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Mock CAT - 07 2020 (New Pattern)

Scorecard (procreview.jsp?sid=aaaRxVl2eGBwkbCSAn8ExSat Feb 20 10:48:52 IST 2021&qsetId=mqFk9hn4Q3k=&qsetName=Mock CAT - 07 2020 (New Pattern))

Accuracy (AccSelectGraph.jsp?sid=aaaRxVl2eGBwkbCSAn8ExSat Feb 20 10:48:52 IST 2021&qsetId=mqFk9hn4Q3k=&qsetName=Mock CAT - 07 2020 (New Pattern))

Qs Analysis (QsAnalysis.jsp?sid=aaaRxVl2eGBwkbCSAn8ExSat Feb 20 10:48:52 IST 2021&qsetId=mqFk9hn4Q3k=&qsetName=Mock CAT - 07 2020 (New Pattern))

Booster Analysis (BoosterAnalysis.jsp?sid=aaaRxVl2eGBwkbCSAn8ExSat Feb 20 10:48:52 IST 2021&qsetId=mqFk9hn4Q3k=&qsetName=Mock CAT - 07 2020 (New Pattern))

Video Attempt (VideoAnalysis.jsp?sid=aaaRxVl2eGBwkbCSAn8ExSat Feb 20 10:48:52 IST 2021&qsetId=mqFk9hn4Q3k=&qsetName=Mock CAT - 07 2020 (New Pattern))

Solutions (Solution.jsp?sid=aaaRxVl2eGBwkbCSAn8ExSat Feb 20 10:48:52 IST 2021&qsetId=mqFk9hn4Q3k=&qsetName=Mock CAT - 07 2020 (New Pattern))

Bookmarks (Bookmarks.jsp?sid=aaaRxVl2eGBwkbCSAn8ExSat Feb 20 10:48:52 IST 2021&qsetId=mqFk9hn4Q3k=&qsetName=Mock CAT - 07 2020 (New Pattern))

VARC

LRDI

QA

Sec 1

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

One day not long ago, Augie, a 4-year-old Gopnik grandchild, heard his grandfather wistfully say, “I wish I could be a kid again.” After a thoughtful pause, Augie came up with a suggestion: Grandpa should try not eating any vegetables. The logic was ingenious: Eating vegetables turns children into big strong adults, so not eating vegetables should reverse the process.

No grown-up would ever come up with that idea. But anyone with a 4-year-old can tell similar stories. Young children's creativity seems to outstrip that of even the most imaginative adults.

How does the ability to come up with unusual ideas change as we grow older? Does it begin to flag in adolescence? Before then? To investigate these questions, we and our colleagues recently conducted several experiments, which we relate in a newspaper in the Proceedings of the National Academy of Sciences.

We began with a group of participants of various ages: 4- and 5-year-old pre-schoolers; 6- to 11-year-olds; 12- to 14-year-old teenagers; and adults. We presented them with a scenario involving a physical machine that lit up when you put some combinations of blocks on it, but not others. Either of two hypotheses could explain how the machine worked. It could work in a usual and obvious way: some individual blocks would make it light up, and the other blocks were irrelevant. Or it could work in a more unusual way: it would take a combination of different blocks to make the machine light up.

We presented the participants with another scenario as well, also with two possible explanations. This scenario was social: we told a story about Sally, who approached a skateboard, and Josie, who avoided a scooter. How come? The usual explanation was that something about Sally's and Josie's individual traits made them act as they did — maybe Sally was braver than Josie. A more unusual, though equally valid, explanation was that something about the situation was important — maybe the skateboard was safer than the scooter.

Presented with these two scenarios, most adults did indeed explain the events by talking about a single block, or about Sally's traits — they gave the obvious explanation.

Then we added a twist. Another group of participants saw the same scenarios, but this time they saw an additional set of facts that made the unusual explanation more likely than the more obvious one. Would the participants go with the obvious explanation, or try something new?

When it came to explaining the physical machine, the pattern was straightforward. The pre-schoolers were most likely to come up with the creative, unusual explanation. The school-age children were somewhat less creative. And there was a dramatic drop at adolescence. Both the teenagers and the adults were the most likely to stick with the obvious explanation even when it didn't fit the data.

But there was a different pattern when it came to the social problems. Once again the pre-schoolers were more likely to give the creative explanation than were the 6-year-olds or adults. Now, however, the teenagers were the most creative group of all. They were more likely to choose the unusual explanation than were either the 6-year-olds or the adults. Why does creativity generally tend to decline as we age? One reason may be that as we grow older, we know more. That's mostly an advantage, of course. But it also may lead us to ignore evidence that contradicts what we already think. We become too set in our ways to change.

When we face a new problem, we adults usually exploit the knowledge about the world we have acquired so far. We try to quickly find a pretty good solution that is close to the solutions we already have. On the other hand, exploration — trying something new — may lead us to a more unusual idea, a less obvious solution, a new piece of knowledge. But it may also mean that we waste time considering crazy possibilities that will never work, something both pre-schoolers and teenagers have been known to do.

Q.1 [11594329]

The primary purpose of the passage is to:

1 ○ showcase the pros and cons of making decisions based on imagination.

2 ○ showcase the usefulness of unusual decisions.

3 ○ showcase how growing up affects our imagination.

4 ○ showcase the power of infants over adults.

