but is not the point of introducing the example.
Option 3 is incorrect, since the two groups in the passage are not equal.
Option 4 is incorrect, since the author does not undertake such a comparison in the passage.

Bookmark FeedBack

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Q.2 [11594329]

The complexity and beauty mentioned in the passage refers to

1 ○ the beauty of the complex subjects that the author sometimes writes about which are mentioned in the passage.

2 ○ the beautiful display of the swooping and screeching of swifts which is also an orgy of insect death.

3 ○ worlds within worlds inside the fly which contain organs, cells, genes and bacteria.

4 ○ the conversion of the fly into a dark smudge without the least resistance from the fly.

✔

Answer key/Solution

Solution:
Correct Answer : 3
Your Answer : 3
Complexity and beauty are mentioned as being destroyed in the passage at the end of paragraph 5. The reference is to the fly – whose description is found in paragraph 3, and repeated in option 3, which is the correct option.
The other options are present in the passage, but not mentioned in this context, making them incorrect.

Bookmark FeedBack

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Q.3 [11594329]

According to the author of the passage, our not knowing what to think about death

1 ○ is a good thing, because the death of a fly is entirely insignificant.

2 ○ is a bad thing, because death is catastrophic, even that of a fly.

3 ○ is an issue because of the non-stop occurrence of death in nature.

4 ○ is not a bad thing because a party of death is never bad.

✔

Answer key/Solution

Solution:
Correct Answer : 3
Your Answer : 3
From the last two paragraphs, "The reality is that we *do not know what to think about death*: not that of a fly, or of a dog or a pig, or of ourselves. *Which is a problem, because nature is a non-stop party of death.*" This makes option 3 correct.
Options 1 and 2 are mentioned by the author in the context of his thought process to the importance of the death of the fly – which is different from what is asked in the question.
Option 4 does not have support in the passage.

Bookmark FeedBack

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Q.4 [11594329]

On reading the passage about the two parties of readers mentioned in the passage, it becomes clear that

1 ○ one is quite likely to be reasonable, while the other is quite possibly not.

2 ○ one is likely to have majority, while the other doesn't.

3 ○ one is quite possibly correct in its thinking and approach, while the other is not.

4 ○ one is favoured by the author due to its thinking, while the other is not.

✖

Answer key/Solution

Solution:
Correct Answer : 2
Your Answer : 1
From paragraphs four and five, "One party, *probably the majority*, will be thinking, 'Get over it, it's a fly.'" and "The other party of readers, *probably the minority*, will be horrified at my casual killing of this delicate life-form." This makes option 2 correct.
The other options are incorrect, since he specifically says that he finds both the points of view to be reasonable.

Bookmark FeedBack

Direction for questions (5-9): Read the given passage and answer the questions that follow.

Following the success of Tayari Jones's 2019 Women's prize winner *An American Marriage*, her 2011 third novel *Silver Sparrow* is published for the first time in the UK. It's a tale of two sisters: part Bildungsroman, part homage to 1980s Atlanta. "My father, James Witherspoon, is a bigamist," Dana Yarboro tells us in the novel's opening line, before she narrates what it was like to grow up as the secret daughter, given "second pick for everything", consoled only by the slim satisfaction of knowing all about her father's other family while her sister Chaurisse knows nothing about her.

A chance encounter between the two girls at a science fair, wearing identical rabbit-fur coats (gifts from their "double-duty daddy"), knocks Witherspoon's two families into each other's paths. Chaurisse is drawn to Dana, whom she sees as "silver" – one of those "girls with looks and hair" who "move in different circles than ones like me" – but little does she know that Dana is obsessed with her. Every interaction is undercut by Dana's ulterior motives: Chaurisse tells Dana her father smokes two packs a day and she responds, "Mine too"; when Dana visits Chaurisse's house, she quizzes her on where her father sits when they eat dinner. Her coming of age consists in large part of inserting herself further into her unwitting sister's life.

At the midpoint, the novel splits into two and events are narrated from Chaurisse's point of view. We see that although the girls have a father in common, what really draws them together is their deep, overlapping loneliness. Far from being idyllic, as Dana imagines, Chaurisse's life has been burdened with its own share of pain and bewilderment as a result of being born to a woman who got pregnant at the age of 14, probably as a result of a rape.

While the novel is driven by the question of whether the two sisters can ever accept the truth of one another, it is also propelled by shrewd observations about how they survive the unsteady terrain of young womanhood, that time when "a man looking at you can make you feel chopped into pieces". This book is as moving, intimate and wise as *An American Marriage* on the topics of marriage, family and womanhood, and deserves similar acclaim.

Q.5 [11594329]

Which of the following is not true about the novel Silver Sparrows?

1 ○ The novel has been narrated from the points of view of two characters.

2 ○ The novelist has made some sharp observations about young women and the way they survive on their journey to adulthood.

3 ○ The plot of the novel is set in Atlanta during the 1980s.

4 ○ The two sisters at the centre of the novel's plot are unaware of each other's existence until they reach adulthood.

✔

Solution:
Correct Answer : 4
Your Answer : 4
***Option 4*. The first paragraph states that Dana knew about Chaurisse since her childhood.**

Answer key/Solution

Bookmark FeedBack

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Q.6 [11594329]
In the first paragraph, why does the author use the phrase "slim satisfaction" to describe Dana's knowledge of Chaurisse's existence?

1 ○ To point out that Dana is relieved that her parents have not lied to her.

2 ○ To emphasise the bitter solace that Dana gets from being the one with the greater knowledge of the situation as compared to her half-sister Chaurisse, against the resentment she carries for being her father's secret child and receiving less of everything than Chaurisse.

3 ○ To indicate that the lonely young Dana derives a sense of silent companionship from her half-sister Chaurisse.

4 ○ To point out the satisfaction Dana experiences when she finds out that her father got her and Chaurisse identical fur coats.

✔

Solution:
Correct Answer : 2
Your Answer : 2

Answer key/Solution

***Option 2*. The first paragraph states that Dana narrates her experience of being picked second for everything by her father and she was "consoled only by" the knowledge of her father's other family.**

Bookmark FeedBack

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Q.7 [11594329]

Which one of the following accurately summarizes the last paragraph?

1 ○ The novel deserves its acclaim because it movingly captures the universal themes of marriage and family

2 ○ The novel deserves its acclaim because it is a coming-of-age story of two unique young women.

3 ○ The novel calibrates the story of two distinct and unique characters with the larger and universal themes of precarious female adolescence, marriage and family.

4 ○ The novel's penetrating observations about young women and the way they navigate adolescence is the reason for its well-deserved acclaim.

✔

Solution:
Correct Answer : 3
Your Answer : 3
***Option 3*. All the other options are incomplete and are incorrectly attributing a causal relationship between some features of the novel and the acclaim it has received.**

Answer key/Solution

Bookmark FeedBack

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Q.8 [11594329]

Which one of the following cannot be inferred about Chaurisse?

1 ○ Her life had its share of anguish and distress; it just happened to be different from Dana's as she was not kept a secret by their father.

2 ○ She was aware of her father's dual life, but she hid that knowledge from everyone.

3 ○ She was intensely lonely while growing up and this loneliness was one of the reasons which drew her towards Dana.

4 ○ She thought of Dana as beautiful and felt strongly drawn to her because she thought of Dana's life and circle as completely different from her own.

✔

Solution:
Correct Answer : 2
Your Answer : 2
***Option 2*. It has been clearly stated in the first paragraph that Chaurisse didn't know about her father's other family.**

Answer key/Solution

Bookmark FeedBack

Direction for questions (5-9): Read the given passage and answer the questions that follow.

Following the success of Tayari Jones's 2019 Women's prize winner *An American Marriage*, her 2011 third novel *Silver Sparrow* is published for the first time in the UK. It's a tale of two sisters: part Bildungsroman, part homage to 1980s Atlanta. "My father, James Witherspoon, is a bigamist," Dana Yarboro tells us in the novel's opening line, before she narrates what it was like to grow up as the secret daughter, given "second pick for everything", consoled only by the slim satisfaction of knowing all about her father's other family while her sister Chaurisse knows nothing about her.

A chance encounter between the two girls at a science fair, wearing identical rabbit-fur coats (gifts from their "double-duty daddy"), knocks Witherspoon's two families into each other's paths. Chaurisse is drawn to Dana, whom she sees as "silver" – one of those "girls with looks and hair" who "move in different circles than ones like me" – but little does she know that Dana is obsessed with her. Every interaction is undercut by Dana's ulterior motives: Chaurisse tells Dana her father smokes two packs a day and she responds, "Mine too"; when Dana visits Chaurisse's house, she quizzes her on where her father sits when they eat dinner. Her coming of age consists in large part of inserting herself further into her unwitting sister's life.

At the midpoint, the novel splits into two and events are narrated from Chaurisse's point of view. We see that although the girls have a father in common, what really draws them together is their deep, overlapping loneliness. Far from being idyllic, as Dana imagines, Chaurisse's life has been burdened with its own share of pain and bewilderment as a result of being born to a woman who got pregnant at the age of 14, probably as a result of a rape.

While the novel is driven by the question of whether the two sisters can ever accept the truth of one another, it is also propelled by shrewd observations about how they survive the unsteady terrain of young womanhood, that time when "a man looking at you can make you feel chopped into pieces". This book is as moving, intimate and wise as *An American Marriage* on the topics of marriage, family and womanhood, and deserves similar acclaim.

Q.9 [11594329]
Based on your understanding of the novel, which one of these explains the narrative choice of two different points of view:

1 ○ The differing points of view depict how two different young women deal with similar problems.

2 ○ The differing points of view serve to depict the differences as well as the similarities of the lives of the two sisters.

3 ○ The differing points of view were chosen by Jones because she sympathised more with Chaurisse's character.

4 ○ The differing points of view were chosen by Jones because she wanted a stark depiction of the manipulative meddling by Dana in Chaurisse's life.

Solution:
Correct Answer : 2
Option 2 is the best choice. Option 1 is vague and misleading as the sisters have different problems but similar emotional response. Option 3 is absurd as there is no evidence for it in the given passage. Option 4 is highly distorted.

Answer key/Solution

Bookmark FeedBack

Direction for questions (10-13): Read the given passage and answer the questions that follow.

Every time you flip a light switch, you tap into a gigantic invisible web, the electrical grid. Somewhere, at the other end of the high-voltage transmission lines carrying power to your house, there's a power plant (likely burning coal or, increasingly, natural gas) churning out electricity to replace the electrons that you and everyone else are draining at that moment.

The amount of power in our grid at any one time is carefully maintained—too much or too little and things start to break. Grid operators make careful observations and predictions to determine how much electricity power plants should produce, minute by minute, hour by hour. But sometimes they're wrong, and a plant has to power up in a hurry to make up the difference.

Lucky for us, it's a big, interconnected system, so we rarely notice changes in the quality or quantity of electricity. Imagine the difference between stepping into a bucket of water versus stepping into the ocean. In a small system, any change in the balance between supply and demand is obvious — the bucket overflows. But because the grid is so big—ocean-like—fluctuations are usually imperceptible. Only when something goes very wrong do we notice, because the lights go out.

Renewable energy is less obedient than a coal- or gas-fired power plant—you can't just fire up a solar farm if demand spikes suddenly. Solar power peaks during the day, varies as clouds move across the sun, and disappears at night, while wind power is even less predictable. Too much of that kind of intermittency on the grid could make it more difficult to balance supply and demand, which could lead to more blackouts.

Storing energy is a safety valve. If you could dump extra energy somewhere, then draw from it when supply gets low again, you can power a whole lot more stuff with renewable energy, even when the sun isn't shining and the wind isn't blowing. What's more, the grid itself becomes more stable and efficient, as batteries would allow communities and regions to manage their own power supply. Our aging and overtaxed power infrastructure would go a lot further. Instead of installing new transmission lines in places where existing lines are near capacity, you could draw power during off-peak times and stash it in batteries until you need it.

Just like that, the bucket can behave a lot more like the ocean. That would mean—at least in theory—more distributed power generation and storage, more renewables, and less reliance on giant fossil-fueled power plants.

Q.10 [11594329]

It cannot be inferred from the passage that

1 ○ non renewable energy sources are more obedient than renewable ones since they can be switched on and off at will to meet demand spikes.

2 ○ safety valves ensure that the grid becomes more stable and efficient since power can be dumped when extra, and drawn when required.

3 ○ a smaller grid would have more perceptible fluctuations than a larger one because in a large grid fluctuations are less perceptible.

4 ○ The amount of power in the grid can be measured by grid operators.

Answer key/Solution

Solution:
Correct Answer : 2
Option 1 can be inferred from paragraph 4, "Renewable energy is less obedient than a coal- or gas-fired power plant…"
Option 3 can be inferred from paragraph 3, "Imagine the difference between stepping into a bucket of water…..the bucket overflows."
Option 4 can be inferred from paragraph 2 - the observations that grid operators make that tell them whether the grid needs more power would require them to know the amount of power in the grid.
Option 2 cannot be inferred since the passage talks about storing energy as a type of safety valve. There can be other types of safety valves.

Bookmark FeedBack

Direction for questions (10-13): Read the given passage and answer the questions that follow.

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Q.11 [11594329]

The thematic highlight of this passage is

1 ○ to cover the differences between renewable and non-renewable energy and highlight how one is better than the other.

2 ○ to highlight the drawbacks of having too many renewable sources on the grid since they create perceptible fluctuations in the grid.

3 ○ to talk about ways to improve the grid, by using methods that help balance renewable and non-renewable sources in mix.

4 ○ to talk about the advantages of batteries as a way of bringing about better stability in the grid and making better use of the power infrastructure.

Solution:

Answer key/Solution

Correct Answer : 4

The passage talks about the grid as a whole, and the penultimate paragraph focuses on the main point- use of batteries will enable better use of it, including the power infrastructure. This makes answer option 4 correct. The other points are covered in the passage, but are not the focus of the passage.

Bookmark FeedBack

Direction for questions (10-13): Read the given passage and answer the questions that follow.

Every time you flip a light switch, you tap into a gigantic invisible web, the electrical grid. Somewhere, at the other end of the high-voltage transmission lines carrying power to your house, there's a power plant (likely burning coal or, increasingly, natural gas) churning out electricity to replace the electrons that you and everyone else are draining at that moment.

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Q.12 [11594329]

Based on the passage, storing energy is a safety valve because

1 ○ extra energy can be stored somewhere, and then used as required.

2 ○ storing energies would allow communities to manage their own power supply.

3 ○ it removes the dependence on non-renewable energy.

4 ○ it is an inter-connected system that improves the quality of electricity.

✖

Solution:
Correct Answer : 1
Your Answer : 2

Answer key/Solution

The answer is found in paragraph 4, " If you could dump extra energy somewhere, then draw from it when supply gets low again...". Option 2 is stated in the passage, but does not answer the question asked. Option 3 is not the right reason. In any case, it goes beyond the passage by using "remove". Option 4 mixes the concepts up, since the energy is stored in batteries, not in the system. Also, improving quality is not connected to why storing energy is a safety valve.

Bookmark FeedBack

Direction for questions (10-13): Read the given passage and answer the questions that follow.

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Q.13 [11594329]

All of the following are true in the context of the passage except:

1 ○ The predictions made by grid operators regarding production requirements of electricity plants are not always accurate.

2 ○ An electricity grid system operates like an ocean where minor fluctuations in quantity or quality are not usually noticed.

3 ○ Though renewable energy sources are more challenging than non-renewable energy sources, they are the only feasible option for the future.

4 ○ In the realm of renewable energy sources, wind power is less predictable than solar power.

Answer key/Solution

Solution:

Correct Answer : 3

The other three options can be inferred from the various paragraphs of the passage. The second part of the third option is incorrect as the passage does not indicate this anywhere.

Bookmark FeedBack

Direction for questions (14-18): Read the given passage and answer the questions that follow.

The COVID-19 pandemic has forced us into necessary isolation. Many of us are spending anxious hours sitting inside our homes and surfing social media for further updates. We are surrounded by a mountain of anxiety. Amidst all-pervasive gloom, I couldn't help notice the steadfast outpouring of music on social media platforms. Many of the songs posted are new compositions specific to the situation. While most of these are indeed rib-tickling and perhaps merit no serious artistic attention, we ought not to dismiss this phenomenon. It perhaps reinforces the idea that tragedy invariably leads to comedy.

Republican Party of India supremo Ramdas Athawale's video, where he is seen chanting "Go Corona, Corona Go" along with the Chinese Consul General in Mumbai, Tang Guocai, went viral and the novel coronavirus crisis found an unintended anthem in his utterance. "Go Corona, Corona Go" has been widely remixed and parodied. If it were a Hindi film song, it would have been a blockbuster. I say this while being fully aware of the abysmal standards of contemporary Hindi film music. This can surely be called COVID-19's 'Kajrare moment'. Amongst other things, I also saw an edited clip from a Jim Carrey film where the famous actor is dancing hysterically to the aforementioned 'corona anthem'. Far from true, this video regardless brought some cheer during a stressful time.

Another video of a group of women singing "Corona Bhaag Jao" ("Run away corona") received much attention. It was sung akin to a religious offering or prayer for benediction purposes. The Internet is also abuzz with some Bhojpuri singers using the COVID-19 outbreak to peddle several songs indicating what mayhem the virus might cause to the womenfolk. For anyone familiar with the raunchy lyrics of such Bhojpuri songs, the indications are obscene.

Someone also shared a video of well-known devotional singer, Narendra Chanchal, singing "Kitthe Aaya Corona Maiyyaji" ("Where Did Corona Come From, Oh Goddess?") at a religious gathering and the audience looked deeply absorbed. There are numerous others using film songs to spread safety messages. Some are using familiar tunes while writing new lyrics pertinent to the situation. Many classical musicians are playing Facebook live recitals to stay in touch with their fans. On a lighter note, should we be surprised lest someone came up with a 'Raag Corona'?

Numerous rappers have also risen to the occasion. We had our Italy moment too when some residents of a housing society in Gurugram came out on their balconies to recite the Gayatri Mantra and "Hum Honge Kamyaab" ("We Shall Overcome"). Music seems to have captured everyone's fancy in distress.

But why music? After all, singing will not destroy the virus and restore better times. Easy ways to resolve this could be that a catchy tune will spread faster because it has an immediate mass connect. This music might also offer momentary relief or escape from our grim ongoings by eliciting some much-needed humour. It is an easy communication tool and thus an effective message dissemination service if properly used at a time when most of us are spending inordinate amounts of time online. Or is it that we are so vulnerable in the face of distress that we cling to anything that generates promise or serves as a distraction? The caveat, however, remains that none of these songs will be remembered after the pandemic. Is this only for temporary fame then? A poet colleague recently told me that this is also resistance. A catastrophe has been unleashed and there is very little that we can do other than trying to stay safe. Isolation isn't easy and may be music will keep us company through the trying times.

Q.14 [11594329]

What is the author trying to convey by the last paragraph?

1 ○ That humans are so vulnerable in distressing times that they cling to anything that serves as a distraction.

2 ○ That humans have always tried to combat catastrophic situations through creative outlets such as music.

3 ○ That music is the only means to mass connect in these times of isolation and anxiety.

4 ○ That music probable acts as a anxiety-reliever, effective message disseminator and a means to connect during these trying times.