✖

Answer key/Solution

Solution:
Correct Answer : 3
Your Answer : 1
Genre: Psychology / Education
Word Count# 666
Refer to- "No grown-up would ever come up with that idea. But anyone with a 4-year-old can tell similar stories. Young children's creativity seems to outstrip that of even the most imaginative adults." The entire passage revolves around this particular sentence. The given passage justifies this particular point. So, option 3 is the only relevant option.
Option 1 – It's too generic. It talks about imagination and decision making in a generic sense.
Option 2 – 'Unusual decisions' is an alien concept in terms of the focus of the author.
Option 4 – This is a vague option. The definition of 'what kind of power' is not mentioned. Secondly, infant is not the same as children.

Bookmark FeedBack

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

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When we face a new problem, we adults usually exploit the knowledge about the world we have acquired so far. We try to quickly find a pretty good solution that is close to the solutions we already have. On the other hand, exploration — trying something new — may lead us to a more unusual idea, a less obvious solution, a new piece of knowledge. But it may also mean that we waste time considering crazy possibilities that will never work, something both pre-schoolers and teenagers have been known to do.

Q.2 [11594329]

Why do adults always go for the obvious solution to a particular problem?

1 ○ Because they become set in their way of thinking.

2 ○ Because they believe in the stereotypes.

3 ○ Because they have forgotten to think beyond what they know.

4 ○ Because they know more.

✔

Answer key/Solution

Solution:
Correct Answer : 1
Your Answer : 1
Genre: Psychology / Education
Word Count# 666
It's a very easy question.
Refer to the last paragraph. Pay attention to the line - "When we face a new problem, we adults usually exploit the knowledge about the world we have acquired so far. We try to quickly find a pretty good solution that is close to the solutions we already have." Hence 1 is the correct answer.
Option 2 – The idea of stereotypes is a distorted one. It's not the same as 'knowledge we have acquired so far'.
Option 3 – This is the trap option. It may look close but the paragraph doesn't state that the adults have forgotten to think beyond their known sphere. The author says that they don't want to – voluntarily. Hence, it is an incorrect answer.
Option 4 – This is clearly wrong. It is vague and irrelevant.

Bookmark FeedBack

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

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Q.3 [11594329]

From the given passage, it can be inferred that:

1 ○ crazy possibilities never lead to noble outcomes.

2 ○ an adult's thought process is based primarily on experiences that one has gathered through different imaginations.

3 ○ adults often restrict themselves from trying something innovative.

4 ○ innovation is restricted only to infants.

✔

Answer key/Solution

Solution:
Correct Answer : 3
Your Answer : 3
Genre: Psychology / Education
Word Count# 666
Refer to the last paragraph. "When we face a new problem, we adults usually exploit the knowledge about the world we have acquired so far. We try to quickly find a pretty good solution that is close to the solutions we already have. On the other hand, exploration — trying something new — may lead us to a more unusual idea, a less obvious solution, a new piece of knowledge." This makes option 3, the correct choice.
Option 1 – Too extreme. 'Crazy possibilities' is a vague and irrelevant concept.
Option 2 – It's actually wrong. The author states that adults learn from experience, and not from 'different imaginations'. This is actually the primary issue the author raises about adults with respect to the idea of creativity.
Option 4 – This is illogical and incorrect.

Bookmark FeedBack

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Q.4 [11594329]

All of the following are untrue except:

1 ○ in the social experiment which is mentioned in the passage, adults scored less than the teenagers.

2 ○ the imaginative power of teenagers is lower than the pre-school goers.

3 ○ pre-school goers' imaginative strength can overpower even the most imaginative adult.

4 ○ for adults, problem solving with creativity may appear tedious.

✖

Answer key/Solution

Solution:
Correct Answer : 4
Your Answer : 2
Genre: Psychology / Education
Word Count# 666
Refer to the last line of the given passage-". But it may also mean that we waste time considering crazy possibilities that will never work something both pre-schoolers and teenagers have been known to do." All the other options state incorrect facts. Hence 4 is the correct answer.
Option 1 – No data has been given with respect to 'adults scoring less'.
Option 2 – No comparison has been made between 'teenagers' and 'pre-school graders'.
Option 3 – This option surely looks correct because of 'can'. However, the passage doesn't give any data about 'overpowering'. Hence, it is actually quite irrelevant.

Bookmark FeedBack

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

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Q.5 [11594329]

What was the outcome of the experiments conducted by the author and colleagues?

1 ○ Adults fared better than what was expected.

2 ○ People belonging to different age groups portrayed different unusual ideas.

3 ○ Adults and teenagers were losers when compared with the children below 4-6years.

4 ○ The appearance of unusual problem solving methods varied according to one's age.

Answer key/Solution

Solution:
Correct Answer : 4
Genre: Psychology / Education
Word Count# 666
This can be easily answered by following the method of elimination.
Option 1 – This is the exact opposite of the main idea of the passage.
Option 2 – There is no comprehensive data regarding the different age groups. The author simply talks about adults and kids.
Option 3 – This is clearly wrong as the author doesn't focus on any such finding.
Option 4 – This is the main idea of the passage to some extent. Refer to the first two paragraphs. Hence, it is the correct answer.

Bookmark FeedBack

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of knowledge. But it may also mean that we waste time considering crazy possibilities that will never work, something both pre-schoolers and teenagers have been known to do.

Q.6 [11594329]

The author gives the example of Augie in order to:

1 ○ introduce the concept of creativity.

2 ○ introduce the ability of creative problem solving in children.

3 ○ introduce the concept of lack of creativity in adults.

4 ○ introduce the concept of decrease in problem solving ability as one grows older.

✖

Answer key/Solution

Solution:
Correct Answer : 2
Your Answer : 1
Genre: Psychology / Education
Word Count# 666
Authors in different passages give examples to prove their main points. In the beginning of a passage, an author typically introduces his/her main idea by citing an example, a study, or an anecdote.
Options 1 and 3 – The main idea of the passage is the lack of use of creativity and not creativity in general. So, these two are incorrect.
So, the choice is between options 2 and 4.
Option 4 – It is the trap option. It's incorrect because the passage doesn't talk about 'decrease in problem solving ability'. It rather discusses how adults don't try to look for creative solutions. It doesn't mean that they don't have the ability.
So, option 2 is the clear answer.

Bookmark FeedBack

Directions for questions (7 to12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

It is the honourable characteristic of Poetry that its materials are to be found in every subject which can interest the human mind. The evidence of this fact is to be sought, not in the writings of Critics, but in those of Poets themselves.

A majority of the poems were written chiefly with a view to ascertain how far the language of conversation in the middle and lower classes of society is adapted to the purposes of poetic pleasure. Readers accustomed to the gaudiness and inane phraseology of many modern writers, if they persist in reading this book to its conclusion, will perhaps frequently have to struggle with feelings of strangeness and awkwardness: they will look round for poetry, and will be induced to enquire by what species of courtesy these attempts can be permitted to assume that title. It is desirable that such readers, for their own sakes, should not suffer the solitary word Poetry, a word of very disputed meaning, to stand in the way of their gratification; but that, while they are perusing this book, they should ask themselves if it contains a natural delineation of human passions, human characters, and human incidents; and if the answer be favourable to the author's wishes, that they should consent to be pleased in spite of that most dreadful enemy to our pleasures, our own pre-established codes of decision.

Readers of superior judgment may disapprove of the style in which many of these pieces are executed it must be expected that many lines and phrases will not exactly suit their taste. It will perhaps appear to them, that wishing to avoid the prevalent fault of the day, the author has sometimes descended too low, and that many of his expressions are too familiar, and not of sufficient dignity. It is apprehended, that the more conversant the reader is with our elder writers, and with those in modern times who have been the most successful in painting manners and passions, the fewer complaints of this kind will he have to make.

An accurate taste in poetry, and in all the other arts, Sir Joshua Reynolds has observed, is an acquired talent, which can only be produced by severe thought, and a long continued intercourse with the best models of composition. This is mentioned not with so ridiculous a purpose as to prevent the most inexperienced reader from judging for himself; but merely to temper the rashness of decision, and to suggest that if poetry be a subject on which much time has not been bestowed, the judgement may be erroneous, and that in many cases it necessarily will be so.

The tale of Goody Blake and Harry Gill is founded on a well-authenticated fact which happened in Warwickshire. Of the other poems in the collection, it may be proper to say that they are either absolute inventions of the author, or facts which took place within his personal observation or that of his friends. The Rime of the Ancyent Marinere was professedly written in imitation of the style, as well as of the spirit of the elder poets; but with a few exceptions, the Author believes that the language adopted in it has been equally intelligible for these three last centuries. The lines entitled Expostulation and Reply, and those which follow, arose out of conversation with a friend who was somewhat unreasonably attached to modern books of moral philosophy.

Q.7 [11594329]

What can be inferred about the nature of poetry based on the above passage?

1 ○ The acquiring of a sound poetic taste will require time and effort.

2 ○ Poetry is not something that can be understood by all and sundry.

3 ○ Poetry should primarily be written in the language of common men.

4 ○ Poetry should be read by sidelining every preconceived notion.

Answer key/Solution

Solution:
Correct Answer : 1
Genre: Literature / Poetry / Book Review
Word Count# 568
Options 2 and 4 are nowhere mentioned and indicated. The intention of the author is not to talk about the ability to understand poetry. It is rather about the process of developing a poetic taste.
Option 3 is incorrect. The author mentions that through his poems he wishes to check how far the language of common people is adapted for the purpose of poetic pleasure.
Option 1 can be inferred based on the penultimate paragraph. The author talks about "an accurate taste in poetry", which deals with continuous thought, and then states that he mentioned it in order "to avoid the rashness of decision". This is appropriately conveyed by option 1.

Bookmark FeedBack

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

It is the honourable characteristic of Poetry that its materials are to be found in every subject which can interest the human mind. The evidence of this fact is to be sought, not in the writings of Critics, but in those of Poets themselves.

A majority of the poems were written chiefly with a view to ascertain how far the language of conversation in the middle and lower classes of society is adapted to the purposes of poetic pleasure. Readers accustomed to the gaudiness and inane phraseology of many modern writers, if they persist in reading this book to its conclusion, will perhaps frequently have to struggle with feelings of strangeness and awkwardness: they will look round for poetry, and will be induced to enquire by what species of courtesy these attempts can be permitted to assume that title. It is desirable that such readers, for their own sakes, should not suffer the solitary word Poetry, a word of very disputed meaning, to stand in the way of their gratification; but that, while they are perusing this book, they should ask themselves if it contains a natural delineation of human passions, human characters, and human incidents; and if the answer be favourable to the author's wishes, that they should consent to be pleased in spite of that most dreadful enemy to our pleasures, our own pre-established codes of decision.