✔

Solution:
Correct Answer : 4
Your Answer : 4

Answer key/Solution

The author is asking this as a question which is pointed out in option 1. Option 2 is incorrect because nowhere has the author mentioned that humans have always used creativity to fight difficult situations. Option 3 is extreme while option 4 is aptly able to point out the main idea behind the last paragraph. Hence, option 4 is the correct answer.

Bookmark FeedBack

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Q.15 [11594329]

Which of the following is the author most likely to agree with except?

1 ○ Bhojpuri music lyrics developed for corona are vulgar and obscene.

2 ○ According to the author, most of the music developed in this corona period is has limited utility.

3 ○ The author believes that the quality of contemporary Hindi music is abysmal.

4 ○ Most of the music developed during these times will remain popular in the future as well.

✔

Solution:
Correct Answer : 4
Your Answer : 4
According to the author, options 1,2 and 3 are correct but option 4 is opposite to what the author believes. Hence, option 4 is the answer.

Answer key/Solution

Bookmark FeedBack

Direction for questions (14-18): Read the given passage and answer the questions that follow.

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Q.16 [11594329]

The author presents the argument in the passage by:

1 ○ Introducing an implicit premise and defending it subsequently.

2 ○ Introducing a unique development and presenting ideas on why it has utility.

3 ○ Introducing a unique development and asking questions about it.

4 ○ Introducing the subject matter and documenting its evolution.

✖

Answer key/Solution

Solution:
Correct Answer : 2
Your Answer : 1
Option 1 is incorrect because the author is not defending anything. Option 4 is also incorrect because the author is not trying to look upon the evolution of something. Options 2 and 3 are close but option 3 is narrow because the author has not only asked questions but also presented possible explanations for these questions subsequently. Hence, option 2 is the correct answer.

Bookmark FeedBack

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Q.17 [11594329]

Which of the following can be a suitable title for the passage?

1 ○ Go Corona

2 ○ The role of music in healing

3 ○ Singing the corona tune

4 ○ Creativity in trying times

✖

Answer key/Solution

Solution:
Correct Answer : 3
Your Answer : 2
Option 1 is narrow because it points at only one song that the author has mentioned in the passage. Options 2 and 4 are broad and general. The author is specifically talking about music in these corona times. Hence, option 3 is the best answer.

Bookmark FeedBack

Direction for questions (14-18): Read the given passage and answer the questions that follow.

The COVID-19 pandemic has forced us into necessary isolation. Many of us are spending anxious hours sitting inside our homes and surfing social media for further updates. We are surrounded by a mountain of anxiety. Amidst all-pervasive gloom, I couldn't help notice the steadfast outpouring of music on social media platforms. Many of the songs posted are new compositions specific to the situation. While most of these are indeed rib-tickling and perhaps merit no serious artistic attention, we ought not to dismiss this phenomenon. It perhaps reinforces the idea that tragedy invariably leads to comedy.

Republican Party of India supremo Ramdas Athawale's video, where he is seen chanting "Go Corona, Corona Go" along with the Chinese Consul General in Mumbai, Tang Guocai, went viral and the novel coronavirus crisis found an unintended anthem in his utterance. "Go Corona, Corona Go" has been widely remixed and parodied. If it were a Hindi film song, it would have been a blockbuster. I say this while being fully aware of the abysmal standards of contemporary Hindi film music. This can surely be called COVID-19's 'Kajrare moment'. Amongst other things, I also saw an edited clip from a Jim Carrey film where the famous actor is dancing hysterically to the aforementioned 'corona anthem'. Far from true, this video regardless brought some cheer during a stressful time.

Another video of a group of women singing "Corona Bhaag Jao" ("Run away corona") received much attention. It was sung akin to a religious offering or prayer for benediction purposes. The Internet is also abuzz with some Bhojpuri singers using the COVID-19 outbreak to peddle several songs indicating what mayhem the virus might cause to the womenfolk. For anyone familiar with the raunchy lyrics of such Bhojpuri songs, the indications are obscene.

Someone also shared a video of well-known devotional singer, Narendra Chanchal, singing "Kitthe Aaya Corona Maiyyaji" ("Where Did Corona Come From, Oh Goddess?") at a religious gathering and the audience looked deeply absorbed. There are numerous others using film songs to spread safety messages. Some are using familiar tunes while writing new lyrics pertinent to the situation. Many classical musicians are playing Facebook live recitals to stay in touch with their fans. On a lighter note, should we be surprised lest someone came up with a 'Raag Corona'?

Numerous rappers have also risen to the occasion. We had our Italy moment too when some residents of a housing society in Gurugram came out on their balconies to recite the Gayatri Mantra and "Hum Honge Kamyaab" ("We Shall Overcome"). Music seems to have captured everyone's fancy in distress.

But why music? After all, singing will not destroy the virus and restore better times. Easy ways to resolve this could be that a catchy tune will spread faster because it has an immediate mass connect. This music might also offer momentary relief or escape from our grim ongoings by eliciting some much-needed humour. It is an easy communication tool and thus an effective message dissemination service if properly used at a time when most of us are spending inordinate amounts of time online. Or is it that we are so vulnerable in the face of distress that we cling to anything that generates promise or serves as a distraction? The caveat, however, remains that none of these songs will be remembered after the pandemic. Is this only for temporary fame then? A poet colleague recently told me that this is also resistance. A catastrophe has been unleashed and there is very little that we can do other than trying to stay safe. Isolation isn't easy and may be music will keep us company through the trying times.

Q.18 [11594329]

The passage is most likely an extract from a:

1 ○ Music magazine

2 ○ Newspaper editorial

3 ○ Newspaper self-help column

4 ○ Newspaper report

✔

Solution:
Correct Answer : 2
Your Answer : 2
Option 1 is incorrect because the passage is not delving into the technical details about a piece of music or music in general. It is generally talking about new developments related to music in a larger societal context. Option 3 is incorrect because self-help columns talk about a problem and its possible solutions. Options 2 and 4 are close but option 2 is more appropriate because the author is going beyond merely reporting on something. there is an element of analysis and deconstruction involved.

Answer key/Solution

Bookmark FeedBack

Directions for question (19): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

Q.19 [11594329]

1. New brain-machine interfaces will improve our memory and cognition, extend our senses, and confer direct control over an array of semi-intelligent gadgets.
2. Genetic and epigenetic modification will allow us to change our physical appearance and capabilities, as well as to tweak some of the more intangible aspects of our being such as emotion, creativity or sociability.
3. Within the lifetimes of most children today, bio-enhancement is likely to become a basic feature of human society.
4. Personalized pharmaceuticals will enable us to modify our bodies and minds in powerful and precise ways, with far fewer side-effects than today's drugs.

✖

Solution:
Correct Answer : 3412
Your Answer : 4123
Statement 3 introduces us to an alternative medical treatment 'bio-enhancement'.
Statement 4 is an extension to the idea mentioned in statement 3. Statement 1 follows the pair 34 because it talks about the new mechanism that would happen and statement 2 is the result of how this mechanism works on the body in various ways. Hence, the correct sequence is 3412.

Answer key/Solution

Bookmark FeedBack

Directions for question (20): The four sentences (labelled 1, 2, 3, and 4) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentences and key in this sequence of four numbers as your answer.

Q.20 [11594329]

1. There is also what I call 'the big-picture defense', claiming that evil only appears as such from our limited perspectives.
2. Others have argued that certain kinds of moral goodness – compassion, for instance – are not possible in a world without evil, and the value of these types of goodness outweighs the evils on which their existence depends.
3. There is the argument of free will, attributing evil not to God but to humanity's misuse of its own freedom.
4. Many solutions to the problem of evil – called 'theodicies' – have been proposed.

✖

Answer key/Solution

Solution:
Correct Answer : 4321
Your Answer : 3124
Statements 321 become a series because in statement 3 the main reason for the argument is mentioned. statement 2 follows because it presents what others argue on. statement 1 follows 32 because the word "also" proves that it is an extension of the idea stated in statement 2. The proposal happens in statement 4; so it is the opening sentence. Hence, the correct sequence is 4321.

Bookmark FeedBack

Directions for question (21): The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Q.21 [11594329]

Last night, most of us went to the safety and comfort of our beds before drifting off to a night's sleep. For some, this was the last conscious action before an episode of sleepwalking. Recent research from Stanford University shows that up to 4 per cent of adults might have had such an experience. In fact, sleepwalking is on the rise, in part due to increased use of pharmacologically based sleep aids – notably Ambien. Often, the episodes are harmless. Sometimes, of course, sleepwalking is dangerous. Somnambulists are in an irrational state during which they could harm themselves or others. Patient committed the act – if that's the right word – despite an agreeable relationship with the victim and a lack of motive.

1 ○ Pharmacological sleeping aids are seminal in worsening the sound sleep of the sleepwalking patient and the recent research from the Stanford University unveils the apparently dangerous effects of somnambulism where the patient may either get creative or harm himself as well as others.

2 ○ Pharmacological sleeping aids are seminal in worsening the aftermath of the sleepwalking patient and the recent research from the Stanford University unveils the apparently dangerous effects of somnambulism where the patient may either get creative or harm himself as well as others fatally.

3 ○ Pharmacological sleeping aids are seminal in worsening the aftermath of the sleepwalking patient and the recent research from the Stanford University unveils the apparently dangerous effects of somnambulism where the patient may either get creative or harm himself as well as others.

4 ○ Pharmacological sleeping aids are seminal in alleviating the aftermath of the sleepwalking patient and the recent research from the Stanford University unveils the apparently dangerous effects of somnambulism where the patient may either get creative or harm himself as well as others fatally.

Solution:
Correct Answer : 3
Option 3 covers the essence of the passage. Option 1 is incorrect because the passage does not deal with the sound sleep the patient gets after pharmacological aid, rather the disturbances one faces after using them. Option 2 is incorrect because 'fatally' is an extreme expression that the passage does not mention. Option 4 is incorrect because it is exactly the opposite of what has been stated in the passage.

Answer key/Solution

Bookmark FeedBack

Directions for question (22): 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.22 [11594329]

1. Well I remember a girl, but I don't remember her specific features, and just a blurred face.
2. This was Misha speaking about his sister who was shot in front of him by the Nazis when he was just four years old.
3. After her execution, an 'anti-Semitic priest' ran up to the Nazi officers and told them not to shoot the remaining Jews who were awaiting a bullet.
4. Palestine's Jews had no illusions about what to expect from German occupation.
5. 'They used to ask me if I remembered her… I don't.

✔

Solution:
Correct Answer : 4
Your Answer : 4
Option 4 is the odd sentence. The un-jumbled part is— 'They used to ask me if I remembered her… I don't. Well I remember a girl, but I don't remember her specific features, and just a blurred face. This was Misha speaking about his sister who was shot in front of him by the Nazis when he was just four years old. After her execution, an 'anti-Semitic priest' ran up to the Nazi officers and told them not to shoot the remaining Jews who were awaiting a bullet.

Answer key/Solution

Bookmark FeedBack

Directions for question (23): 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.23 [11594329]

1. If they probe any further, I tell them that I work with the great apes at Leipzig zoo.
2. I get apprehensive whenever someone asks me about my job.
3. Apes are humanity's closest living relatives.
4. I'm a philosopher who works on the question of how language evolved, I reply.
5. But some people, I've discovered, have big problems with zoos; and plenty of philosophers and primatologists agree with them.

✔

Solution:
Correct Answer : 3
Your Answer : 3

Answer key/Solution

Option 3 is the odd sentence. The un-jumbled part is—I get apprehensive whenever someone asks me about my job. I'm a philosopher who works on the question of how language evolved, I reply. If they probe any further, I tell them that I work with the great apes at Leipzig zoo. But some people, I've discovered, have big problems with zoos; and plenty of philosophers and primatologists agree with them.

Bookmark FeedBack

Q.24 [11594329]

Directions for question (24): The passage given below is followed by four summaries. Choose the option that best captures the author's position.

There were many rivals to the Serapis-Isis religion. Prominent among these was Mithraism. Both these religions, and the same is true of many other of the numerous parallel cults that sought the allegiance of the slaves and citizens under the earlier Roman emperors, are personal religions. They aim at personal salvation and personal immortality. The older religions were not personal like that; they were social. The older fashion of divinity was god or goddess of the city first or of the state, and only secondarily of the individual. The sacrifices were a public and not a private function. They concerned collective practical needs in this world in which we live.

1 ○ As opposed to the older religions, Serapis Isis and Mithraism are personal religions which aim at personal salvation and personal immortality.

2 ○ In the older religions, the divine bodies were considered of the state first and then of the individual while the cults under Roman emperors that sought devotion of the masses were personal.

3 ○ The older religions were social in nature and were concerned with activities taking place at public level while the comparatively new religions like Mithraism and Serapis Isis were focused on personal growth and salvation.

4 ○ The religions older to Serapis Isis and Mithraism were societal, requiring public sacrifices and solving societal needs.

Answer key/Solution

Solution:
Correct Answer : 3
Option 4 is completely focused on the older religions and doesn't tell anything about the new ones. Hence, this summary is not appropriate. Similarly, the first option is completely focused on the newer religions. Options 2 and 3 inform about both the religions. In option 2, the sentence is slightly distorted. It says that the cults were personal. As per the para, the gods and the facilities and activities were personal. Hence, option 3 is the best option which correctly captures the theme of the paragraph.

Bookmark FeedBack

Directions for question (25): Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

Q.25 [11594329]

1. Not only is God the creator and ruler of the things and beings within those two realms, but He is also the creator of the realms themselves.
2. The philosopher Gottfried Leibniz's simple solution was to argue in 1710 that this world is necessarily the best of all possible worlds.
3. Because He is a loving God, the one He chooses to create is surely the 'best of all possible worlds'.
4. Leibniz depicts God assessing in His infinite mind all the various possible worlds that He could create.
5. His argument suggests that it is ultimately meaningless to complain about this evil or that injustice; because this is the best of all possible worlds.

✖

Answer key/Solution

Solution:
Correct Answer : 1
Your Answer : 5
Option 1 is the odd sentence. The un-jumbled part is—The philosopher Gottfried Leibniz's simple solution was to argue in 1710 that this world is necessarily the best of all possible worlds. Leibniz depicts God assessing in His infinite mind all the various possible worlds that He could create. Because He is a loving God, the one He chooses to create is surely the 'best of all possible worlds'. His argument suggests that it is ultimately meaningless to complain about this evil or that injustice; because this is the best of all possible worlds.

Bookmark FeedBack

Q.26 [11594329]

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

Peace and harmony between the sexes and individuals does not necessarily depend on a superficial equalization of human beings; nor does it call for the elimination of individual traits or peculiarities. The problem that confronts us to-day, and which the nearest future is to solve, is how to be oneself, and yet in oneness with others, to feel deeply with all human beings and still retain one's own innate qualities. This seems to me the basis upon which the mass and the individual, the true democrat and the true individuality, man and woman can meet without antagonism and opposition. The motto should not be forgive one another; it should be, understand one another. The oft-quoted sentence of Mme. de Stael: "To understand everything means to forgive everything," has never particularly appealed to me; it has the odour of the confessional; to forgive one's fellow being conveys the idea of pharisaical superiority. To understand one's fellow being suffices.

1 ○ Understanding and not forgiving each other is important to maintain peace in society.

2 ○ Discord arises among individuals and between sexes due to their antagonism towards each other, and this in turn arises because of their inability to understand and forgive each other.

3 ○ If we want harmony to exist among individuals, we need to develop in us the ability to be one with all human beings.

4 ○ Amity among individuals is dependent on their ability to be understand one another while retaining their own personal characteristics and qualities; it doesn't require one to be rectitudinous.

Solution:

Answer key/Solution

Correct Answer : 4

Option 1 is wrong as it not about society but about the relationship between individuals and opposite sexes. Moreover, it appears as if one should not forgive another individual. Option 3 doesn't capture the entire theme. Options 2 and 4 are close. However, option 4 matches the tone and style of the author. In option 2, the same thing is written from a negative perspective. The passage is not based on understanding the reasons for discord, rather it is on understanding ways to develop peace and harmony among them. This is best captured in option 4.

Bookmark FeedBack

Sec 2

Directions for questions 27 to 30: Answer the questions on the basis of the information given below.

Jyoti, prepared an online test for students of her 5 batches – A, B, C, D, and E. For this, she prepared 6 questions - p, q, r, s, t, and u and created 5 tests, one for each batch, using these 6 questions. She ensured that each of the 5 tests had an equal number of questions. Further, no two tests had the same set of questions. It is also known that:

(i) Questions 'p' and 't' are never in the same test.
(ii) Whenever question 'r' is there in a test, then question 's' is always there in the same test and vice versa.
(iii) No question appeared in more than 3 tests and each question appeared in more than 1 test.
(iv) Neither in test for batch A nor in test for batch C was there question 'q'.
(v) Tests for batch A and batch D had question 'p' only in common; while tests for batch C and batch E had question 't' only in common.

Q.27 [11594329]
Which of the following question definitely appeared in three different tests?

1 ○ p

2 ○ t

3 ○ q

4 ○ r

Solution:
Correct Answer : 4

Answer key/Solution

Using point (iii), each question appeared in atmost 3 tests and atleast 2 tests, therefore the total number of questions of the 5 tests (including repeating of the same question in different tests) is atleast 12 (i.e., 2 × 6) and at max 18 (i.e., 3 × 6). Since each test had the same number of questions and the only multiple of 5 (i.e., number of tests) from 12 to 18 is 15, therefore it can be concluded that number of questions in each test = $\frac{15}{5} = 3$.
The followings are the possible triplets of questions appeared in any test:
(Note: 1. p and t are never together → Refer point (i)
2. r and s are always together → Refer point (ii)).
(p, r, s) → (1); (p, q, u) → (2); (q, r, s) → (3)
(q, t, u) → (4); (r, s, t) → (5); (r, s, u) → (6)
Using point (iv), it can be concluded that test for batches A and C is one of (1), (5) and (6); using point (v), it can be concluded that: test for batch A is → (1) and test for batch D is → (2); test for batch C is → (5) and for batch E is → (4);
Hence, for Batch B, there are only 2 possibilities left - either (3) or (6).
So, the final conclusion is as follows:
Batch A → (1) → (p, r, s)
Batch B → (3) → (q, r, s) or (6) → (r, s, u)
Batch C → (5) → (r, s, t)
Batch D → (2) → (p, q, u)
Batch E → (4) → (q, t, u)

Question 'q' as well as question 'r' and as well as question 'u' may or may not appear in 3 tests, depending upon the test for Batch B. But question 'r' and 's' has definitely appeared in 3 tests. Among the given options, only question 'r' is there.

Bookmark FeedBack

Directions for questions 27 to 30: Answer the questions on the basis of the information given below.

Jyoti, prepared an online test for students of her 5 batches – A, B, C, D, and E. For this, she prepared 6 questions - p, q, r, s, t, and u and created 5 tests, one for each batch, using these 6 questions. She ensured that each of the 5 tests had an equal number of questions. Further, no two tests had the same set of questions. It is also known that:

(i) Questions 'p' and 't' are never in the same test.
(ii) Whenever question 'r' is there in a test, then question 's' is always there in the same test and vice versa.
(iii) No question appeared in more than 3 tests and each question appeared in more than 1 test.
(iv) Neither in test for batch A nor in test for batch C was there question 'q'.
(v) Tests for batch A and batch D had question 'p' only in common; while tests for batch C and batch E had question 't' only in common.