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Q.8 [11594329]

Based on the passage, what does “an accurate taste in poetry” mean?

1 ○ It refers to a preference that is acquired, and never comes from within.

2 ○ It is one that is attained by continuous thought and interaction.

3 ○ It refers to a taste that can be acquired only by composing a variety of pieces.

4 ○ It is the preference that is possessed by the best models of composition.

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Literature / Poetry / Book Review
Word Count# 568
The passage states- "An accurate taste in poetry… is an acquired talent, which can only be produced by severe thought, and a long continued intercourse with the best models of composition." This makes option 2 correct.
Option 4 is vague.
Option 1 is incorrect as it is nowhere stated if this taste comes from within or not.
Option 3 is beyond the scope of the passage.

Bookmark FeedBack

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Q.9 [11594329]

What according to the author would be the reaction of discerning readers towards the poems discussed in the book?

1 ○ They would feel delighted to read the language of the common man.

2 ○ They would feel disgusted at being made to read the language of the middle and the lower classes.

3 ○ They will be indifferent as similar sort of poetry has been taking shape lately.

4 ○ They would be surrounded by feelings of unfamiliarity and surprise.

Answer key/Solution

Solution:
Correct Answer : 4
Genre: Literature / Poetry / Book Review
Word Count# 568
The passage states- "if they persist in reading this book to its conclusion, will perhaps frequently have to struggle with feelings of strangeness and awkwardness", which makes 4 correct. 'Disgusted' is too strong a term to be used. Other options cannot be concluded based on the information given in the passage.

Bookmark FeedBack

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Q.10 [11594329]

According to the passage, what are the sources of poetry?

1 ○ Nature in all its forms

2 ○ Anything that captures the attention of the human mind

3 ○ Imagination, which is a result of one's poetic muse

4 ○ The life of the middle and lower classes of people.

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Literature / Poetry / Book Review
Word Count# 568
The passage opens with the fact- "It is the honorable characteristic of Poetry that its materials are to be found in every subject which can interest the human mind." This clearly makes 2 correct. Option 1 and 3 are beyond the scope of the passage. The author mentions that the list of poems that follows was written to check if the language of the middle and lower classes of people could be used for poetic pleasure. Hence, option 4 is a distorted fact, which makes it incorrect.

Bookmark FeedBack

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Q.11 [11594329]

Why does the author include the last paragraph in the passage?

1 ○ To give an insight into the minds and works of the poet who has clearly taken inspiration from his own life for all the poems

2 ○ To showcase the linguistic aspect of the poems with respect to the poet’s beliefs

3 ○ To introduce us to some of the poems in the book by giving us autobiographical backgrounds to their settings

4 ○ To discuss the poems in the book as works of imagination and simplicity

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Literature / Poetry / Book Review
Word Count# 568
Read the last paragraph clearly. Then follow the method of elimination.
Option 1 – "The tale of Goody Blake and Harry Gill is founded on a well-authenticated fact which happened in Warwickshire. Of the other poems in the collection, it may be proper to say that they are either absolute inventions of the author, or facts which took place within his personal observation or that of his friends." So, all the poems are not inspired by the author's life.
Option 2 – The entire paragraph talks about the use of language in the poems. So, it is the right answer. "Author believes that the language adopted in it has been equally intelligible for these three last centuries."
Option 3 – No autobiographical setting has been given in the paragraph. If one writes something from one's experience, it can't be called a biographical setting. It will be called a source.
Option 4 – Nothing is mentioned regarding 'work of imagination' or 'simplicity'. The author also mentions that some poems are inspired by the author's own life.

Bookmark FeedBack

Directions for questions (7 to12): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Q.12 [11594329]

Which of the following best reflects the author’s tone towards the book under discussion?

1 ○ Admiring in a nonchalant manner

2 ○ Informative albeit in a subjective manner

3 ○ Evaluative in a caustic manner

4 ○ Appreciative in an analytical manner

Answer key/Solution

Solution:
Correct Answer : 4
Genre: Literature / Poetry / Book Review
Word Count# 568
The author doesn't criticise the book. His tone is not negative. Hence, option 1(nonchalant) and option 3 (caustic) are incorrect.
Option 2 – There is no subjectivity involved. The author doesn't give personal opinions. The author (who is William Wordsworth, in case you are wondering – this is an excerpt from his Preface to Lyrical Ballads) is very neutral and also appreciative of the book.
So, option 4 is the correct answer.

Bookmark FeedBack

Directions for questions (13 to18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

As bitter cold continues to grip much of North America and helps spawn the fierce storm along the East Coast, the question arises: What's the influence of climate change?

Some scientists studying the connection between climate change and cold spells, which occur when cold Arctic air dips south, say that they may be related. But the importance of the relationship is not fully clear yet.

The Arctic is not as cold as it used to be — the region is warming faster than any other — and studies suggest that this warming is weakening the jet stream, which ordinarily acts like a giant lasso, corralling cold air around the pole.

"There's a lot of agreement that the Arctic plays a role, it's just not known exactly how much," said Marlene Kretschmer, a researcher at the Potsdam Institute for Climate Impact Research in Germany. "It's a very complex system."

The reason a direct connection between cold weather and global warming is still up for debate, scientists say, is that there are many other factors involved. Ocean temperatures in the tropics, soil moisture, snow cover, even the long-term natural variability of large ocean systems all can influence the jet stream.

"I think everyone would agree that potentially the warming Arctic could have impacts on the lower latitudes," said Rick Thoman, climate services manager with the National Weather Service in Fairbanks, Alaska. "But the exact connection on the climate scale is an area of active research."

Much of the Northern Hemisphere is cold this time of year (it's winter, after all). Cold snaps have occurred throughout history — certainly long before industrialization resulted in large emissions of greenhouse gases. And as with any single weather event, it's difficult to directly attribute the influence of climate change to a particular cold spell.

But scientists have been puzzled by data that at first seems counterintuitive: Despite an undeniable overall year-round warming trend, winters in North America and Europe have trended cooler over the past quarter-century.

“We’re trying to understand these dynamic processes that lead to cold winters,” Ms. Kretschmer said.

“The changes in very persistent weak states actually contributed to cold outbreaks in Eurasia,” Ms. Kretschmer said. “The bigger question is how this is related to climate change.” When we have a weak temperature gradient between the Arctic and mid-latitudes, the result is weaker winds.

Ordinarily the jet stream is straight, blowing from west to east. When it becomes weaker, it can become wavy, more like a big snake around the Northern Hemisphere.

The weaker winds are more susceptible to disturbances, such as a zone of high pressure that can force colder air southward. These “blocking” high-pressure zones are often what creates a severe cold spell that lingers for several days or longer.

The current cold snap has been in place for more than a week, and the cold air on Wednesday was moving east and colliding with a mass of warmer air from the Atlantic Ocean. That created a storm known as a “bomb cyclone.”

In a bomb cyclone, the temperature difference between the two air masses leads to a steep and rapid — meteorologists often use the term “explosive” — drop in atmospheric pressure. The air starts to move and, aided by the earth’s rotation, begins to rotate. The swirling air can bring high winds and a lot of precipitation, often in the form of snow.

That could happen this time — depending on the track of the storm, parts of the Northeast were expecting heavy snow. But one impact of the storm is even more clear: After it eventually moves off to the north and west, it should draw even more cold polar air into the eastern half of the United States, continuing the big chill.

Q.13 [11594329]

Which of the following is false in the light of the given passage?

1 ○ Bomb cyclones are created through the earth’s rotation.

2 ○ Global warming has affected the Arctic region moderately.

3 ○ North America is experiencing colder winter despite temperatures rising globally.

4 ○ Cold snaps have taken place even before the advent of industry.

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Environmental Studies
Word Count# 618
In the passage it is stated that, 'The Arctic is not as cold as it used to be — the region is warming faster than any other.'
Option 1 – "In a bomb cyclone, the temperature difference between the two air masses leads to a steep and rapid — meteorologists often use the term "explosive" — drop in atmospheric pressure. The air starts to move and, aided by the earth's rotation, begins to rotate."
Option 3 – "Despite an undeniable overall year-round warming trend, winters in North America and Europe have trended cooler over the past quarter-century."
Option 4 – "Much of the Northern Hemisphere is cold this time of year (it's winter, after all). Cold snaps have occurred throughout history — certainly long before industrialization resulted in large emissions of greenhouse gases."

Bookmark FeedBack

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Q.14 [11594329]

Which of the following is a concomitant feature of a bomb cyclone?

1 ○ Temperatures between heavier and lighter air experience massive difference.

2 ○ It cools down heated up areas.

3 ○ It brings about the appearance of a storm like situation.

4 ○ It produces weak wavy winds which result in an overall increase in the cold spells especially as the one felt in the US.

Solution:
Correct Answer : 1
Genre: Environmental Studies
Word Count# 618
In the passage it is stated that, 'In a bomb cyclone, the temperature difference between the two air masses leads to a steep and rapid — meteorologists often use the term "explosive" — drop in atmospheric pressure.' So, option 1 is the direct answer.

Answer key/Solution

Bookmark FeedBack

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between the Arctic and mid-latitudes, the result is weaker winds.

Ordinarily the jet stream is straight, blowing from west to east. When it becomes weaker, it can become wavy, more like a big snake around the Northern Hemisphere.

The weaker winds are more susceptible to disturbances, such as a zone of high pressure that can force colder air southward. These “blocking” high-pressure zones are often what creates a severe cold spell that lingers for several days or longer.

The current cold snap has been in place for more than a week, and the cold air on Wednesday was moving east and colliding with a mass of warmer air from the Atlantic Ocean. That created a storm known as a “bomb cyclone.”

In a bomb cyclone, the temperature difference between the two air masses leads to a steep and rapid — meteorologists often use the term “explosive” — drop in atmospheric pressure. The air starts to move and, aided by the earth’s rotation, begins to rotate. The swirling air can bring high winds and a lot of precipitation, often in the form of snow.

That could happen this time — depending on the track of the storm, parts of the Northeast were expecting heavy snow. But one impact of the storm is even more clear: After it eventually moves off to the north and west, it should draw even more cold polar air into the eastern half of the United States, continuing the big chill.

Q.15 [11594329]

The sharp cold experienced by Europeans and North American is a result of:

1 ○ the East Coast becoming cooler.

2 ○ the Arctic unable to control its temperature.

3 ○ high pressure zones forcing colder winds southwards.