Q.28 [11594329]

How many questions were common in the test for batch A and the test for batch C?

Solution:
Correct Answer : 2

Answer key/Solution

Using point (iii), each question appeared in atmost 3 tests and atleast 2 tests, therefore the total number of questions of the 5 tests (including repeating of the same question in different tests) is atleast 12 (i.e., 2 × 6) and at max 18 (i.e., 3 × 6). Since each test had the same number of questions and the only multiple of 5 (i.e., number of tests) from 12 to 18 is 15, therefore it can be concluded that number of questions in each test = $\frac{15}{5} = 3$.

The followings are the possible triplets of questions appeared in any test:
(Note: 1. p and t are never together → Refer point (i)
2. r and s are always together → Refer point (ii)).
(p, r, s) → (1); (p, q, u) → (2); (q, r, s) → (3)
(q, t, u) → (4); (r, s, t) → (5); (r, s, u) → (6)
Using point (iv), it can be concluded that test for batches A and C is one of (1), (5) and (6); using point (v), it can be concluded that: test for batch A is → (1) and test for batch D is → (2); test for batch C is → (5) and for batch E is → (4);
Hence, for Batch B, there are only 2 possibilities left - either (3) or (6).
So, the final conclusion is as follows:
Batch A → (1) → (p, r, s)
Batch B → (3) → (q, r, s) or (6) → (r, s, u)
Batch C → (5) → (r, s, t)
Batch D → (2) → (p, q, u)
Batch E → (4) → (q, t, u)

2 → i.e., r and s

Bookmark FeedBack

Directions for questions 27 to 30: Answer the questions on the basis of the information given below.

Jyoti, prepared an online test for students of her 5 batches – A, B, C, D, and E. For this, she prepared 6 questions - p, q, r, s, t, and u and created 5 tests, one for each batch, using these 6 questions. She ensured that each of the 5 tests had an equal number of questions. Further, no two tests had the same set of questions. It is also known that:

(i) Questions 'p' and 't' are never in the same test.
(ii) Whenever question 'r' is there in a test, then question 's' is always there in the same test and vice versa.
(iii) No question appeared in more than 3 tests and each question appeared in more than 1 test.
(iv) Neither in test for batch A nor in test for batch C was there question 'q'.
(v) Tests for batch A and batch D had question 'p' only in common; while tests for batch C and batch E had question 't' only in common.

Q.29 [11594329]
Which of the following question definitely appeared in test for batch B?

1 ○ q

2 ○ u

3 ○ s

4 ○ t

Solution:
Correct Answer : 3

Answer key/Solution

Using point (iii), each question appeared in atmost 3 tests and atleast 2 tests, therefore the total number of questions of the 5 tests (including repeating of the same question in different tests) is atleast 12 (i.e., 2 × 6) and at max 18 (i.e., 3 × 6). Since each test had the same number of questions and the only multiple of 5 (i.e., number of tests) from 12 to 18 is 15, therefore it can be concluded that number of questions in each test = $\frac{15}{5} = 3$.
The followings are the possible triplets of questions appeared in any test:
(Note: 1. p and t are never together → Refer point (i)
2. r and s are always together → Refer point (ii)).
(p, r, s) → (1); (p, q, u) → (2); (q, r, s) → (3)
(q, t, u) → (4); (r, s, t) → (5); (r, s, u) → (6)
Using point (iv), it can be concluded that test for batches A and C is one of (1), (5) and (6); using point (v), it can be concluded that: test for batch A is → (1) and test for batch D is → (2); test for batch C is → (5) and for batch E is → (4);
Hence, for Batch B, there are only 2 possibilities left - either (3) or (6).
So, the final conclusion is as follows:
Batch A → (1) → (p, r, s)
Batch B → (3) → (q, r, s) or (6) → (r, s, u)
Batch C → (5) → (r, s, t)
Batch D → (2) → (p, q, u)
Batch E → (4) → (q, t, u)

Bookmark FeedBack

Directions for questions 27 to 30: Answer the questions on the basis of the information given below.

Jyoti, prepared an online test for students of her 5 batches – A, B, C, D, and E. For this, she prepared 6 questions - p, q, r, s, t, and u and created 5 tests, one for each batch, using these 6 questions. She ensured that each of the 5 tests had an equal number of questions. Further, no two tests had the same set of questions. It is also known that:

(i) Questions 'p' and 't' are never in the same test.
(ii) Whenever question 'r' is there in a test, then question 's' is always there in the same test and vice versa.
(iii) No question appeared in more than 3 tests and each question appeared in more than 1 test.
(iv) Neither in test for batch A nor in test for batch C was there question 'q'.
(v) Tests for batch A and batch D had question 'p' only in common; while tests for batch C and batch E had question 't' only in common.

Q.30 [11594329]
Which of the following question is not present in test for batch A but is present in the test for batch E?

1 ○ p

2 ○ r

3 ○ s

4 ○ u

Solution:
Correct Answer : 4

Answer key/Solution

Using point (iii), each question appeared in atmost 3 tests and atleast 2 tests, therefore the total number of questions of the 5 tests (including repeating of the same question in different tests) is atleast 12 (i.e., 2 × 6) and at max 18 (i.e., 3 × 6). Since each test had the same number of questions and the only multiple of 5 (i.e., number of tests) from 12 to 18 is 15, therefore it can be concluded that number of questions in each test = $\frac{15}{5} = 3$.
The followings are the possible triplets of questions appeared in any test:
(Note: 1. p and t are never together → Refer point (i)
2. r and s are always together → Refer point (ii)).
(p, r, s) → (1); (p, q, u) → (2); (q, r, s) → (3)
(q, t, u) → (4); (r, s, t) → (5); (r, s, u) → (6)
Using point (iv), it can be concluded that test for batches A and C is one of (1), (5) and (6); using point (v), it can be concluded that: test for batch A is → (1) and test for batch D is → (2); test for batch C is → (5) and for batch E is → (4);
Hence, for Batch B, there are only 2 possibilities left - either (3) or (6).
So, the final conclusion is as follows:
Batch A → (1) → (p, r, s)
Batch B → (3) → (q, r, s) or (6) → (r, s, u)
Batch C → (5) → (r, s, t)
Batch D → (2) → (p, q, u)
Batch E → (4) → (q, t, u)

Bookmark FeedBack

Directions for questions 31 to 34: Answer the questions on the basis of the information given below.

Two clubs in IPL are rated objectively on three parameters- Strength of Fan Base, Skill level of Players, and strength of Commercial deals. Table 1 lists some of these ratings. The value of P and Q are known to be multiples of 10 but their exact value are unknown.
Three independent news agencies, however, attach different weights/multiplying factors to the three parameters to calculate the final rating. The multiplying factors for the three parameters are 3, 2, and 1 (in no particular order) as given in table 2. The higher the multiplying factor, the greater the importance of the parameter to the agency's final rating of a club.

Table 1

	Club A	Club B
Fan Base	40	Q
PlayersLevel	P	50
Commercialdeals	60	40

Table 2

	Fan Base	Players Level	Commercial deals
Agency 1	× 2	× 1	× 3
Agency 2	× 2	-	-
Agency 3	-	× 2	-

The final rating given by the agencies to the clubs depend on the ratings of the parameters and multiplying factors. For example, for Agency 1, the final rating given by it to the clubs will be calculated in the following manner:
Final rating = (Fan base score × 2) + (Players Level score × 1) + (Commercial deals score × 3)

The following is also known about the final ratings given by the three agencies:
- Agency 1's rating for club A was higher than its rating for club B, which was 310.
- Agency 3's rating for club B was at least 20 points more than its rating for club A.
- Agency 2's rating for club A was higher than its rating for club B.

Q.31 [11594329]
Which agency's rating attached the most importance to Players Level?

1 ○ Agency 1

2 ○ Agency 2

3 ○ Agency 3

4 ○ Either Agency 2 or Agency 3

Solution:
Correct Answer : 4

Answer key/Solution

Using the working of the rating system, we should be able to gather more information about the values of P and Q and also find out the values of the weights for each agency.

- Agency 1's rating for club B = 310 = 2Q + 50 + 120, thus Q = 70

We can make a table to understand the different possible values of the overall ratings by assuming values for the missing data. We can see that for Agencies 2 and 3, the multiplying factor for commercial deals is not given. Let's assume two cases- Commercial deals has a multiplying factor of 1 and the other parameter (whose multiplying factor is not given) has a factor of 3. It is possible that both agencies have different multiplying factors for commercial deals parameter but an agency will have the same multiplying factor for both clubs.

	CLUB A - Overall Rating		CLUB B - Overall Rating	
Agency 1	260 + P		310	
	If Commercial deals = × 1	If Commercial deals = × 3	If Commercial deals = × 1	If Commercial deals = × 3
Agency 2	140 + 3P	260 + P	330	310
Agency 3	180 + 2P	220 + 2P	350	290

Let's analyse by using each statement:

- Agency 1's rating is higher. Thus, (260 + P) > 310, or P > 50, or P ≥ 60.
- Agency 3's rating for Club B is at least 20 points more than Club A.

  So, putting P ≥ 60, Agency 3's rating for Club A will be greater than 300 or greater than 340 (depending on the multiplying factors).

  So clearly, Club As' rating cannot be 340 or more as it will make its rating higher than that of Club B. So Club A's rating must be 300 or more. **In other words, multiplying factor for commercial deals for Agency 3 must be 1.**

  Here, we can say with respect to Agency 3's rating:

  If P = 60, Club A's rating = 300

  If P = 70, Club A's rating = 320

  Both values are possible as B's rating of rating of 350 remains at least 20 points more than A's.
- Agency 2's rating for club A is higher than B's. That is possible if P = 70 when multiplying factor for commercial deals is 1 (A's rating becomes 350) or if P = 60 / 70(A's rating becomes 320 / 330) when multiplying factor for commercial deals is 3.

OVERALL SCENARIO

	CLUB A - Overall Rating		CLUB B - Overall Rating	
Agency 1	320/330		310	
Agency 3	300/320		350	
	If Commercial deals = × 1	If Commercial deals = × 3	If Commercial deals = × 1	If Commercial deals = × 3
Agency 2	350 (@P = 70)	320/330	330	310

We can only say that the multiplying factor for the parameter 'Players level' for Agency 2 is either 3, which would be the highest, or 1, in which case Agency 3's multiplying factor (of 2) will be higher.

Bookmark FeedBack

Directions for questions 31 to 34: Answer the questions on the basis of the information given below.

Two clubs in IPL are rated objectively on three parameters- Strength of Fan Base, Skill level of Players, and strength of Commercial deals. Table 1 lists some of these ratings. The value of P and Q are known to be multiples of 10 but their exact value are unknown.
Three independent news agencies, however, attach different weights/multiplying factors to the three parameters to calculate the final rating. The multiplying factors for the three parameters are 3, 2, and 1 (in no particular order) as given in table 2. The higher the multiplying factor, the greater the importance of the parameter to the agency's final rating of a club.

Table 1

	Club A	Club B
Fan Base	40	Q
PlayersLevel	P	50
Commercialdeals	60	40

Table 2

	Fan Base	Players Level	Commercial deals
Agency 1	× 2	× 1	× 3
Agency 2	× 2	-	-
Agency 3	-	× 2	-

The final rating given by the agencies to the clubs depend on the ratings of the parameters and multiplying factors. For example, for Agency 1, the final rating given by it to the clubs will be calculated in the following manner:
Final rating = (Fan base score × 2) + (Players Level score × 1) + (Commercial deals score × 3)

The following is also known about the final ratings given by the three agencies:
- Agency 1's rating for club A was higher than its rating for club B, which was 310.
- Agency 3's rating for club B was at least 20 points more than its rating for club A.
- Agency 2's rating for club A was higher than its rating for club B.

Q.32 [11594329]
Which of the following could be the final rating accorded by Agency 2 to club B?

1 ○ 340

2 ○ 330

3 ○ 360

4 ○ None of these

Solution:
Correct Answer : 2

Answer key/Solution

Using the working of the rating system, we should be able to gather more information about the values of P and Q and also find out the values of the weights for each agency.

- Agency 1's rating for club B = 310 = 2Q + 50 + 120, thus Q = 70

We can make a table to understand the different possible values of the overall ratings by assuming values for the missing data. We can see that for Agencies 2 and 3, the multiplying factor for commercial deals is not given. Let's assume two cases- Commercial deals has a multiplying factor of 1 and the other parameter (whose multiplying factor is not given) has a factor of 3. It is possible that both agencies have different multiplying factors for commercial deals parameter but an agency will have the same multiplying factor for both clubs.

	CLUB A - Overall Rating		CLUB B - Overall Rating	
Agency 1	260 + P		310	
	If Commercial deals = × 1	If Commercial deals = × 3	If Commercial deals = × 1	If Commercial deals = × 3
Agency 2	140 + 3P	260 + P	330	310
Agency 3	180 + 2P	220 + 2P	350	290

Let's analyse by using each statement:

- Agency 1's rating is higher. Thus, (260 + P) > 310, or P > 50, or P ≥ 60.
- Agency 3's rating for Club B is at least 20 points more than Club A.

  So, putting P ≥ 60, Agency 3's rating for Club A will be greater than 300 or greater than 340 (depending on the multiplying factors).

  So clearly, Club As' rating cannot be 340 or more as it will make its rating higher than that of Club B. So Club A's rating must be 300 or more. **In other words, multiplying factor for commercial deals for Agency 3 must be 1.**

  Here, we can say with respect to Agency 3's rating:

  If P = 60, Club A's rating = 300

  If P = 70, Club A's rating = 320

  Both values are possible as B's rating of rating of 350 remains at least 20 points more than A's.
- Agency 2's rating for club A is higher than B's. That is possible if P = 70 when multiplying factor for commercial deals is 1 (A's rating becomes 350) or if P = 60 / 70(A's rating becomes 320 / 330) when multiplying factor for commercial deals is 3.

OVERALL SCENARIO

	CLUB A - Overall Rating		CLUB B - Overall Rating	
Agency 1	320/330		310	
Agency 3	300/320		350	
	If Commercial deals = × 1	If Commercial deals = × 3	If Commercial deals = × 1	If Commercial deals = × 3
Agency 2	350 (@P = 70)	320/330	330	310

Refer to the final table for overall values. Option (2) is a possibility.

Bookmark FeedBack

Directions for questions 31 to 34: Answer the questions on the basis of the information given below.

Two clubs in IPL are rated objectively on three parameters- Strength of Fan Base, Skill level of Players, and strength of Commercial deals. Table 1 lists some of these ratings. The value of P and Q are known to be multiples of 10 but their exact value are unknown.
Three independent news agencies, however, attach different weights/multiplying factors to the three parameters to calculate the final rating. The multiplying factors for the three parameters are 3, 2, and 1 (in no particular order) as given in table 2. The higher the multiplying factor, the greater the importance of the parameter to the agency's final rating of a club.

Table 1

	Club A	Club B
Fan Base	40	Q
PlayersLevel	P	50
Commercialdeals	60	40

Table 2

	Fan Base	Players Level	Commercial deals
Agency 1	× 2	× 1	× 3
Agency 2	× 2	-	-
Agency 3	-	× 2	-

The final rating given by the agencies to the clubs depend on the ratings of the parameters and multiplying factors. For example, for Agency 1, the final rating given by it to the clubs will be calculated in the following manner:
Final rating = (Fan base score × 2) + (Players Level score × 1) + (Commercial deals score × 3)

The following is also known about the final ratings given by the three agencies:
- Agency 1's rating for club A was higher than its rating for club B, which was 310.
- Agency 3's rating for club B was at least 20 points more than its rating for club A.
- Agency 2's rating for club A was higher than its rating for club B.

Q.33 [11594329]
What is the highest possible average rating given by the three agencies to club B?

Solution:
Correct Answer : 330

Answer key/Solution

Using the working of the rating system, we should be able to gather more information about the values of P and Q and also find out the values of the weights for each agency.

- Agency 1's rating for club B = 310 = 2Q + 50 + 120, thus Q = 70

We can make a table to understand the different possible values of the overall ratings by assuming values for the missing data. We can see that for Agencies 2 and 3, the multiplying factor for commercial deals is not given. Let's assume two cases- Commercial deals has a multiplying factor of 1 and the other parameter (whose multiplying factor is not given) has a factor of 3. It is possible that both agencies have different multiplying factors for commercial deals parameter but an agency will have the same multiplying factor for both clubs.

	CLUB A - Overall Rating		CLUB B - Overall Rating	
Agency 1	260 + P		310	
	If Commercial deals = × 1	If Commercial deals = × 3	If Commercial deals = × 1	If Commercial deals = × 3
Agency 2	140 + 3P	260 + P	330	310
Agency 3	180 + 2P	220 + 2P	350	290

Let's analyse by using each statement:

- Agency 1's rating is higher. Thus, (260 + P) > 310, or P > 50, or P ≥ 60.
- Agency 3's rating for Club B is at least 20 points more than Club A.

  So, putting P ≥ 60, Agency 3's rating for Club A will be greater than 300 or greater than 340 (depending on the multiplying factors).

  So clearly, Club As' rating cannot be 340 or more as it will make its rating higher than that of Club B. So Club A's rating must be 300 or more. **In other words, multiplying factor for commercial deals for Agency 3 must be 1.**

  Here, we can say with respect to Agency 3's rating:

  If P = 60, Club A's rating = 300

  If P = 70, Club A's rating = 320

  Both values are possible as B's rating of rating of 350 remains at least 20 points more than A's.
- Agency 2's rating for club A is higher than B's. That is possible if P = 70 when multiplying factor for commercial deals is 1 (A's rating becomes 350) or if P = 60 / 70(A's rating becomes 320 / 330) when multiplying factor for commercial deals is 3.

OVERALL SCENARIO

	CLUB A - Overall Rating		CLUB B - Overall Rating	
Agency 1	320/330		310	
Agency 3	300/320		350	
	If Commercial deals = × 1	If Commercial deals = × 3	If Commercial deals = × 1	If Commercial deals = × 3
Agency 2	350 (@P = 70)	320/330	330	310

330 The highest possible average rating given to club B will be $\frac{(310 + 330 + 350)}{3} = 330$.

Bookmark FeedBack

Directions for questions 31 to 34: Answer the questions on the basis of the information given below.

Two clubs in IPL are rated objectively on three parameters- Strength of Fan Base, Skill level of Players, and strength of Commercial deals. Table 1 lists some of these ratings. The value of P and Q are known to be multiples of 10 but their exact value are unknown.
Three independent news agencies, however, attach different weights/multiplying factors to the three parameters to calculate the final rating. The multiplying factors for the three parameters are 3, 2, and 1 (in no particular order) as given in table 2. The higher the multiplying factor, the greater the importance of the parameter to the agency's final rating of a club.

Table 1

	Club A	Club B
Fan Base	40	Q
PlayersLevel	P	50
Commercialdeals	60	40

Table 2

	Fan Base	Players Level	Commercial deals
Agency 1	× 2	× 1	× 3
Agency 2	× 2	-	-
Agency 3	-	× 2	-

The final rating given by the agencies to the clubs depend on the ratings of the parameters and multiplying factors. For example, for Agency 1, the final rating given by it to the clubs will be calculated in the following manner:
Final rating = (Fan base score × 2) + (Players Level score × 1) + (Commercial deals score × 3)

The following is also known about the final ratings given by the three agencies:
- Agency 1's rating for club A was higher than its rating for club B, which was 310.
- Agency 3's rating for club B was at least 20 points more than its rating for club A.
- Agency 2's rating for club A was higher than its rating for club B.