4 ○ cold snaps occurring throughout history.

Solution:

Answer key/Solution

Correct Answer : 3
Genre: Environmental Studies
Word Count# 618
In the passage it is stated that, ‘a zone of high pressure that can force colder air southward. These “blocking” high-pressure zones are often what creates a severe cold spell that lingers for several days or longer.’ So, option 3 is the direct cause.
Option 1 – It is an effect. It’s not the cause.
Options 2 and 4 – These are out of context options.

Bookmark FeedBack

Directions for questions (13 to18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

As bitter cold continues to grip much of North America and helps spawn the fierce storm along the East Coast, the question arises: What's the influence of climate change?

Some scientists studying the connection between climate change and cold spells, which occur when cold Arctic air dips south, say that they may be related. But the importance of the relationship is not fully clear yet.

The Arctic is not as cold as it used to be — the region is warming faster than any other — and studies suggest that this warming is weakening the jet stream, which ordinarily acts like a giant lasso, corralling cold air around the pole.

"There's a lot of agreement that the Arctic plays a role, it's just not known exactly how much," said Marlene Kretschmer, a researcher at the Potsdam Institute for Climate Impact Research in Germany. "It's a very complex system."

The reason a direct connection between cold weather and global warming is still up for debate, scientists say, is that there are many other factors involved. Ocean temperatures in the tropics, soil moisture, snow cover, even the long-term natural variability of large ocean systems all can influence the jet stream.

"I think everyone would agree that potentially the warming Arctic could have impacts on the lower latitudes," said Rick Thoman, climate services manager with the National Weather Service in Fairbanks, Alaska. "But the exact connection on the climate scale is an area of active research."

Much of the Northern Hemisphere is cold this time of year (it's winter, after all). Cold snaps have occurred throughout history — certainly long before industrialization resulted in large emissions of greenhouse gases. And as with any single weather event, it's difficult to directly attribute the influence of climate change to a particular cold spell.

But scientists have been puzzled by data that at first seems counterintuitive: Despite an undeniable overall year-round warming trend, winters in North America and Europe have trended cooler over the past quarter-century.

"We're trying to understand these dynamic processes that lead to cold winters," Ms. Kretschmer said.

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Q.16 [11594329]

Which of the following may not necessarily affect the jet stream in light of the passage?

1 ○ Variability of ocean systems

2 ○ Soil temperature

3 ○ Snow cover

4 ○ Ocean temperatures

Solution:
Correct Answer : 2
Genre: Environmental Studies
Word Count# 618
Refer to the line – “Ocean temperatures in the tropics, soil moisture, snow cover, even the long-term natural variability of large ocean systems all can influence the jet stream.”
In the passage it is stated that ‘soil moisture’ may form a connection between cold weather and global warming. It’s not soil temperature.

Answer key/Solution

Bookmark FeedBack

Directions for questions (13 to18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

As bitter cold continues to grip much of North America and helps spawn the fierce storm along the East Coast, the question arises: What’s the influence of climate change?

Some scientists studying the connection between climate change and cold spells, which occur when cold Arctic air dips south, say that they may be related. But the importance of the relationship is not fully clear yet.

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Much of the Northern Hemisphere is cold this time of year (it’s winter, after all). Cold snaps have occurred throughout history — certainly long before industrialization resulted in large emissions of greenhouse gases. And as with any single weather event, it’s difficult to directly attribute the influence of climate change to a particular cold spell.

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Q.17 [11594329]

Which of the following is true in the light of the passage?

1 ○ Industrialisation is the sole cause behind global warming.

2 ○ The bomb cyclone is an isolated US phenomenon.

3 ○ Climate change can influence distribution of human beings.

4 ○ Cold snaps may take place with or without drastic climate changes.

Solution:
Correct Answer : 4
Genre: Environmental Studies
Word Count# 618
In the passage it is stated that, 'Cold snaps have occurred throughout history — certainly long before industrialization resulted in large emissions of greenhouse gases. And as with any single weather event, it's difficult to directly attribute the influence of climate change to a particular cold spell.' So, option 4 is the correct answer.
Option 1 – 'Sole cause' is incorrect according to the passage.
Option 2 – It's part of a series of events; it's surely not an isolated phenomenon.
Option 3 – 'Distribution of human beings' can't be verified from this passage.

Answer key/Solution

Bookmark FeedBack

Directions for questions (13 to18): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

As bitter cold continues to grip much of North America and helps spawn the fierce storm along the East Coast, the question arises: What's the influence of climate change?

Some scientists studying the connection between climate change and cold spells, which occur when cold Arctic air dips south, say that they may be related. But the importance of the relationship is not fully clear yet.

The Arctic is not as cold as it used to be — the region is warming faster than any other — and studies suggest that this warming is weakening the jet stream, which ordinarily acts like a giant lasso, corralling cold air around the pole.

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Q.18 [11594329]

What is Ms. Kretschmer’s tone towards the causes of cold spells?

1 ○ Definitive and objective

2 ○ Concerned and temperate

3 ○ Analytical and uncertain

4 ○ Exuberant and optimistic

Solution:
Correct Answer : 3
Genre: Environmental Studies
Word Count# 618
The passage rationally explains the phenomenon of cold snaps. So, option 3 is correct. The word 'uncertain' looks vague but this is the best option.
Option 1 – The author is not definitive. S/he is still speculating about the cause.
Option 2 – 'Temperate' is a vague term.
Option 3- Exuberant means lively. It doesn't make any sense with respect to this passage.

Answer key/Solution

Bookmark FeedBack

Q.19 [11594329]

Directions for question 19: The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Why might hugs be beneficial? Being hugged leads to release of the hormone oxytocin, setting off a range of downstream outcomes that could explain the benefits of hugging. Oxytocin is involved in a complex range of social processes, but has been implicated romantic bonding and trust. Other research suggests the benefits of hugs and affectionate touch more generally rest within the cardiovascular system. One study found lower systolic blood pressure in the husbands of couples asked to increase the frequency of affectionate touch with one another. Other research documents lowered blood pressure and heart rate among women who receive frequent hugs.

1 ○ Hugs are beneficial because they release Oxytocin leading to a better Cardiovascular system and lower blood pressure.

2 ○ Hugs have been shown to have emotional, psychological, and physiological benefits.

3 ○ Hugs are beneficial as they lead to release of Oxytocin and are associated with lower blood pressure and heart rate.

4 ○ Hugs improve romantic bonding and trust and result in a faster drop in blood pressure and heart rate.

Solution:
Correct Answer : 3
1 is incorrect as Oxytocin is not mentioned to affect the Cardiovascular system or blood pressure.
2 is incorrect because the word 'shown' is too definitive. The research mentioned in the paragraph is only suggestive, not conclusive.
3 captures all the benefits.
4 is incorrect because of 'faster drop'.

Answer key/Solution

Bookmark FeedBack

Q.20 [11594329]

Directions for question 20: The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Ex nihilo nihil fit: Nothing comes out of nothing. This principle is an expression of our inability to believe that something could just spring into existence or happen without a cause. Imagine that a glass on a table suddenly exploded. Even if you don't have the slightest idea what caused the glass to behave in that manner, you'll still assume that something must have caused it. If it isn't necessary that events are caused by something, then anything would be possible. But if anything were possible, then we couldn't act anymore, because in order to act effectively, we must be able to trust in the reliability of causal relations. So we're certain that there's a reason why the glass exploded. And if there's nothing else, we will rather believe in supernatural causes than believe there's no cause at all. We are certain that something must have caused it, whatever it is.

1 ○ 'Nothing comes out of nothing' indicates a cause behind everything.

2 ○ Because of their need to believe in the reliability of causal relations, human beings assume that there is a cause behind everything.

3 ○ Human beings assume that there is a cause behind everything because they need order to act effectively.

4 ○ Human beings are unable to believe that something could happen without a cause and are willing to assign even supernatural causes to things.

Solution:

Answer key/Solution

Correct Answer : 2

1 does not cover the paragraph.

The paragraph states the inability of human beings to believe that something could exist without a cause and the reason behind this inability. This is captured in 2.

3 twists the details of the para, human beings don't need 'order', they need trust in the reliability of causal relations.

4 doesn't capture the reason behind humans' inability.

Bookmark FeedBack

Q.21 [11594329]

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

The cryptocurrencies are a statement of faith in a new community of entrepreneurial cosmopolitans who hold themselves above national governments, which are viewed as the drivers of a long train of inequality and war. And, as in the past, the public's fascination with cryptocurrencies is tied to a sort of mystery, like the mystery of the value of money itself, consisting in the new money's connection to advanced science. Practically no one, outside of computer science departments, can explain how cryptocurrencies work. That mystery creates an aura of exclusivity, gives the new money glamour, and fills devotees with revolutionary zeal. None of this is new, and, as with past monetary innovations, a compelling story may not be enough.

1 ○ Cryptocurrencies capture the public's fascination because of the mystery attached to them.

2 ○ Perceived as revolutionary by entrepreneurs and mysterious by the public, cryptocurrencies are old wine in new bottle.

3 ○ Cryptocurrencies, though perceived as incomprehensible, are viewed as revolutionary and liberating.

4 ○ Perceived as mysterious and revolutionary, cryptocurrencies might not offer anything new.

Solution:

Correct Answer : 4

1 and 3, at best, capture only a part of the paragraph. So they are incomplete. 2 is too definitive in calling Crypto old wine in new bottle. The 'might' in 4 makes it the preferred choice.

Answer key/Solution

Bookmark FeedBack

Q.22 [11594329]

Directions for question 22: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. Whatever the reason, writers have always lingered on the spots of high colour on pale cheeks, the over-bright eyes, fevered brow and emaciated frame of, say, Marguerite Gautier in the younger Alexandre Dumas's work translated as Camille.
2. Yet consumption has been traditionally associated with the romantic and the creative.
3. Not that it lost its spell for the early 20th century. From the sanatorium in Thomas Mann's Magic Mountain to the tribulations and elations of its medical treatment in A.J. Cronin's The Citadel, tuberculosis seems as difficult to shake off in the imagination as in life.
4. Consumption flourished in the novels of the 19th century: from those of Dostoyevsky and Victor Hugo to Dickens and Mrs Gaskell, to mention a few.
5. Perhaps the predatory edge of art is honed on the tragic treasures generated by early death, star-crossed love and the reflections prompted by the progression to an untimely end.