Q.34 [11594329]
Which of the following could be the values of P?

1 ○ 60

2 ○ 70

3 ○ 80

4 ○ Either (1) or (2)

Solution:
Correct Answer : 4

Answer key/Solution

Using the working of the rating system, we should be able to gather more information about the values of P and Q and also find out the values of the weights for each agency.

- Agency 1's rating for club B = 310 = 2Q + 50 + 120, thus Q = 70

We can make a table to understand the different possible values of the overall ratings by assuming values for the missing data. We can see that for Agencies 2 and 3, the multiplying factor for commercial deals is not given. Let's assume two cases- Commercial deals has a multiplying factor of 1 and the other parameter (whose multiplying factor is not given) has a factor of 3. It is possible that both agencies have different multiplying factors for commercial deals parameter but an agency will have the same multiplying factor for both clubs.

	CLUB A - Overall Rating		CLUB B - Overall Rating	
Agency 1	260 + P		310	
	If Commercial deals = × 1	If Commercial deals = × 3	If Commercial deals = × 1	If Commercial deals = × 3
Agency 2	140 + 3P	260 + P	330	310
Agency 3	180 + 2P	220 + 2P	350	290

Let's analyse by using each statement:

- Agency 1's rating is higher. Thus, (260 + P) > 310, or P > 50, or P ≥ 60.
- Agency 3's rating for Club B is at least 20 points more than Club A.

  So, putting P ≥ 60, Agency 3's rating for Club A will be greater than 300 or greater than 340 (depending on the multiplying factors).

  So clearly, Club As' rating cannot be 340 or more as it will make its rating higher than that of Club B. So Club A's rating must be 300 or more. **In other words, multiplying factor for commercial deals for Agency 3 must be 1.**

  Here, we can say with respect to Agency 3's rating:

  If P = 60, Club A's rating = 300

  If P = 70, Club A's rating = 320

  Both values are possible as B's rating of rating of 350 remains at least 20 points more than A's.
- Agency 2's rating for club A is higher than B's. That is possible if P = 70 when multiplying factor for commercial deals is 1 (A's rating becomes 350) or if P = 60 / 70(A's rating becomes 320 / 330) when multiplying factor for commercial deals is 3.

OVERALL SCENARIO

	CLUB A - Overall Rating		CLUB B - Overall Rating	
Agency 1	320/330		310	
Agency 3	300/320		350	
	If Commercial deals = × 1	If Commercial deals = × 3	If Commercial deals = × 1	If Commercial deals = × 3
Agency 2	350 (@P = 70)	320/330	330	310

So, P = 60 or 70 are possible.

Bookmark FeedBack

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

A group of college friends went to Goa on their summer vacation. One of the friends, Joey, who likes card games very much, performed a card magic trick to impress his friends. He, in the first magic trick, selected a pack of 13 cards of spade from deck of 52 cards. He arranged them in some order. As per his magic trick before his friends, from this arranged set of cards he discarded the card first from the top and place the second topmost card at the bottom of the pack. Then again discarded the third topmost card placed in initial arrangement and kept the fourth topmost card of the initial arrangement at the bottom of the pack. Continued so on till the last card in his hand was also discarded. His friends were stunned to see that the cards were discarded in the order of Ace (A), King (K), Queen(Q), Jack(J), 10, 9, 8, 7, 6, 5, 4, 3, 2. But Chandler, one of his friends, who was logically good , was quick to find out that the cards were arranged in a particular order. He could figured out the arrangement.
Face value of a card is defined as the number written on the card. Also, for cards A, K, Q, and J, the face values are 1, 13, 12, and 11 respectively.

Q.35 [11594329]
Which of the following was the second topmost card in the initial arrangement?

1 ○ 3

2 ○ 7

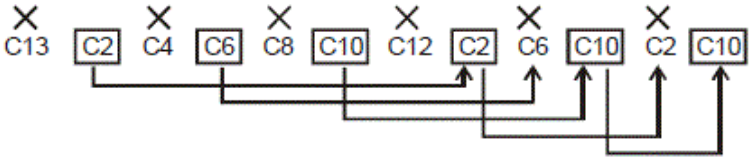
3 ○ 2

4 ○ 6

Solution:
Correct Answer : 1

Answer key/Solution

Let the 13 cards arranged by Joey for his trick be numbered as C1, C2, ..., C12, C13 from top to bottom as:
Top→ C1 C2 C3 ... C12 C13 ← Bottom
While playing his trick Joey started to discard C1 and placed C2 at the end, then discarded C3 and placed C4 at the end and so on, which in turn implies that all odd numbered cards i.e., C1, C3, C5, ..., C13 were discarded in that order and all even numbered cards were placed at bottom in order C2, C4, C6, C8, C10, C12.
Now, when he started discarding these cards, the process will be as follows:



and hence C10 was the last card in his hand .
∴ The arrangement will be as follows:

A	K	Q	J	10	9	8	7	6	5	4	3	2
C1	C3	C5	C7	C9	C11	C13	C4	C8	C12	C6	C2	C10

The second topmost card in the initial arrangement was 3.

Bookmark FeedBack

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

A group of college friends went to Goa on their summer vacation. One of the friends, Joey, who likes card games very much, performed a card magic trick to impress his friends. He, in the first magic trick, selected a pack of 13 cards of spade from deck of 52 cards. He arranged them in some order. As per his magic trick before his friends, from this arranged set of cards he discarded the card first from the top and place the second topmost card at the bottom of the pack. Then again discarded the third topmost card placed in initial arrangement and kept the fourth topmost card of the initial arrangement at the bottom of the pack. Continued so on till the last card in his hand was also discarded. His friends were stunned to see that the cards were discarded in the order of Ace (A), King (K), Queen(Q), Jack(J), 10, 9, 8, 7, 6, 5, 4, 3, 2. But Chandler, one of his friends, who was logically good , was quick to find out that the cards were arranged in a particular order. He could figured out the arrangement.
Face value of a card is defined as the number written on the card. Also, for cards A, K, Q, and J, the face values are 1, 13, 12, and 11 respectively.

Q.36 [11594329]
What is the sum of the face values on the cards at the 8th, 9th, and 10th place in the initial arrangement?

1 ○ 21

2 ○ 18

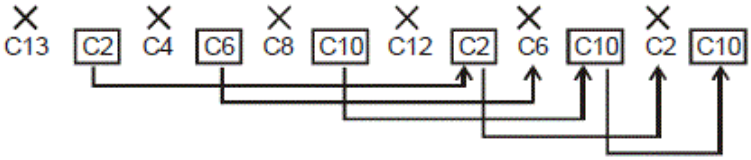
3 ○ 19

4 ○ 20

Solution:
Correct Answer : 2

Answer key/Solution

Let the 13 cards arranged by Joey for his trick be numbered as C1, C2, ..., C12, C13 from top to bottom as:
Top→ C1 C2 C3 ... C12 C13 ← Bottom
While playing his trick Joey started to discard C1 and placed C2 at the end, then discarded C3 and placed C4 at the end and so on, which in turn implies that all odd numbered cards i.e., C1, C3, C5, ..., C13 were discarded in that order and all even numbered cards were placed at bottom in order C2, C4, C6, C8, C10, C12.
Now, when he started discarding these cards, the process will be as follows:



and hence C10 was the last card in his hand .
∴ The arrangement will be as follows:

A	K	Q	J	10	9	8	7	6	5	4	3	2
C1	C3	C5	C7	C9	C11	C13	C4	C8	C12	C6	C2	C10

Sum of numbers = 6 + 10 + 2 = 18.

Bookmark FeedBack

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

A group of college friends went to Goa on their summer vacation. One of the friends, Joey, who likes card games very much, performed a card magic trick to impress his friends. He, in the first magic trick, selected a pack of 13 cards of spade from deck of 52 cards. He arranged them in some order. As per his magic trick before his friends, from this arranged set of cards he discarded the card first from the top and place the second topmost card at the bottom of the pack. Then again discarded the third topmost card placed in initial arrangement and kept the fourth topmost card of the initial arrangement at the bottom of the pack. Continued so on till the last card in his hand was also discarded. His friends were stunned to see that the cards were discarded in the order of Ace (A), King (K), Queen(Q), Jack(J), 10, 9, 8, 7, 6, 5, 4, 3, 2. But Chandler, one of his friends, who was logically good , was quick to find out that the cards were arranged in a particular order. He could figured out the arrangement.
Face value of a card is defined as the number written on the card. Also, for cards A, K, Q, and J, the face values are 1, 13, 12, and 11 respectively.

Q.37 [11594329]

In the second magic trick, Joey arranged the same 13 cards in a different order and followed the same process of discarding the cards. The order in which he discarded the cards in the second magic trick was A, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, then which of the following is the absolute difference in the face value of the card at 12th position in the original arrangement of the 1st magic trick and that in the second magic trick?

1 ○ 5

2 ○ 3

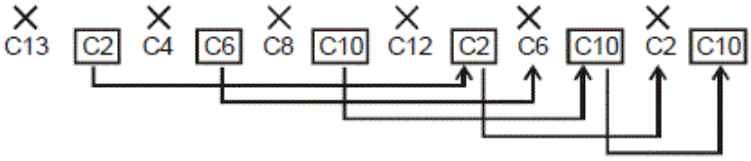
3 ○ 1

4 ○ 4

Solution:
Correct Answer : 1

Answer key/Solution

Let the 13 cards arranged by Joey for his trick be numbered as C1, C2, ..., C12, C13 from top to bottom as:
Top→ C1 C2 C3 ... C12 C13 ← Bottom
While playing his trick Joey started to discard C1 and placed C2 at the end, then discarded C3 and placed C4 at the end and so on, which in turn implies that all odd numbered cards i.e., C1, C3, C5, ..., C13 were discarded in that order and all even numbered cards were placed at bottom in order C2, C4, C6, C8, C10, C12.
Now, when he started discarding these cards, the process will be as follows:



and hence C10 was the last card in his hand .
∴ The arrangement will be as follows:

A	K	Q	J	10	9	8	7	6	5	4	3	2
C1	C3	C5	C7	C9	C11	C13	C4	C8	C12	C6	C2	C10

By following the same logic,
In second magic trick arrangement of cards is as follows:

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
A	Q	2	8	3	J	4	9	5	K	6	10	7

Difference = |5 – 10| = 5.

Bookmark FeedBack

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

A group of college friends went to Goa on their summer vacation. One of the friends, Joey, who likes card games very much, performed a card magic trick to impress his friends. He, in the first magic trick, selected a pack of 13 cards of spade from deck of 52 cards. He arranged them in some order. As per his magic trick before his friends, from this arranged set of cards he discarded the card first from the top and place the second topmost card at the bottom of the pack. Then again discarded the third topmost card placed in initial arrangement and kept the fourth topmost card of the initial arrangement at the bottom of the pack. Continued so on till the last card in his hand was also discarded. His friends were stunned to see that the cards were discarded in the order of Ace (A), King (K), Queen(Q), Jack(J), 10, 9, 8, 7, 6, 5, 4, 3, 2. But Chandler, one of his friends, who was logically good , was quick to find out that the cards were arranged in a particular order. He could figured out the arrangement.
Face value of a card is defined as the number written on the card. Also, for cards A, K, Q, and J, the face values are 1, 13, 12, and 11 respectively.

Q.38 [11594329]
As per the arrangement of the cards in the original arrangement in the second magic trick as given in the above question, how many positions had the same card as they had in the original arrangement of the first magic trick?

1 ○ 0

2 ○ 1

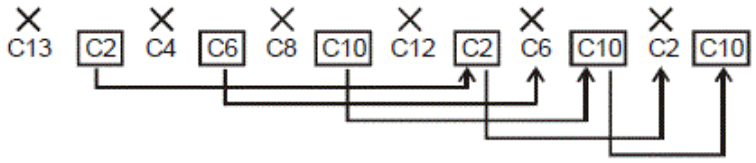
3 ○ 2

4 ○ 5

Solution:
Correct Answer : 2

Answer key/Solution

Let the 13 cards arranged by Joey for his trick be numbered as C1, C2, ..., C12, C13 from top to bottom as:
Top→ C1 C2 C3 ... C12 C13 ← Bottom
While playing his trick Joey started to discard C1 and placed C2 at the end, then discarded C3 and placed C4 at the end and so on, which in turn implies that all odd numbered cards i.e., C1, C3, C5, ..., C13 were discarded in that order and all even numbered cards were placed at bottom in order C2, C4, C6, C8, C10, C12.
Now, when he started discarding these cards, the process will be as follows:



and hence C10 was the last card in his hand .
∴ The arrangement will be as follows:

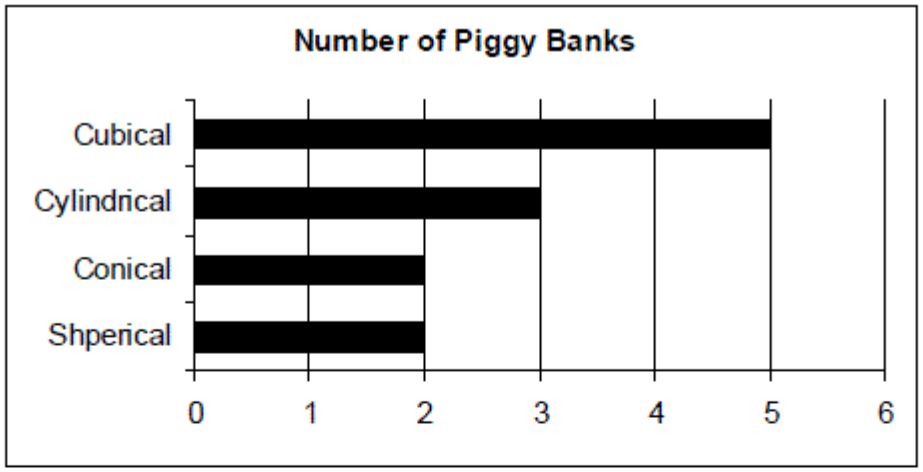
A	K	Q	J	10	9	8	7	6	5	4	3	2
C1	C3	C5	C7	C9	C11	C13	C4	C8	C12	C6	C2	C10

Only C1 has the same card in both the magic tricks.

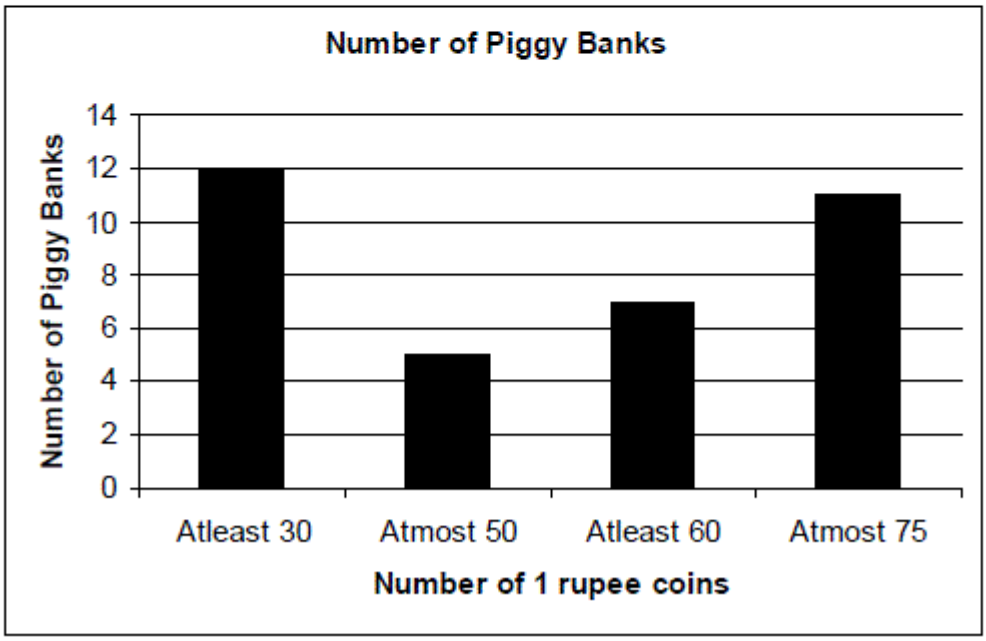
Bookmark FeedBack

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

Robin has a certain number of Piggy Banks, which have different shapes among Cubical, Cylindrical, Conical, and Spherical. In each Piggy Bank, Robin has collected 1 rupee coins and the number of 1 rupee coins in each Piggy Bank is one of the following numbers- 30, 50, 60, 75, and 100. No two Piggy Banks of the same shape have equal number of 1 rupee coins in them.
The following bar graph shows the number of Piggy Banks of different shapes:



The following column graph shows the distribution of number of Piggy Banks containing different number of 1 rupee coins:



Note: Data given or calculated in a question will be used in the subsequent questions.

Q.39 [11594329]

If it is known that the Cylindrical Piggy Banks contain the maximum possible number of 1 rupee coins, then what is the total number of 1 rupee coins in all the Cylindrical Piggy banks taken together?

Solution:
Correct Answer : 185

Answer key/Solution

Let us denote the number of Piggy banks with 30 '1 rupee coins' as P30, the number of Piggy banks with 50 '1 rupee coins' as P50 and so on.
Total number of boxes = 12.
There are 5 Piggy banks with at most 50 '1 rupee coins', thus P30 + P50 = 5.
There are 7 Piggy Banks with at least 60 '1 rupee coins', thus P60 + P75 + P100 = 7.
There are 11 Piggy banks with at most 75 '1 rupee coins', thus P30 + P50 + P60 + P75 = 11.
Using above three conditions, we get P100 = 1 and P60 + P75 = 6.
There are five cubical Piggy banks and each will have different number of '1 rupee coins'. Thus we have,

	30	50	60	75	100	Total
Cubical	Yes	Yes	Yes	Yes	Yes	5
Cylindrical					No	3
Conical					No	2
Spherical					No	2
Total	5		6		1	12

Now, if the Cylindrical Piggy banks contain maximum possible number of '1 rupee coins', then the three Cylindrical Piggy Banks will have 50, 60 and 75 '1Re coins'. Thus we have:

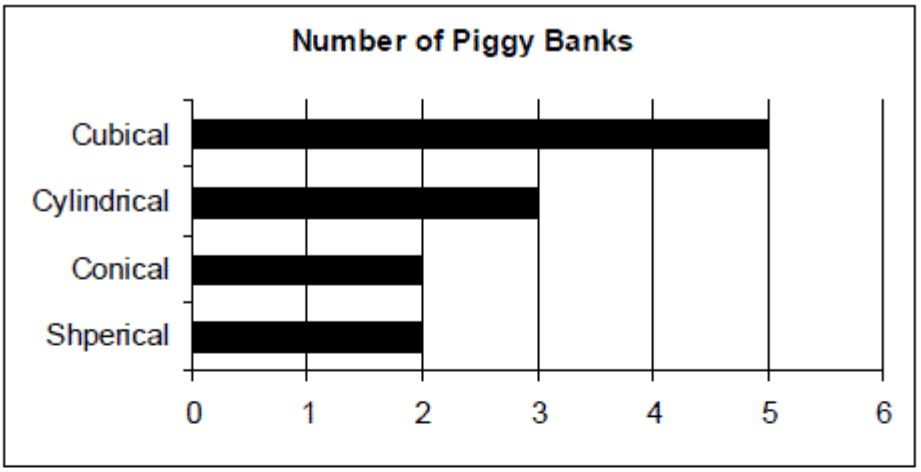
	30	50	60	75	100	Total
Cubical	Yes	Yes	Yes	Yes	Yes	5
Cylindrical	No	Yes	Yes	Yes	No	3
Conical					No	2
Spherical					No	2
Total	5		6		1	12

Therefore, the number of '1 rupee coins' in Cylindrical Piggy Banks = 50 + 60 + 75 = 185.

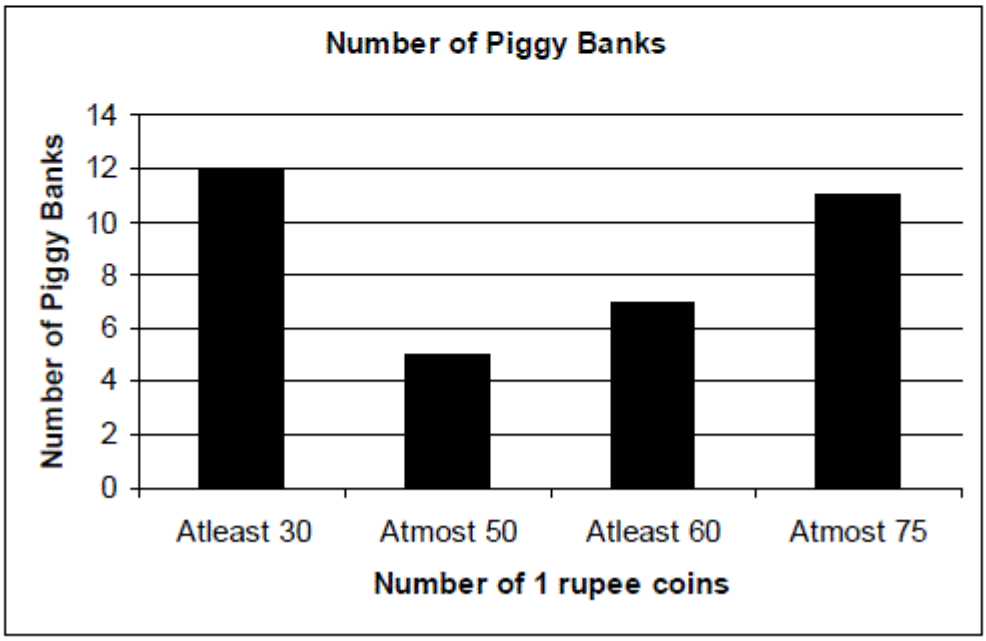
Bookmark FeedBack

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

Robin has a certain number of Piggy Banks, which have different shapes among Cubical, Cylindrical, Conical, and Spherical. In each Piggy Bank, Robin has collected 1 rupee coins and the number of 1 rupee coins in each Piggy Bank is one of the following numbers- 30, 50, 60, 75, and 100. No two Piggy Banks of the same shape have equal number of 1 rupee coins in them.
The following bar graph shows the number of Piggy Banks of different shapes:



The following column graph shows the distribution of number of Piggy Banks containing different number of 1 rupee coins:



Note: Data given or calculated in a question will be used in the subsequent questions.

Q.40 [11594329]

If it is known that there are maximum possible number of Piggy Banks having 75 '1 rupee coins' , then what is the number of Piggy Banks having 60 '1 rupee coins'?

1 ○ 4

2 ○ 3

3 ○ 5

4 ○ 2

Solution:
Correct Answer : 4

Answer key/Solution

Let us denote the number of Piggy banks with 30 '1 rupee coins' as P30, the number of Piggy banks with 50 '1 rupee coins' as P50 and so on.
Total number of boxes = 12.
There are 5 Piggy banks with at most 50 '1 rupee coins', thus P30 + P50 = 5.
There are 7 Piggy Banks with at least 60 '1 rupee coins', thus P60 + P75 + P100 = 7.
There are 11 Piggy banks with at most 75 '1 rupee coins', thus P30 + P50 + P60 + P75 = 11.
Using above three conditions, we get P100 = 1 and P60 + P75 = 6.
There are five cubical Piggy banks and each will have different number of '1 rupee coins'. Thus we have,

	30	50	60	75	100	Total
Cubical	Yes	Yes	Yes	Yes	Yes	5
Cylindrical					No	3
Conical					No	2
Spherical					No	2
Total	5		6		1	12

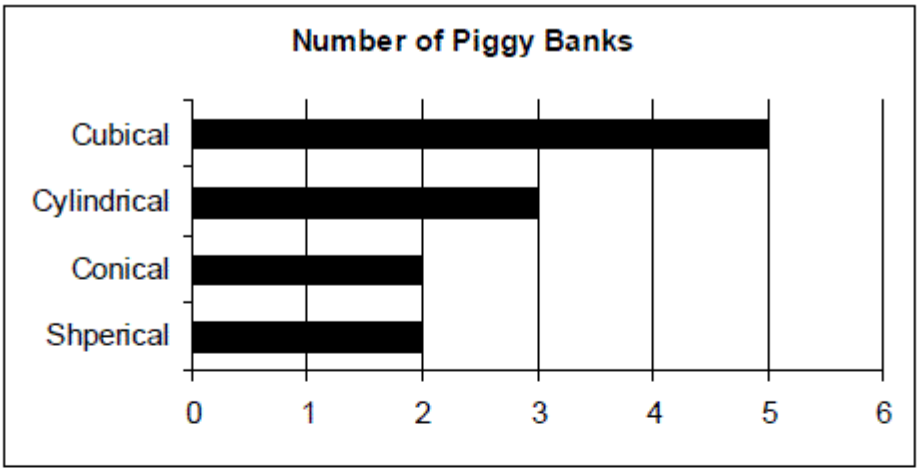
As we know that P60 + P75 = 6, and by the above question we have got the value of P60 = 2 till now and we have to maximise the value of P75, thus the maximum value of P75 can be 4 so, the value of P60 = 2.

	30	50	60	75	100	Total
Cubical	Yes	Yes	Yes	Yes	Yes	5
Cylindrical	No	Yes	Yes	Yes	No	3
Conical			No	Yes	No	2
Spherical			No	Yes	No	2
Total	5		6		1	12

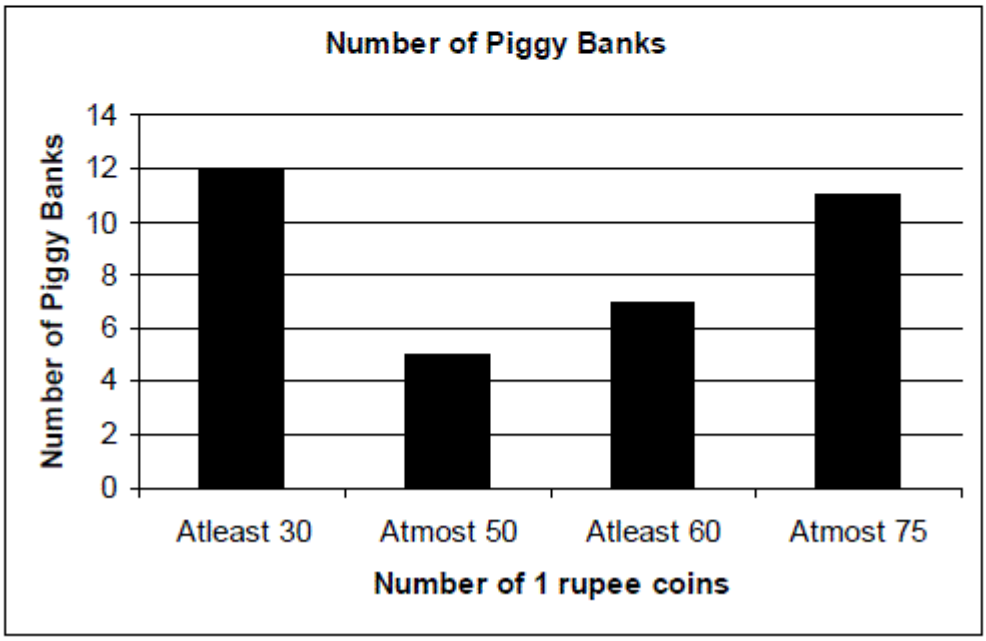
Bookmark FeedBack

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

Robin has a certain number of Piggy Banks, which have different shapes among Cubical, Cylindrical, Conical, and Spherical. In each Piggy Bank, Robin has collected 1 rupee coins and the number of 1 rupee coins in each Piggy Bank is one of the following numbers- 30, 50, 60, 75, and 100. No two Piggy Banks of the same shape have equal number of 1 rupee coins in them.
The following bar graph shows the number of Piggy Banks of different shapes:



The following column graph shows the distribution of number of Piggy Banks containing different number of 1 rupee coins:



Note: Data given or calculated in a question will be used in the subsequent questions.

Q.41 [11594329]

If it is known that there are minimum possible number of Piggy Banks having 30 '1 rupee coins', then what is the total number of '1 rupee coins' in all the Spherical Piggy Banks taken together?

Solution:
Correct Answer : 125

Answer key/Solution

Let us denote the number of Piggy banks with 30 '1 rupee coins' as P30, the number of Piggy banks with 50 '1 rupee coins' as P50 and so on.
Total number of boxes = 12.
There are 5 Piggy banks with at most 50 '1 rupee coins', thus P30 + P50 = 5.
There are 7 Piggy Banks with at least 60 '1 rupee coins', thus P60 + P75 + P100 = 7.
There are 11 Piggy banks with at most 75 '1 rupee coins', thus P30 + P50 + P60 + P75 = 11.
Using above three conditions, we get P100 = 1 and P60 + P75 = 6.
There are five cubical Piggy banks and each will have different number of '1 rupee coins'. Thus we have,

	30	50	60	75	100	Total
Cubical	Yes	Yes	Yes	Yes	Yes	5
Cylindrical					No	3
Conical					No	2
Spherical					No	2
Total	5		6		1	12

Now, as we know P30 + P50 = 5 and we have to minimise the value of P30, which till now is equal to 1, thus P30 = 1 and P50 = 4.

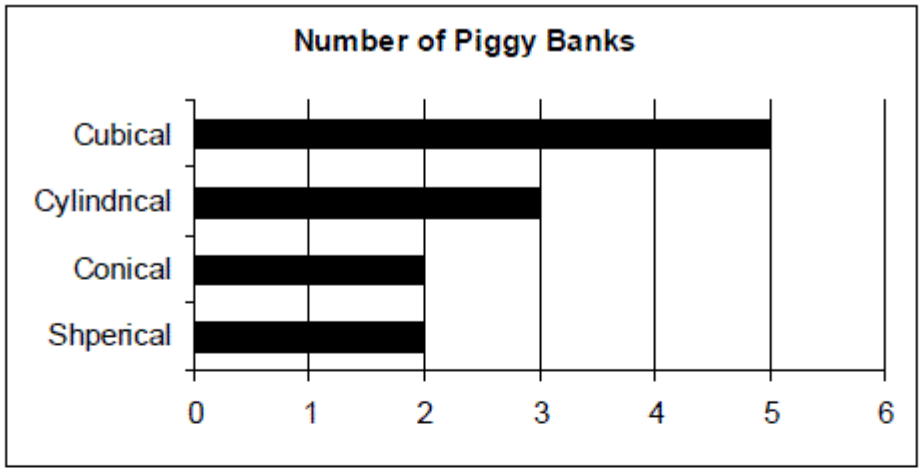
	30	50	60	75	100	Total
Cubical	Yes	Yes	Yes	Yes	Yes	5
Cylindrical	No	Yes	Yes	Yes	No	3
Conical	No	Yes	No	Yes	No	2
Spherical	No	Yes	No	Yes	No	2
Total	5		6		1	12

Thus, the total number of coins in Spherical Piggy Banks = 50 + 75 = 125.

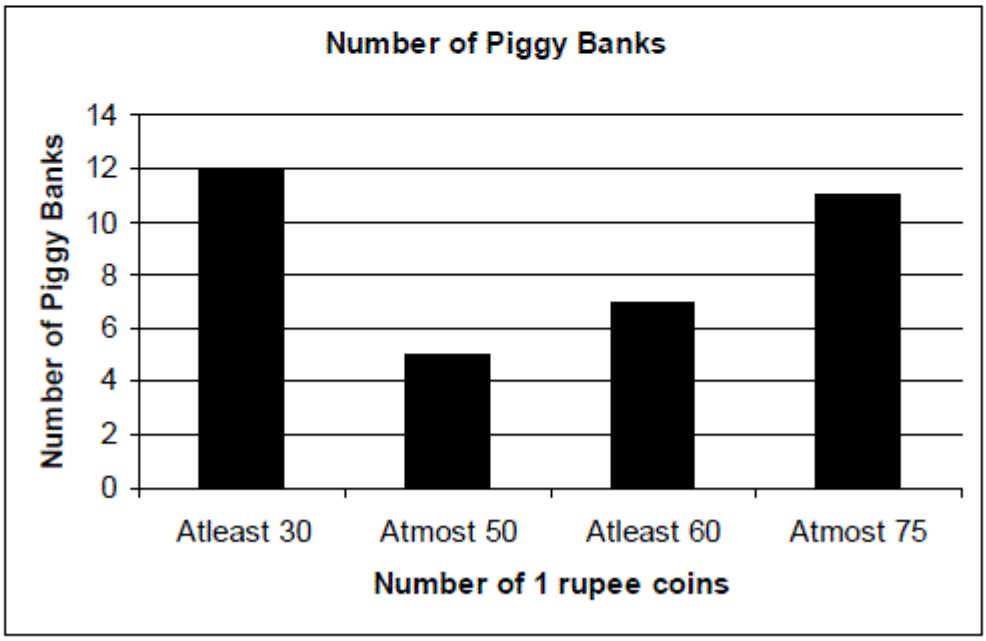
Bookmark FeedBack

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

Robin has a certain number of Piggy Banks, which have different shapes among Cubical, Cylindrical, Conical, and Spherical. In each Piggy Bank, Robin has collected 1 rupee coins and the number of 1 rupee coins in each Piggy Bank is one of the following numbers- 30, 50, 60, 75, and 100. No two Piggy Banks of the same shape have equal number of 1 rupee coins in them.
The following bar graph shows the number of Piggy Banks of different shapes:



The following column graph shows the distribution of number of Piggy Banks containing different number of 1 rupee coins:



Note: Data given or calculated in a question will be used in the subsequent questions.

Q.42 [11594329]

What is the total amount (in Rs.) with Robin?

1 ○ 750

2 ○ 700

3 ○ 850

4 ○ 900

Solution:
Correct Answer : 1

Answer key/Solution

Let us denote the number of Piggy banks with 30 '1 rupee coins' as P30, the number of Piggy banks with 50 '1 rupee coins' as P50 and so on.
Total number of boxes = 12.
There are 5 Piggy banks with at most 50 '1 rupee coins', thus P30 + P50 = 5.
There are 7 Piggy Banks with at least 60 '1 rupee coins', thus P60 + P75 + P100 = 7.
There are 11 Piggy banks with at most 75 '1 rupee coins', thus P30 + P50 + P60 + P75 = 11.
Using above three conditions, we get P100 = 1 and P60 + P75 = 6.
There are five cubical Piggy banks and each will have different number of '1 rupee coins'. Thus we have,

	30	50	60	75	100	Total
Cubical	Yes	Yes	Yes	Yes	Yes	5
Cylindrical					No	3
Conical					No	2
Spherical					No	2
Total	5		6		1	12

Total amount with Robin = 30 x 1 + 50 x 4 + 60 x 2 + 75 x 4 + 100 x 1 = Rs. 750.

Bookmark FeedBack

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

A company has a Bonus Policy for their employees based on the number of new clients enrolled by them during a particular month. A total of 9 employees - Lalitesh, Amrendra, Aadesh, Tanmesh, Mukesh, Tarunesh, Sandesh, Harish, and Sahil - had enrolled more than 10 clients. Out of these 9 employees, 3 work in Retail Team, 2 in Energy Team, 2 in Hardware team, and 2 in Software team. The table below mentions the bonus gained (in percentage terms, i.e., as a percent of the weekly salary) depending upon the number of new clients.

Number of New clients	10 – 30	31 – 60	61 or more
Bonus	20%	30%	50%

Following are the statements to help you in figuring out the bonus amount gained by each employee and their departments.

Lalitesh – I am from the Energy department and made at least 15 fewer new clients than the person who enrolled the most number of clients.
Tarunesh – My bonus (%) was different from Mukesh's.
Sahil – Harish and I enrolled the same number of new clients.
Aadesh – I enrolled at least 30 clients less than Lalitesh but realized that I had enrolled more clients than Sandesh.
Tanmesh – The bonus (%) that Amrendra and I received is the same.
Mukesh – I generally manage to enroll exactly 30 new clients but led by demand, I managed to increase my new enrollments by 200%.
Sandesh – I work in Retail team and enrolled as many new clients as Sahil. Harish does not work in my team.
Harish – I enrolled exactly 30 clients. The highest number of new clients enrolled by someone from my team was 50.
Amrendra – I work in the Hardware team and enrolled 40 clients.

Q.43 [11594329]

What is the number of people whose bonus will not be 50%?

1 ○ 2

2 ○ 4

3 ○ 7

4 ○ Cannot be determined

✔

Solution:

Correct Answer : 3

Your Answer : 3

Answer key/Solution

From the statements the following can be inferred:

- Lalitesh must have done less than 75 enrollments (90 enrollments has to be the maximum with the highest bonus percentage)
- Aadesh, who did 30 enrollments less than Lalitesh and more than Sandesh, must have enrolled between 45 and 31 people.
- We also know as per Harish's statement, that one of his team member did 50 new enrollments. This team mate could not have been Mukesh (with 90 enrollments) or Aadesh (less than 45 enrollments). **His team mate must be either Tanmesh or Tarunesh, with 50 new enrollments.Their department must be Software** since no other department is available or can house 2 additional people.
- Lalitesh enrolled at least 30 people more than Aadesh, thus enrolling between 60 and 75 people.

Name	Department	New Clients	Bonus
Lalitesh	Energy	61-75	50%
Tarunesh			Not 50%
Sahil		30	20%
Aadesh		31-45	30%
Tanmesh		31-60	30%
Mukesh		90	50%
Sandesh	Retail	30	20%
Harish	Software	30	20%
Amrendra	Hardware	40	30%

Except Lalitesh and Mukesh, everyone gets a bonus of less than 50%.

Bookmark FeedBack

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

A company has a Bonus Policy for their employees based on the number of new clients enrolled by them during a particular month. A total of 9 employees - Lalitesh, Amrendra, Aadesh, Tanmesh, Mukesh, Tarunesh, Sandesh, Harish, and Sahil - had enrolled more than 10 clients. Out of these 9 employees, 3 work in Retail Team, 2 in Energy Team, 2 in Hardware team, and 2 in Software team. The table below mentions the bonus gained (in percentage terms, i.e., as a percent of the weekly salary) depending upon the number of new clients.

Number of New clients	10 – 30	31 – 60	61 or more
Bonus	20%	30%	50%

Following are the statements to help you in figuring out the bonus amount gained by each employee and their departments.

Lalitesh – I am from the Energy department and made at least 15 fewer new clients than the person who enrolled the most number of clients.
Tarunesh – My bonus (%) was different from Mukesh's.
Sahil – Harish and I enrolled the same number of new clients.
Aadesh – I enrolled at least 30 clients less than Lalitesh but realized that I had enrolled more clients than Sandesh.
Tanmesh – The bonus (%) that Amrendra and I received is the same.
Mukesh – I generally manage to enroll exactly 30 new clients but led by demand, I managed to increase my new enrollments by 200%.
Sandesh – I work in Retail team and enrolled as many new clients as Sahil. Harish does not work in my team.
Harish – I enrolled exactly 30 clients. The highest number of new clients enrolled by someone from my team was 50.
Amrendra – I work in the Hardware team and enrolled 40 clients.

Q.44 [11594329]

Which of the following options correctly represents the order of employees from the maximum enrollments to the least enrollments i.e., in descending order of new enrollments, if it is known that Tanmesh belongs to the Retail department?

1 ○ Sahil, Aadesh, Amrendra

2 ○ Lalitesh, Mukesh, Aadesh

3 ○ Tarunesh, Aadesh, Sandesh

4 ○ Aadesh, Tarunesh, Harish

✔

Solution:

Correct Answer : 3

Your Answer : 3

Answer key/Solution

From the statements the following can be inferred:

- Lalitesh must have done less than 75 enrollments (90 enrollments has to be the maximum with the highest bonus percentage)
- Aadesh, who did 30 enrollments less than Lalitesh and more than Sandesh, must have enrolled between 45 and 31 people.
- We also know as per Harish's statement, that one of his team member did 50 new enrollments. This team mate could not have been Mukesh (with 90 enrollments) or Aadesh (less than 45 enrollments). **His team mate must be either Tanmesh or Tarunesh, with 50 new enrollments.Their department must be Software** since no other department is available or can house 2 additional people.
- Lalitesh enrolled at least 30 people more than Aadesh, thus enrolling between 60 and 75 people.

Name	Department	New Clients	Bonus
Lalitesh	Energy	61-75	50%
Tarunesh			Not 50%
Sahil		30	20%
Aadesh		31-45	30%
Tanmesh		31-60	30%
Mukesh		90	50%
Sandesh	Retail	30	20%
Harish	Software	30	20%
Amrendra	Hardware	40	30%

If Tanmesh belongs to the Retail department, then Tarunesh has to be Harish's teammate in software with 50 enrollments.

You can check the options for descending order to see that only (3) fits the order.

Bookmark FeedBack

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

A company has a Bonus Policy for their employees based on the number of new clients enrolled by them during a particular month. A total of 9 employees - Lalitesh, Amrendra, Aadesh, Tanmesh, Mukesh, Tarunesh, Sandesh, Harish, and Sahil - had enrolled more than 10 clients. Out of these 9 employees, 3 work in Retail Team, 2 in Energy Team, 2 in Hardware team, and 2 in Software team. The table below mentions the bonus gained (in percentage terms, i.e., as a percent of the weekly salary) depending upon the number of new clients.

Number of New clients	10 – 30	31 – 60	61 or more
Bonus	20%	30%	50%

Following are the statements to help you in figuring out the bonus amount gained by each employee and their departments.

Lalitesh – I am from the Energy department and made at least 15 fewer new clients than the person who enrolled the most number of clients.
Tarunesh – My bonus (%) was different from Mukesh's.
Sahil – Harish and I enrolled the same number of new clients.
Aadesh – I enrolled at least 30 clients less than Lalitesh but realized that I had enrolled more clients than Sandesh.
Tanmesh – The bonus (%) that Amrendra and I received is the same.
Mukesh – I generally manage to enroll exactly 30 new clients but led by demand, I managed to increase my new enrollments by 200%.
Sandesh – I work in Retail team and enrolled as many new clients as Sahil. Harish does not work in my team.
Harish – I enrolled exactly 30 clients. The highest number of new clients enrolled by someone from my team was 50.
Amrendra – I work in the Hardware team and enrolled 40 clients.

Q.45 [11594329]

Which of the following pair is definitely not from the same department?

1 ○ Tarunesh and Mukesh

2 ○ Lalitesh and Tarunesh

3 ○ Harish and Sahil

4 ○ Sahil and Mukesh

✔

Solution:

Correct Answer : 3

Your Answer : 3

Answer key/Solution

From the statements the following can be inferred:

- Lalitesh must have done less than 75 enrollments (90 enrollments has to be the maximum with the highest bonus percentage)
- Aadesh, who did 30 enrollments less than Lalitesh and more than Sandesh, must have enrolled between 45 and 31 people.
- We also know as per Harish's statement, that one of his team member did 50 new enrollments. This team mate could not have been Mukesh (with 90 enrollments) or Aadesh (less than 45 enrollments). **His team mate must be either Tanmesh or Tarunesh, with 50 new enrollments.Their department must be Software** since no other department is available or can house 2 additional people.
- Lalitesh enrolled at least 30 people more than Aadesh, thus enrolling between 60 and 75 people.

Name	Department	New Clients	Bonus
Lalitesh	Energy	61-75	50%
Tarunesh			Not 50%
Sahil		30	20%
Aadesh		31-45	30%
Tanmesh		31-60	30%
Mukesh		90	50%
Sandesh	Retail	30	20%
Harish	Software	30	20%
Amrendra	Hardware	40	30%

Lets look at the options.

Option 1 Tarunesh and Mukesh can belong to Retail, which employees 3 or these 9 people.

Option 2 Lalitesh and Tarunesh can both belong to Energy

Option 3 Harish and Sahilcant belong to the same team. Harish's team mate in the software department is either Tarunesh or Tanmesh.

Option 4 Sahil and Mukesh can belong to Retail.

Bookmark FeedBack

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

A company has a Bonus Policy for their employees based on the number of new clients enrolled by them during a particular month. A total of 9 employees - Lalitesh, Amrendra, Aadesh, Tanmesh, Mukesh, Tarunesh, Sandesh, Harish, and Sahil - had enrolled more than 10 clients. Out of these 9 employees, 3 work in Retail Team, 2 in Energy Team, 2 in Hardware team, and 2 in Software team. The table below mentions the bonus gained (in percentage terms, i.e., as a percent of the weekly salary) depending upon the number of new clients.

Number of New clients	10 – 30	31 – 60	61 or more
Bonus	20%	30%	50%

Following are the statements to help you in figuring out the bonus amount gained by each employee and their departments.

Lalitesh – I am from the Energy department and made at least 15 fewer new clients than the person who enrolled the most number of clients.
Tarunesh – My bonus (%) was different from Mukesh's.
Sahil – Harish and I enrolled the same number of new clients.
Aadesh – I enrolled at least 30 clients less than Lalitesh but realized that I had enrolled more clients than Sandesh.
Tanmesh – The bonus (%) that Amrendra and I received is the same.
Mukesh – I generally manage to enroll exactly 30 new clients but led by demand, I managed to increase my new enrollments by 200%.
Sandesh – I work in Retail team and enrolled as many new clients as Sahil. Harish does not work in my team.
Harish – I enrolled exactly 30 clients. The highest number of new clients enrolled by someone from my team was 50.
Amrendra – I work in the Hardware team and enrolled 40 clients.

Q.46 [11594329]

What bonus percentage did Aadesh get?

Solution:
Correct Answer : 30
Your Answer : 30

Answer key/Solution

From the statements the following can be inferred:

- Lalitesh must have done less than 75 enrollments (90 enrollments has to be the maximum with the highest bonus percentage)
- Aadesh, who did 30 enrollments less than Lalitesh and more than Sandesh, must have enrolled between 45 and 31 people.
- We also know as per Harish's statement, that one of his team member did 50 new enrollments. This team mate could not have been Mukesh (with 90 enrollments) or Aadesh (less than 45 enrollments). **His team mate must be either Tanmesh or Tarunesh, with 50 new enrollments.Their department must be Software** since no other department is available or can house 2 additional people.
- Lalitesh enrolled at least 30 people more than Aadesh, thus enrolling between 60 and 75 people.

Name	Department	New Clients	Bonus
Lalitesh	Energy	61-75	50%
Tarunesh			Not 50%
Sahil		30	20%
Aadesh		31-45	30%
Tanmesh		31-60	30%
Mukesh		90	50%
Sandesh	Retail	30	20%
Harish	Software	30	20%
Amrendra	Hardware	40	30%

Aadesh, who did 30 enrollments less than Lalitesh and more than Sandesh, must have enrolled between 45 and 31 new clients.

Bookmark FeedBack

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

Shasha wants to get a new mobile phone number, which satisfies all the following conditions, with the digits being referred to as first to tenth, starting from the left most digit.

(i) The first digit should be less than the 2nd digit, which is less than the 4th digit, while the 10th digit should be less than the 9th digit. Further, the 1st digit should be equal to the 3rd digit while the sum of the 4th digit and the 10th digit should be equal to the sum of the 6th digit and the 9th digit.
(ii) The 3rd digit and the 8th digit, taken in any order should comprise a 2-digit prime number, but the 3rd digit should not be equal to the 8th digit.
(iii) The 2nd digit, 5th digit, and 9th digit, taken in that order, form an increasing Geometric progression.
(iv) The 6th digit and the 7th digit, in that order and the 7th digit and 8th digit, in that order, each should comprise a 2-digit prime number where the sum of the 6th digit, 7th digit, and 8th digit should be equal to the 9th digit.

Q.47 [11594329]
What could be the maximum difference possible numerically between two such mobile phone numbers?

1 ○ 3999996

2 ○ 2224229810

3 ○ 5296520

4 ○ 1003148714

Solution:
Correct Answer : 2

Answer key/Solution

Let the mobile phone number be 'abcdefghij' where a to j represent 1st to 9th digit of the number respectively.
Using point (iii), digits b,e and i - form an increasing G.P, hence their possible values are:
(b, e, i) → (1, 2, 4) ...(i), (1, 3, 9) ...(ii), (2, 4, 8) ...(iii), (4, 6, 9) ...(iv)
Cases (i) and (ii) can be ruled out, since b > a and a cannot be zero.

Case (iii) If b = 2, e = 4 and i = 8
Then a = 1 and since a = c therefore, c = 1 (Refer statement (i))
Using statement (ii), each of 'ch' and 'hc' should be a 2-digit prime number, and since c = 1 therefore, h = 3 or 7 and note $h \neq c$ (statement (ii) and therefore, $h \neq 1$.
Using (iv), each of 'fg' and 'gh' should be a 2-digit prime number where f + g + h = i = 8.
Only possibility for (f, g, h) will be (4, 1, 3). Thus we get,

a	b	c	d	e	f	g	h	i	j
↓	↓	↓		↓	↓	↓	↓	↓	↓
1	2	1		4	4	1	3	8	

Using (i), b < d and j < i and d + j = f + i = 4 + 8 = 12.
So, possible values of (d, j) are: (9, 3), (8, 4), (7, 5), (6, 6), (5, 7).
Hence, 5 such mobile numbers are possible for case (iii).

Case (iv) If b = 4, e = 6 and i = 9
Now, since a < b there are 3 possible values of a : 1, 2 or 3, wherein 2 is not possible, since a = c and 'ch' and 'hc' should be 2- digit prime number.
Case (a) If a = 1, then c would also be 1. Using (i), h is either 3 or 7.
Using (iv), each of 'fg' and 'gh' should be prime numbers and f + g + h = i = 9.
If h = 7, f + g = 2 $\Rightarrow$ f = g = 1.
If h = 3, f + g = 6. Here no value of f and g are possible which makes fg a prime number.
Putting these values, we get

a	b	c	d	e	f	g	h	i	j
1	4	1		6	1	1	7	9	

Using (i), b < d and j < 1 and d + j = f + i = 1 + 9 = 10.
Possible values of (d, j) are (5, 5), (6, 4), (7, 3), (8, 2), (9, 1).
Hence, 5 such mobile numbers are possible.

Case (b): If a = 3 then c would also be 3.
Using (i), h is either 1 or 7 for ch & hc to be prime numbers.
Using (iv), each of fg & gh should be prime numbers and f + g + h = i = 9
If h = 1, f + g = 8. So possible value of (f, g) are: (1, 7), (5, 3), (7,1).
Putting f = 1 and g = 7 we get:

a	b	c	d	e	f	g	h	i	j
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	4	3		6	1	7	1	9	

Using (i), b < d and j < i and d + j = f + i = 1 + 9 = 10.
Possible values of (d, j) = (5, 5), (6, 4), (7, 3), (8, 2), (9, 1).
Hence, 5 such number are possible.
Now, putting f = 5 and g = 3, we get d + j = f + i = 5 + 9 = 14
Possible values of (d, j) = (6, 8), (7, 7), (8, 6), (9, 5)
Hence, 4 such number are possible.
And putting f = 7 and g = 1, we get d + j = f + i = 7 + 9 = 16
Possible values of (d, j) = (8, 8), (9, 7). Hence, 2 more numbers are possible.
Now, if h = 7, f + g = 2, So only possible value of f and g for fg as well as gh to be prime numbers are 1 and 1.
Putting h = 7, f = 1 and g = 1, we get

a	b	c	d	e	f	g	h	i	j
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	4	3		6	1	1	7	9	

Using (i), b < d and j < i and d + j = f + i = 1 + 9 = 10
Possible values of (d, j) = (5, 5), (6, 4), (7, 3), (8, 2), (9, 1)
Hence, 5 more numbers.
Hence, total mobile numbers possible are: 26.

Largest number possible = 3 4 3 9 6 7 1 1 9 7
and smallest number possible = 1 2 1 5 4 4 1 3 8 7
Max difference = (2 2 2 4 2 2 9 8 1 0)

Bookmark FeedBack

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

Shasha wants to get a new mobile phone number, which satisfies all the following conditions, with the digits being referred to as first to tenth, starting from the left most digit.

(i) The first digit should be less than the 2nd digit, which is less than the 4th digit, while the 10th digit should be less than the 9th digit. Further, the 1st digit should be equal to the 3rd digit while the sum of the 4th digit and the 10th digit should be equal to the sum of the 6th digit and the 9th digit.
(ii) The 3rd digit and the 8th digit, taken in any order should comprise a 2-digit prime number, but the 3rd digit should not be equal to the 8th digit.
(iii) The 2nd digit, 5th digit, and 9th digit, taken in that order, form an increasing Geometric progression.
(iv) The 6th digit and the 7th digit, in that order and the 7th digit and 8th digit, in that order, each should comprise a 2-digit prime number where the sum of the 6th digit, 7th digit, and 8th digit should be equal to the 9th digit.

Q.48 [11594329]
Which of the following is not a possible value of the 8th digit of the mobile phone number?

1 ○ 1

2 ○ 3

3 ○ 7

4 ○ 9

Solution:
Correct Answer : 4

Answer key/Solution

Let the mobile phone number be 'abcdefghij' where a to j represent 1st to 9th digit of the number respectively.
Using point (iii), digits b,e and i - form an increasing G.P, hence their possible values are:
(b, e, i) → (1, 2, 4) ...(i), (1, 3, 9) ...(ii), (2, 4, 8) ...(iii), (4, 6, 9) ...(iv)
Cases (i) and (ii) can be ruled out, since b > a and a cannot be zero.

Case (iii) If b = 2, e = 4 and i = 8
Then a = 1 and since a = c therefore, c = 1 (Refer statement (i))
Using statement (ii), each of 'ch' and 'hc' should be a 2-digit prime number, and since c = 1 therefore, h = 3 or 7 and note $h \neq c$ (statement (ii) and therefore, $h \neq 1$.
Using (iv), each of 'fg' and 'gh' should be a 2-digit prime number where f + g + h = i = 8.
Only possibility for (f, g, h) will be (4, 1, 3). Thus we get,

a	b	c	d	e	f	g	h	i	j
↓	↓	↓		↓	↓	↓	↓	↓	↓
1	2	1		4	4	1	3	8	

Using (i), b < d and j < i and d + j = f + i = 4 + 8 = 12.
So, possible values of (d, j) are: (9, 3), (8, 4), (7, 5), (6, 6), (5, 7).
Hence, 5 such mobile numbers are possible for case (iii).

Case (iv) If b = 4, e = 6 and i = 9
Now, since a < b there are 3 possible values of a : 1, 2 or 3, wherein 2 is not possible, since a = c and 'ch' and 'hc' should be 2- digit prime number.
Case (a) If a = 1, then c would also be 1. Using (i), h is either 3 or 7.
Using (iv), each of 'fg' and 'gh' should be prime numbers and f + g + h = i = 9.
If h = 7, f + g = 2 $\Rightarrow$ f = g = 1.
If h = 3, f + g = 6. Here no value of f and g are possible which makes fg a prime number.
Putting these values, we get

a	b	c	d	e	f	g	h	i	j
1	4	1		6	1	1	7	9	

Using (i), b < d and j < 1 and d + j = f + i = 1 + 9 = 10.
Possible values of (d, j) are (5, 5), (6, 4), (7, 3), (8, 2), (9, 1).
Hence, 5 such mobile numbers are possible.

Case (b): If a = 3 then c would also be 3.
Using (i), h is either 1 or 7 for ch & hc to be prime numbers.
Using (iv), each of fg & gh should be prime numbers and f + g + h = i = 9
If h = 1, f + g = 8. So possible value of (f, g) are: (1, 7), (5, 3), (7,1).
Putting f = 1 and g = 7 we get:

a	b	c	d	e	f	g	h	i	j
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	4	3		6	1	7	1	9	

Using (i), b < d and j < i and d + j = f + i = 1 + 9 = 10.
Possible values of (d, j) = (5, 5), (6, 4), (7, 3), (8, 2), (9, 1).
Hence, 5 such number are possible.
Now, putting f = 5 and g = 3, we get d + j = f + i = 5 + 9 = 14
Possible values of (d, j) = (6, 8), (7, 7), (8, 6), (9, 5)
Hence, 4 such number are possible.
And putting f = 7 and g = 1, we get d + j = f + i = 7 + 9 = 16
Possible values of (d, j) = (8, 8), (9, 7). Hence, 2 more numbers are possible.
Now, if h = 7, f + g = 2, So only possible value of f and g for fg as well as gh to be prime numbers are 1 and 1.
Putting h = 7, f = 1 and g = 1, we get

a	b	c	d	e	f	g	h	i	j
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	4	3		6	1	1	7	9	

Using (i), b < d and j < i and d + j = f + i = 1 + 9 = 10
Possible values of (d, j) = (5, 5), (6, 4), (7, 3), (8, 2), (9, 1)
Hence, 5 more numbers.
Hence, total mobile numbers possible are: 26.

Bookmark FeedBack

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

Shasha wants to get a new mobile phone number, which satisfies all the following conditions, with the digits being referred to as first to tenth, starting from the left most digit.

(i) The first digit should be less than the 2nd digit, which is less than the 4th digit, while the 10th digit should be less than the 9th digit. Further, the 1st digit should be equal to the 3rd digit while the sum of the 4th digit and the 10th digit should be equal to the sum of the 6th digit and the 9th digit.
(ii) The 3rd digit and the 8th digit, taken in any order should comprise a 2-digit prime number, but the 3rd digit should not be equal to the 8th digit.
(iii) The 2nd digit, 5th digit, and 9th digit, taken in that order, form an increasing Geometric progression.
(iv) The 6th digit and the 7th digit, in that order and the 7th digit and 8th digit, in that order, each should comprise a 2-digit prime number where the sum of the 6th digit, 7th digit, and 8th digit should be equal to the 9th digit.

Q.49 [11594329]
How many different values can the 10th digit of the number take?

1 ○ 8

2 ○ 6

3 ○ 4

4 ○ 2

Solution:
Correct Answer : 1

Answer key/Solution

Let the mobile phone number be 'abcdefghij' where a to j represent 1st to 9th digit of the number respectively.
Using point (iii), digits b,e and i - form an increasing G.P, hence their possible values are:
(b, e, i) → (1, 2, 4) ...(i), (1, 3, 9) ...(ii), (2, 4, 8) ...(iii), (4, 6, 9) ...(iv)
Cases (i) and (ii) can be ruled out, since b > a and a cannot be zero.

Case (iii) If b = 2, e = 4 and i = 8
Then a = 1 and since a = c therefore, c = 1 (Refer statement (i))
Using statement (ii), each of 'ch' and 'hc' should be a 2-digit prime number, and since c = 1 therefore, h = 3 or 7 and note $h \neq c$ (statement (ii) and therefore, $h \neq 1$.
Using (iv), each of 'fg' and 'gh' should be a 2-digit prime number where f + g + h = i = 8.
Only possibility for (f, g, h) will be (4, 1, 3). Thus we get,

a	b	c	d	e	f	g	h	i	j
↓	↓	↓		↓	↓	↓	↓	↓	↓
1	2	1		4	4	1	3	8	

Using (i), b < d and j < i and d + j = f + i = 4 + 8 = 12.
So, possible values of (d, j) are: (9, 3), (8, 4), (7, 5), (6, 6), (5, 7).
Hence, 5 such mobile numbers are possible for case (iii).

Case (iv) If b = 4, e = 6 and i = 9
Now, since a < b there are 3 possible values of a : 1, 2 or 3, wherein 2 is not possible, since a = c and 'ch' and 'hc' should be 2- digit prime number.
Case (a) If a = 1, then c would also be 1. Using (i), h is either 3 or 7.
Using (iv), each of 'fg' and 'gh' should be prime numbers and f + g + h = i = 9.
If h = 7, f + g = 2 $\Rightarrow$ f = g = 1.
If h = 3, f + g = 6. Here no value of f and g are possible which makes fg a prime number.
Putting these values, we get

a	b	c	d	e	f	g	h	i	j
1	4	1		6	1	1	7	9	

Using (i), b < d and j < 1 and d + j = f + i = 1 + 9 = 10.
Possible values of (d, j) are (5, 5), (6, 4), (7, 3), (8, 2), (9, 1).
Hence, 5 such mobile numbers are possible.

Case (b): If a = 3 then c would also be 3.
Using (i), h is either 1 or 7 for ch & hc to be prime numbers.
Using (iv), each of fg & gh should be prime numbers and f + g + h = i = 9
If h = 1, f + g = 8. So possible value of (f, g) are: (1, 7), (5, 3), (7,1).
Putting f = 1 and g = 7 we get:

a	b	c	d	e	f	g	h	i	j
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	4	3		6	1	7	1	9	

Using (i), b < d and j < i and d + j = f + i = 1 + 9 = 10.
Possible values of (d, j) = (5, 5), (6, 4), (7, 3), (8, 2), (9, 1).
Hence, 5 such number are possible.
Now, putting f = 5 and g = 3, we get d + j = f + i = 5 + 9 = 14
Possible values of (d, j) = (6, 8), (7, 7), (8, 6), (9, 5)
Hence, 4 such number are possible.
And putting f = 7 and g = 1, we get d + j = f + i = 7 + 9 = 16
Possible values of (d, j) = (8, 8), (9, 7). Hence, 2 more numbers are possible.
Now, if h = 7, f + g = 2, So only possible value of f and g for fg as well as gh to be prime numbers are 1 and 1.
Putting h = 7, f = 1 and g = 1, we get

a	b	c	d	e	f	g	h	i	j
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	4	3		6	1	1	7	9	

Using (i), b < d and j < i and d + j = f + i = 1 + 9 = 10
Possible values of (d, j) = (5, 5), (6, 4), (7, 3), (8, 2), (9, 1)
Hence, 5 more numbers.
Hence, total mobile numbers possible are: 26.

j can take values from 1 to 8.

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

Shasha wants to get a new mobile phone number, which satisfies all the following conditions, with the digits being referred to as first to tenth, starting from the left most digit.

(i) The first digit should be less than the 2nd digit, which is less than the 4th digit, while the 10th digit should be less than the 9th digit. Further, the 1st digit should be equal to the 3rd digit while the sum of the 4th digit and the 10th digit should be equal to the sum of the 6th digit and the 9th digit.
(ii) The 3rd digit and the 8th digit, taken in any order should comprise a 2-digit prime number, but the 3rd digit should not be equal to the 8th digit.
(iii) The 2nd digit, 5th digit, and 9th digit, taken in that order, form an increasing Geometric progression.
(iv) The 6th digit and the 7th digit, in that order and the 7th digit and 8th digit, in that order, each should comprise a 2-digit prime number where the sum of the 6th digit, 7th digit, and 8th digit should be equal to the 9th digit.

Q.50 [11594329]
In how many ways can Shasha choose such a mobile number?

Solution:
Correct Answer : 26

Answer key/Solution

Let the mobile phone number be 'abcdefghij' where a to j represent 1st to 9th digit of the number respectively.
Using point (iii), digits b,e and i - form an increasing G.P, hence their possible values are:
(b, e, i) → (1, 2, 4) ...(i), (1, 3, 9) ...(ii), (2, 4, 8) ...(iii), (4, 6, 9) ...(iv)
Cases (i) and (ii) can be ruled out, since b > a and a cannot be zero.

Case (iii) If b = 2, e = 4 and i = 8
Then a = 1 and since a = c therefore, c = 1 (Refer statement (i))
Using statement (ii), each of 'ch' and 'hc' should be a 2-digit prime number, and since c = 1 therefore, h = 3 or 7 and note $h \neq c$ (statement (ii) and therefore, $h \neq 1$.
Using (iv), each of 'fg' and 'gh' should be a 2-digit prime number where f + g + h = i = 8.
Only possibility for (f, g, h) will be (4, 1, 3). Thus we get,

a	b	c	d	e	f	g	h	i	j
↓	↓	↓		↓	↓	↓	↓	↓	↓
1	2	1		4	4	1	3	8	

Using (i), b < d and j < i and d + j = f + i = 4 + 8 = 12.
So, possible values of (d, j) are: (9, 3), (8, 4), (7, 5), (6, 6), (5, 7).
Hence, 5 such mobile numbers are possible for case (iii).

Case (iv) If b = 4, e = 6 and i = 9
Now, since a < b there are 3 possible values of a : 1, 2 or 3, wherein 2 is not possible, since a = c and 'ch' and 'hc' should be 2- digit prime number.
Case (a) If a = 1, then c would also be 1. Using (i), h is either 3 or 7.
Using (iv), each of 'fg' and 'gh' should be prime numbers and f + g + h = i = 9.
If h = 7, f + g = 2 $\Rightarrow$ f = g = 1.
If h = 3, f + g = 6. Here no value of f and g are possible which makes fg a prime number.
Putting these values, we get

a	b	c	d	e	f	g	h	i	j
1	4	1		6	1	1	7	9	

Using (i), b < d and j < 1 and d + j = f + i = 1 + 9 = 10.
Possible values of (d, j) are (5, 5), (6, 4), (7, 3), (8, 2), (9, 1).
Hence, 5 such mobile numbers are possible.

Case (b): If a = 3 then c would also be 3.
Using (i), h is either 1 or 7 for ch & hc to be prime numbers.
Using (iv), each of fg & gh should be prime numbers and f + g + h = i = 9
If h = 1, f + g = 8. So possible value of (f, g) are: (1, 7), (5, 3), (7,1).
Putting f = 1 and g = 7 we get:

a	b	c	d	e	f	g	h	i	j
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	4	3		6	1	7	1	9	

Using (i), b < d and j < i and d + j = f + i = 1 + 9 = 10.
Possible values of (d, j) = (5, 5), (6, 4), (7, 3), (8, 2), (9, 1).
Hence, 5 such number are possible.
Now, putting f = 5 and g = 3, we get d + j = f + i = 5 + 9 = 14
Possible values of (d, j) = (6, 8), (7, 7), (8, 6), (9, 5)
Hence, 4 such number are possible.
And putting f = 7 and g = 1, we get d + j = f + i = 7 + 9 = 16
Possible values of (d, j) = (8, 8), (9, 7). Hence, 2 more numbers are possible.
Now, if h = 7, f + g = 2, So only possible value of f and g for fg as well as gh to be prime numbers are 1 and 1.
Putting h = 7, f = 1 and g = 1, we get

a	b	c	d	e	f	g	h	i	j
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	4	3		6	1	1	7	9	

Using (i), b < d and j < i and d + j = f + i = 1 + 9 = 10
Possible values of (d, j) = (5, 5), (6, 4), (7, 3), (8, 2), (9, 1)
Hence, 5 more numbers.
Hence, total mobile numbers possible are: 26.

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Sec 3

Q.51 [11594329]

Ned is 33.33..% more efficient than John. Together they can complete the work in 40 days. If they start working together and on every 2nd day Ned takes rest and on every 3rd day John takes rest, then on which day will the work get completed?

1 ○ 69th day

2 ○ 66th day

3 ○ 68th day

4 ○ 70th day

Solution:

Correct Answer : 4

Answer key/Solution

Ratio of efficiencies of Ned and John = 4 : 3
As efficiencies is Work done per day,
we can assume Ned works = 4 units/day
John works = 3 units/day
Together in 1 day they do = 7 units/day
Total work = 7 × 40 = 280 units

	Net		John	
1st day:	4	+	3	= 7
2nd day:	0	+	3	= 3
3rd day:	4	+	0	= 4
4th day:	0	+	3	= 3
5th day:	4	+	3	= 7
6th day:	0	+	0	= 0

Thus a cycle of 6 days is happening completing 24 units.
So the total work will be completed on the 70th day.

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Q.52 [11594329]

Amita attempted 5 papers of 120 marks each in her board exams. The ratio of the marks obtained by her in CS to other 4 papers combined is 1 : 3. Similarly, the ratio of the marks obtained by her in Chemistry to other 4 papers combined is 1 : 4, in Maths and other 4 papers combined is 1 : 5 and in Physics and other 4 papers combined is 1 : 6. If Amita averaged 70% overall, how much did she score in the fifth paper, English?

Solution:
Correct Answer : 101

Answer key/Solution

Let marks of Amita in CS, Chemistry, Maths, Physics, and English be a, b, c, d, and e respectively.

Amita scored total marks = $\left(120 \times \frac{70}{100}\right) \times 5 = 420$

$\therefore$ a+ b + c + d + e = 420

In CS, $\frac{a}{b+c+d+e} = \frac{1}{3} \Rightarrow 3a = b + c + d + e = 420 - a$

$\Rightarrow a = \frac{420}{4} = 105$

Similarly, in Chemistry, $b = \frac{420}{5} = 84$

In Maths, c = $\frac{420}{6}$ = 70, and in Physics, d = $\frac{420}{7}$ = 60.

$\therefore$ Amits's score in English $\Rightarrow$ 420 – (105 + 84 + 70 + 60) = 101.

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Q.53 [11594329]

A rhombus ABCD of side 4 cm has an angle equal to the external angle of a regular hexagon. The area (in cm^2) of the rhombus ABCD is

1 ○ $16\sqrt{3}$

2 ○ $12\sqrt{3}$

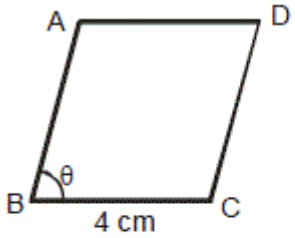
3 ○ $8\sqrt{3}$

4 ○ $20\sqrt{3}$

✔

Solution:
Correct Answer : 3
Your Answer : 3

Answer key/Solution



Side of the rhombus ABCD = 4 cm (Given)
Angle between sides 'θ'

= Exterior angle of an hexagon = $\frac{360}{6}$ = 60°

Area of rhombus ABCD = $4^2 \times \sin\theta$

= $4^2 \times \sin 60° = 16 \times \frac{\sqrt{3}}{2} = 8\sqrt{3}\ cm^2$.

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Q.54 [11594329]

Rohit while going to a stationary shop decided to buy a certain number of pens and pencils. On reaching the shop, he bought 50% more pens and 25% less pencils than what he decided, but the overall number of items remains same. By what percent will the number of items increase if he buys 16.66% more pens and 66.66% more pencils than what he decided?

✔

Solution:
Correct Answer : 50
Your Answer : 50

Answer key/Solution

Let us assume he decided to buy x pens and y pencils.

Now $\frac{3}{2}x + \frac{3}{4}y = x + y$

On solving this, we get, 2x = y. Now total number of items that Rohit decided to buy = 3x

He increases the number of pens by 16.66% and pencils by 66.66%, so, new total number of items will be $\frac{7}{6}x + \frac{5}{3}y$

On putting y = 2x we get, $\frac{7}{6}x + \frac{10}{3}x = \frac{9}{2}x$.

Thus, percentage increase in number of items will be, $\frac{\frac{9}{2}x - 3x}{3x} \times 100$ = 50%.

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Q.55 [11594329]

If a seven digit number N = 53x679y is divisible by 22, then find the number of possible values of N.

1 ○ 3

2 ○ 4

3 ○ 5

4 ○ 6

Solution:

Correct Answer : 3

Answer key/Solution

N is divisible by 22.
Thus N has to be divisible by 2 and 11.
So, y = even.
Divisibility of 11,
(y + 7 + x + 5) – (9 + 6 + 3) = 0 or 11K
[(y + x + 12) – (18)]

y = 0	x = 6	Diff. = 0
y = 2	x = 4	Diff. = 0
y = 4	x = 2	Diff. = 0
y = 6	x = 0	Diff. = 0
y = 8	x = 9	Diff. = 11

Thus, 5 possible value of N.

Bookmark FeedBack

Q.56 [11594329]

Two persons start running around a circular track from the same point at the same time but in opposite directions with speeds in the ratio of 5 : 7. If the circumference of the track is 360 m, then what could be the distance of the starting point from the point where they meet for the 5th time?

1 ○ 150 m

2 ○ 210 m

3 ○ 30 m

4 ○ Either (1) or (2)

Solution:

Correct Answer : 3

Answer key/Solution

Let their speeds be 5x and 7x.

Relative speed = 5x + 7x = 12x

Time taken for 5th meeting $= \frac{360}{12x} \times 5$

Distance covered by person with speed 5x will be:

$\Rightarrow \left(\frac{360}{12x} \times 5\right) \times 5x = 2 \times 360 + 30$ metre

Hence, 30 metre from the starting point.

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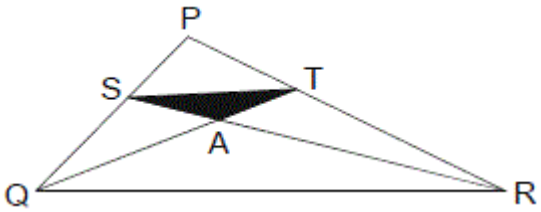
Q.57 [11594329]

In triangle PQR, ST is parallel to QR and is also one-fourth of it. SR and QT meet at A and area of triangle SAQ and TAR are equal. If the area of the shaded portion is 3 sq. units, then find the area (in sq. units) of triangle PQR.



1 ○ 90

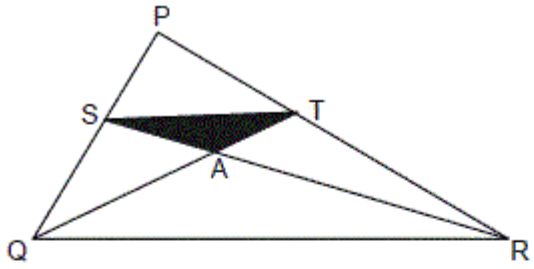
2 ○ 85

3 ○ 100

4 ○ 80

Solution:
Correct Answer : 4

Answer key/Solution



ST || QR.
Thus, $\Delta SAT \sim \Delta QAR$ (AAA)

As $\frac{ST}{QR} = \frac{1}{4}$

Thus, area of triangle QAR is 16 times of that of triangle SAT.
Thus, area of $\Delta QAR = 48$ sq. units.
In quadrilateral STRQ,
$ar\Delta SAT \times ar\Delta QAR = ar\Delta SAQ \times ar\Delta TAR$
$3 \times 48 = x \times x$
$x^2 = 144$
$x = 12$
ar of quadrilateral STRQ = 48 + 3 + 12 + 12 = 75

In ΔPST and ΔPQR,

$\Delta PST \sim \Delta PQR$ and $\frac{ST}{QR} = \frac{1}{4}$

$\frac{\text{area of } \Delta PST}{\text{area of } \Delta PQR} = \frac{1}{16}$

Thus $ar\Delta PQR$: ar of quadrilateral STRQ = 16 : 15

$\therefore ar\Delta PQR = 80$ sq. units.

Bookmark FeedBack

Q.58 [11594329]

Find the value of x, if $\log_9 243 + \log_9 2187 = \log_7 343 + \log_2 \sqrt{x}$.

Solution:
Correct Answer : 64
Your Answer : 64

Answer key/Solution

$\log_{3^2}{}^{5}+\log_{3^2}3^7=\frac{1}{2}\log_3\left(3^5\times3^7\right)=\frac{1}{2}\log_3 3^{12}=6$

$6=\log_7 7^3+\log_2\sqrt{x}$

$\Rightarrow 6=3+\log_2\sqrt{x}\Rightarrow\sqrt{x}=2^3$

$\Rightarrow\sqrt{x}=8\Rightarrow x=64.$

Bookmark FeedBack

Q.59 [11594329]

A juice shop owner sells juice by adulterating it with 2 litres of tap water. If he adulterates the same quantity of juice with 2 litres of mineral water, his profit drops by 20%. If tap water is free of cost and mineral water costs Rs. 15/litre, then find the cost of juice per litre without any adulteration.
[The shop owner always sells on cost price of the juice.]

1 ○ 60

2 ○ 45

3 ○ 80

4 ○ 75

Solution:
Correct Answer : 4

Answer key/Solution

Let quantity of juice = 20 litre
and price of juice = Rs. x / litre
Case 1 ⇒ Profit 1 = 22x – 20x = 2x
Case 2 ⇒ Profit 2 = (22x) – (20x + 30) = 2x – 30
Profit 1 drops by 20% to get profit 2

$2x\times\frac{4}{5}=2x-30$

$\Rightarrow 8x=10x-150$
$\Rightarrow 2x=150\Rightarrow x=$ Rs. 75/ litre.

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Q.60 [11594329]

A tank has a number of inlet and outlet pipes attached to it. All inlet pipes are equally efficient. Similarly, all outlet pipes are equally efficient. If 2 outlet pipes and 1 inlet pipe are operated, the tank, which is initially full, is completely emptied in 24 hrs. If 1 outlet pipe and 2 inlet pipes are operated, the tank which is initially empty is completely filled in 6 hrs. If 5 outlet pipes and 3 inlet pipes are operated on the tank, which is initially half full, in how many hours will the tank be completely emptied?

1 ○ 12 hrs

2 ○ 24 hrs

3 ○ 18 hrs

4 ○ The tank will never be completely empty.

Solution:
Correct Answer : 1

Answer key/Solution

Let each inlet pipe fills 'x' units per hour and each outlet pipe empties 'y' units per hour.
So, according to the given information:
Volume of tank (v) $\Rightarrow 24(-2y + x) = -v$
and also, volume of tank (v) $\Rightarrow 6(-y + 2x) = v$
$-24(x - 2y) = 6(2x - y)$

$\Rightarrow \frac{x}{y} = \frac{3}{2}$

Putting values of x and y, to get volume of tank (v) = 24 units.

Time taken to empty the half full tank $= \frac{\frac{24}{2}}{(5y - 3x)} = \frac{12}{(5\times2 - 3\times3)} = 12$ hours.

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Q.61 [11594329]

The LCM of 15^6, 147^9 and x^3 is 735^9. How many values can x take if x is a positive integer?

Solution:
Correct Answer : 28

Answer key/Solution

$LCM(15^6, 147^9, x^3) = 735^9$
$\Rightarrow LCM[(3^6 \times 5^6), (3^9 \times 7^{18}), x^3] = 3^9 \times 5^9 \times 7^{18}$

This implies that 5^9 in the LCM is because of x^3 while $3^9, 7^{18}$ may or may not be because of x^3. Hence, x can take any power of 3 out of 0, 1, 2, 3; similarly x can take any power of 7 out of 0, 1, 2, 3, 4, 5, 6 but with regards of power of 5, it must be 5^3. Therefore,

$$x = 5^3 \times \underbrace{(3^0/3^1/3^2/3^3)}_{\downarrow} \times \underbrace{(7^0/7^1/7^2/7^3/7^4/7^5/7^6)}_{\downarrow}$$
$$\downarrow \qquad\qquad \downarrow \qquad\qquad \downarrow$$
$$1 \quad \times \quad 4 \quad \times \quad 7$$

A total of 28 values are possible for x.

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Q.62 [11594329]
If p , q , r , s , t are the roots of the equation $x^5 + 2x^4 - 3x^3 - x^2 + 3x + 6 = 0$, then find the value of $(1 - p)(1 - q)(1 - r)(1 - s)(1 - t)$.

Solution:
Correct Answer : 8

Answer key/Solution

If p, q, r, s, and t are roots of the equation then the equation can also be written as,
$(x - p)(x - q)(x - r)(x - s)(x - t) = x^5 + 2x^4 - 3x^3 - x^2 + 3x + 6$
Now put x = 1 and get,
$(1 - p)(1 - q)(1 - r)(1 - s)(1 - t) = 1 + 2 - 3 - 1 + 3 + 6 = 8.$

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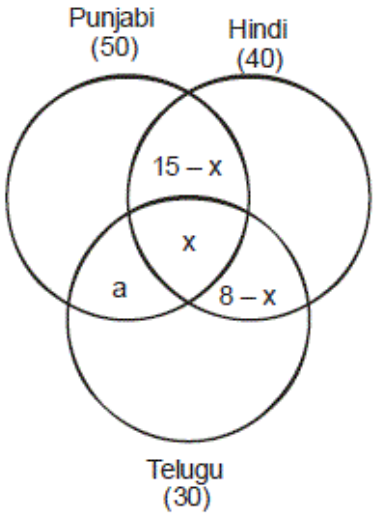
Q.63 [11594329]
In a society, 50 people know Punjabi, 40 know Hindi, and 30 know Telugu. The number of people who know Punjabi and Hindi is 15. The number of people who know Hindi and Telugu is 8. If the number of people who know Punjabi and Telugu but not Hindi is at least 4, then what is the maximum number of people in the society who speak exactly one language?

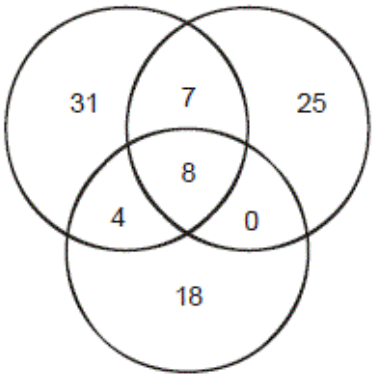
Solution:
Correct Answer : 74

Answer key/Solution



We know, a ≥ 4.
In order, to maximise the number of people who speak exactly one language, we have to minimise 'a' and maximise 'x'.

Let a = 4 and x = 8, and create the venn diagram



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Q.64 [11594329]
Jon is moving up on an upward moving escalator and reaches the top taking 60 steps while Snow is moving down the same escalator. The ratio of speed of Jon and Snow is 3 : 4. If both of them start together and take equal time reaching the other ends, then find the number of steps on the escalator.

1 ○ 75

2 ○ 80

3 ○ 70

4 ○ 90

Solution:

Correct Answer : 3

Answer key/Solution

Let speed of escalator = x step/second
Assuring Jon's speed as = 3 steps/second
Snow's speed = 4 steps/second

Time for which Jon was an escalator = $\frac{60}{3}$ = 20 seconds

Steps taken by Snow = 4 × 20 = 80 [Speed ratio and distance ratio will be same.]
60 + 20x = 80 – 20x
⇒ 40x = 20

⇒ x = $\frac{1}{2}$

Thus, total steps = 70.

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Q.65 [11594329]

If $\frac{1}{7}=\frac{1}{P}+\frac{1}{Q}$, then how many integer solutions for Q are possible if Q is a natural number greater than 10?

1 ○ No solution

2 ○ Exactly 1 solution

3 ○ Exactly 2 solutions

4 ○ Exactly 3 solutions

Solution:
Correct Answer : 3

Answer key/Solution

If $\frac{1}{7}=\frac{1}{P}+\frac{1}{Q}$, then $P=\frac{7Q}{Q-7}=\frac{7(Q-7+7)}{Q-7}=7+\frac{49}{Q-7}$

$P=7+\frac{49}{Q-7}$

P can be an integer only if $\frac{49}{Q-7}$ is an integer. Therefore, (Q – 7) has to be a factor of 49.

49 only has 3 factors- 1, 7 and 49.

Thus, $Q-7=\frac{1}{\frac{7}{49}}$ or $Q=\frac{8}{\frac{14}{56}}$

Given that Q > 10, Q = Either 14 or 56.

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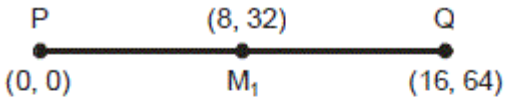
Q.66 [11594329]

The coordinates of point P and Q are (0, 0) and (16, 64) respectively. M1 is the midpoint of the line joining P and Q, M2 is the midpoint of the line joining M1 and P, M3 is the midpoint of the line joining M2 and P and so on. If the coordinates of M10 are (x, y), then find the value of $\left(\frac{1}{x}+\frac{1}{y}\right)$.

✔

Solution:
Correct Answer : 80
Your Answer : 80

Answer key/Solution



$M_2=\left(\frac{8}{2},\frac{32}{2}\right)=(4,16)$ (and so on)

$\therefore M_{10}=\left(\frac{16}{2^{10}},\frac{64}{2^{10}}\right)=\left(\frac{2^4}{2^{10}},\frac{2^6}{2^{10}}\right)=\left(\frac{1}{2^6},\frac{1}{2^4}\right)=\left(\frac{1}{64},\frac{1}{16}\right)$

$\therefore \frac{1}{x}+\frac{1}{y}=64+16=80.$

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Q.67 [11594329]

A man went to a restaurant to have a lunch. He is carrying currency notes of denomination Re. 1, Rs. 20, and Rs. 50. At the end of his meal he received a bill of Rs. 205, and he wants to pay the exact bill amount. In how many ways can he pay the bill?

Solution:

Correct Answer : 29

Answer key/Solution

Total Bill amount = Rs. 205
Denomination of currency notes = Re. 1, Rs. 20 and Rs. 50
Out of Rs. 205, Rs. 5 had to be paid through Re. 1 notes.
For the rest 200 we make cases –
(1) 0 notes of Rs 50 is used.
Thus Rs 20 notes can be used are –
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 = 11 cases.
(2) 1 note of Rs. 50 is used.
Thus Rs. 20 notes used will be
0, 1, 2, 3, 4, 5, 6, 7
Thus, 8 cases.
(3) 2 notes of Rs. 50 are used.
Thus Rs 20 notes used will be
0, 1, 2, 3, 4, 5
Thus, 6 cases.
(4) 3 notes of Rs. 50 are used.
Thus Rs. 20 notes used will be
0, 1, 2
Thus, 3 cases.
(5) 4 notes of Rs. 50 are used,
Thus Rs. 20 notes used are 0
Thus 1 case.
Total cases = 11 + 8 + 6 + 3 + 1 = 29.

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Q.68 [11594329]

A certain amount was lent at a fixed rate of interest compounded annually. Had the amount been lent at simple interest, the amount of interest would have been Rs. 3,500 less for initial two years and Rs.11,375 less for initial three years. Find the rate of interest and the amount (in Rs.) lent.

1 ○ 25%, 64,000

2 ○ 15%, 56,000

3 ○ 25%, 56,000

4 ○ 30%, 48,000

✔

Solution:
Correct Answer : 3
Your Answer : 3

Answer key/Solution

Let P be the amount lent and R% be the rate of interest.

Then, for 2 years, difference between compound interest and simple interest $= P\left(1+\frac{R}{100}\right)^2 - P - \frac{2PR}{100} = 3500$

$\Rightarrow P(1 + x)^2 - P - 2Px = 3500$ (Let $\frac{R}{100} = x$)

$\Rightarrow Px^2 = 3500$ ... (i)

and for 3 years, the difference $= P\left(1+\frac{R}{100}\right)^3 - P - \frac{3PR}{100} = 11375$

$\Rightarrow P(1 + x)^3 - P - 3Px = 11375$
$\Rightarrow Px^3 + 3Px^2 = 11375$
$\Rightarrow Px^2(x + 3) = 11375$
$\Rightarrow 3500 \times (x + 3) = 11375$ [Using (i)]
$\Rightarrow x + 3 = 3.25$
$\Rightarrow x = 0.25$

$\frac{R}{100} = 0.25 \Rightarrow R = 25.$

From (i), $P \times (0.25)^2 = 3500 \Rightarrow P = Rs.56,000$

Hence, required rate of interest = 25% and amount lent = Rs. 56,000.

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Q.69 [11594329]

The prices of three varieties of sugar - I, II, and III - are Rs.24 per kg, Rs. 30 per kg and Rs. 40 per kg respectively. In what proportion can these three varieties of sugar be mixed such that the price of the resultant mixture is Rs.32 per kg?

1 ○ 1 : 4 : 2

2 ○ 4 : 4 : 5

3 ○ 3 : 4 : 6

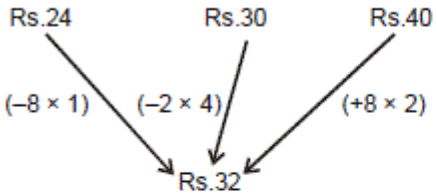
4 ○ Both (1) and (2)

✔

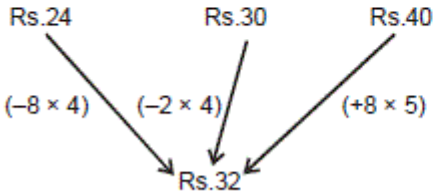
Solution:
Correct Answer : 4
Your Answer : 4

Answer key/Solution

Checking with options:
Option (1):



Since [(–8 × 1) + (–2 × 4) + (8 × 2)] = 0, hence, option (1) is a possible answer.
Option (2):



Again since [(–8 × 4) + (–2 × 4) + (8 × 5)] = 0, hence, option (2) is also a possible answer.
Hence, answer is option (4), we need not check for option (3).

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Q.70 [11594329]

The sequence is defined as $T_1 = 7$, $T_2 = 11$, $T_3 = 16$, $T_4 = 22$, $T_5 = 29$, ..., has 100 terms. What is the value of T_{22} ?

1 ○ $T_{19} + 47$

2 ○ $T_{18} + 80$

3 ○ $T_{17} + 90$

4 ○ None of these

Solution:
Correct Answer : 4
Your Answer : 4

Answer key/Solution

Let's focus on the differences in terms.
$T_2 - T_1 = 4$, $T_3 - T_2 = 5$, $T_4 - T_3 = 6$, ...
Therefore, $T_n - T_{(n-1)} = (n + 2)$
Or $T_{22} - T_{21} = (22 + 2) = 24$
$T_{22} - T_{20} = (T_{22} - T_{21}) + (T_{21} - T_{20}) = 24 + 23 = 47$
Similarly, $T_{22} - T_{19} = 24 + 23 + 22 = 69$
Or $T_{22} - T_{18} = 24 + 23 + 22 + 21 = 90$
Or $T_{22} - T_{17} = 24 + 23 + 22 + 21 + 20 = 110$.

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Q.71 [11594329]

A shopkeeper sells 16 kg of a mixture of black and green tea, where the amount of green tea in the mixture does not exceed that of black tea. The cost of black tea per kg is Rs. 40 more than that of green tea. If the shopkeeper sells the entire mixture for Rs. 3,456 and makes a profit of 20%, then what is the maximum possible cost (in Rs.) per kg of black tea?

1 ○ 160

2 ○ 120

3 ○ 200

4 ○ 240

Solution:
Correct Answer : 3

Answer key/Solution

Cost price of the mixture = $\frac{3456}{1.2}$ = Rs.2,880 for 16 kg

Let the amount per kg of green tea be Rs.x.
Then, the amount per kg of black tea = Rs.(16 – x)
As, it is given that the amount of green tea ≤ Amount of black tea
$\Rightarrow x \leq 16 - x$
$\Rightarrow 2x \leq 16$
$\Rightarrow x \leq 8$
Now, let the cost per kg of black tea be Rs. C, then that of green tea will become Rs. (C – 40)
Therefore, the total cost of the mixture will be :
$x(C - 40) + (16 - x)C = 2880$

$\Rightarrow C = \frac{2880}{16} + \frac{40x}{16}$

$\Rightarrow C = 180 + \frac{5x}{2}$

Hence, the cost per kg of black tea will be maximum at x = 8, thus, C max = 180 + 20 = Rs. 200.

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Q.72 [11594329]
Find the minimum value of the sum of the squares of the roots of the quadratic equation $x^2 - (p + 2)x + (p - 6) = 0$; where p is a real number.

1 ○ 88

2 ○ 15

3 ○ 11

4 ○ None of these

Solution:
Correct Answer : 2

Answer key/Solution

Let roots of the quadratic equation: $x^2 - (p + 2)x + (p - 6) = 0$ be α and β.
$\Rightarrow \alpha + \beta = (p + 2)$ and $\alpha\beta = (p - 6)$
Minimum value of $(\alpha^2 + \beta^2)$
= Minimum value of $[(p + 2)^2 - 2(p - 6)]$
[Note: using $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta$]
$\Rightarrow$ Min.$(p^2 + 2p + 16) \Rightarrow$ Min.$[(p + 1)^2 + 15]$ which is 15 at p = –1.

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Q.73 [11594329]

Two friends Rob and Jack start travelling from Delhi to Meerut which are 50 km apart. The ratio of speeds of Rob and Jack is 7 : 3. Rob stops for 5 minutes after every 2 km and Jack stops for 10 minutes after every 5 km. They start simultaneously from Delhi and reach Meerut together. Find the time taken by Rob to reach Meerut from Delhi.

1 ○ 137.5 minutes

2 ○ 142.5 minutes

3 ○ 145 minutes

4 ○ 140.5 minutes

Solution:
Correct Answer : 2

Answer key/Solution

Speed of Rob and Jack are in the ratio of 7 : 3, so the time taken by them will be in the ratio of 3 : 7 respectively.
Let us assume Rob takes 3k minutes to travel 1km and Jack will thus take 7k minutes to travel 1 km.
Rob takes stoppages of 5 minutes after every 2 km, so he will have 24 stoppages in his journey and Jack takes stoppages of 10 minutes after every 5 km, so he will have 9 stoppages in his journey.
Total time taken by Rob = 50 × 3k + 24 × 5
Total time taken by Jack = 50 × 7k + 9 × 10
As both take equal time, we can equate the two,
150k + 120 = 350k + 90
$\Rightarrow$ 200k = 30

$\Rightarrow k = \frac{3}{20}$

Thus, total time taken by Rob = $150 \times \frac{3}{20} + 120 = 142.5$ minutes.

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Q.74 [11594329]

The sum of an infinite geometric progression is 7. If all the terms of the series are raised to power 3, then the sum of the resulting series will be 1029. Find the common ratio of the geometric progression.

1 ○ −1/2

2 ○ −2

3 ○ −1

4 ○ Both (1) and (2)

Solution:
Correct Answer : 1

Answer key/Solution

Let first term is "a" and common ratio "r".

$$\frac{a}{1-r}=7 \Rightarrow \frac{a^3}{(1-r)^3}=343 \quad \ldots (i)$$

and $\frac{a^3}{1-r^3}=1029$ $\ldots (ii)$

Divide (ii) by (i), we get

$$\frac{\frac{a^3}{1-r^3}}{\frac{a^3}{(1-r)^3}}=\frac{1029}{343} \Rightarrow \frac{(1-r)^3}{1-r^3}=3$$

$$\frac{(1-r)^3}{(1-r)(1+r+r^2)}=3 \Rightarrow (1-r)^2=3+3r+3r^2$$

$\Rightarrow 1 + r^2 - 2r = 3 + 3r + 3r^2$
$\Rightarrow 2r^2 + 5r + 2 = 0$
$\Rightarrow 2r^2 + 4r + r + 2 = 0$
$\Rightarrow 2r(r + 2) + 1(r + 2) = 0$
$\Rightarrow (r + 2)(2r + 1) = 0$

$\Rightarrow r = -2, \quad r = -\frac{1}{2}$

As $r \neq -2, \quad (-1 < r < 1)$

Thus, $r = -\frac{1}{2}$.

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Q.75 [11594329]

Rose and Sam gave three online tests and received scores. On first test, Rose's score was 11 more than Sam's score. On second test, Rose's score was 3 more than Sam's score. If Sam's average score on the three tests was 4 more than the average score of Rose's on the three tests, then how much more is Sam's score on the third test than Rose's score?

1 ○ 15

2 ○ 23

3 ○ 26

4 ○ 28

Solution:
Correct Answer : 3

Answer key/Solution

Let Rose's scores on first, second and third tests be x_1, x_2 and x_3 respectively and that of Sam be y_1, y_2 and y_3 respectively.
Now, according to the question,
$x_1 - y_1 = 11$
$x_2 - y_2 = 3$
On adding the above equations, we get,
$x_1 + x_2 - (y_1 + y_2) = 14$
or $(y_1 + y_2) - (x_1 + x_2) = -14$ ...(i)

Also, $\left(\frac{y_1 + y_2 + y_3}{3}\right) - \left(\frac{x_1 + x_2 + x_3}{3}\right) = 4$

$(y_1 + y_2 + y_3) - (x_1 + x_2 + x_3) = 12$
$\Rightarrow y_3 - x_3 - 14 = 12$ (Using (i))
$\Rightarrow y_3 - x_3 = 26.$

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