Solution:

Answer key/Solution

Correct Answer : 25143

2 is the introductory sentence as it talks about the originating point of what we know as tuberculosis today. The 'yet' in the beginning shows that it is taken from the middle of a paragraph. However, 2 can't be placed anywhere else as no other sentence justifies 'yet'.
5 and 1 form a pair and comes next. 5 mentions how it has been associated with the romantic and the creative and 1 expands on it. 4 continues with the idea of writers. So, it comes next.
3 is the concluding sentence as it connects the disease with the association further.
Hence, 25143 is the correct sequence.

Bookmark FeedBack

Q.23 [11594329]

Directions for question 23: The five sentences (labelled 1, 2, 3, 4, 5) given in this question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. It follows Mahfouz's introspective literary aesthetic that considers itself uniquely Egyptian, and yet, can only work within the shared universal language of the novel - one of humanity's great inventions.
2. The book chronologically arranges eighty-six short articles Mahfouz wrote after his retirement for his weekly current-affairs column wijhat nazar ("a point of view")
3. This book keeps reminding its reader of the absence of this novelistic vision as it offers a compilation of brief articles Mahfouz wrote for the daily Al-Ahram.
4. They cover a variety of topics quite resistant to any thematic grouping: religion, schooling and university education, political pluralism, national unity, corruption and bureaucracy, censorship, morality, media literacy, sedition, freethinking, and replies to readers' letters.
5. Civilization, for Naguib Mahfouz, is a strange vision of life that shimmers above the narrow, circuitous alleys of old Cairo.

Answer key/Solution

Solution:
Correct Answer : 51324
5 and 1 form a pair and 5 is clearly the introductory sentence. 5 mentions how Mahfouz envisions civilisation. The 'It' mentioned in 1 is the Mahfouz's vision. 3 comes next as it mentions how the books lacks the novelistic vision. 2 comes next as 'the book' refers to the idea mentioned in 3. 4 is the concluding sentence as it charts the areas covered by the book.

Bookmark FeedBack

Q.24 [11594329]

Directions for question 24: Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. This year, the WWF, which manages the initiative, hopes to build on its growing success and says millions of actions will be taken in at least 180 countries and territories.
2. For one hour every March since 2007, darkness has swept the globe as grassroots environmentalists, schools, offices and those responsible for some of the world's most iconic landmarks switch off lights in a symbolic call for more action on climate change.
3. An hour is not going to save the world – but a key message in publicizing the event is that every action counts and that energized individuals can make genuine change to the way we think about human impact on the planet.
4. We have raised awareness of both Earth Hour itself and the WWF aims and values locally within our community.
5. According to a record, 187 countries took part in the event's record breaking 10th year.

Answer key/Solution

Solution:
Correct Answer : 4
The correct sequence is 2153. Sentence 2 opens the paragraph as it introduces the topic- 'switching of light for one hour every Marc by schools and offices'. 2 and 1 create a mandatory pair as 2 states what happens every year and 1 states what is going to happen this year. Moreover, 1 mentions 'initiative', which is a reference to the earth hour talked about in 2. 2 and 3 are also a mandatory pair as 3 refers to the same 'event'. 3 is the concluding sentence as it tells the importance of publicizing such an event. 4 is the odd sentence out as it uses a different tense. It talks about the awareness raised. However, 3 talks about the awareness that needs to be raised. 4 may come somewhere later in the passage.

Bookmark FeedBack

Q.25 [11594329]

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

1. In 2013, Garry Nolan concluded that Ata was human, but the reasons for the dramatic deformities were far from clear.
2. Now scientists in California have extracted DNA from the mummy's bones and pieced together the real and tragic story of the individual, known as Ata.
3. The skeleton, which was sold to a private collector in Spain, was so bizarre it appeared in a documentary as potential evidence for alien life.
4. When the mummified remains of a six-inch humanoid were found in an abandoned mining town in Chile's Atacama desert 15 years ago, speculation on its origins ran wild.
5. Rather than a visitor from another world, Ata was a girl who appears to have been stillborn, or to have died immediately after birth, with devastating mutations that shaped her extraordinary body.

Solution:

Answer key/Solution

Correct Answer : 1

The correct sequence is 4325. Statement 4 comes first as it introduces the topic- mummified remains of a humanoid. 4 and 3 form a mandatory pair as 3 further talks about the skeleton (which was the mummified remain). Next comes 2 as it tells whose skeleton was it actually of- ATA. 2 and 5 are a mandatory pair as 5 is simply an explanation of ATA. 1 might come later somewhere in the paragraph, as it introduces another person Garry Nolan, about whom we have no idea. Hence, 1 is the odd sentence out.

Bookmark FeedBack

Q.26 [11594329]

Directions for question 26: Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out.

1. Micro plastics are particles of less than 5 mm that enter the environment either as primary industrial products, such as those used in scrubbers and cosmetics, or via urban waste water and broken-down elements of articles discarded by consumers.
2. There is little doubt that the global production of plastics, at over 300 million tonnes a year according to the UN Environment Programme, has overwhelmed the capacity of governments to handle what is thrown away as waste.
3. Waste separation can be achieved in partnership with the community, and presents a major employment opportunity
4. Plastics are now widely present in the environment, as visible waste along coastlines, in lakes and rivers, and even in the soil.
5. The recent finding that micro plastic particles are found even in 'safe' bottled water indicates the magnitude of the crisis.

Solution:
Correct Answer : 3
The given paragraph can be logically arranged in the order 4521(3), where sentence 3 is the odd one out. Other than 3, all other sentences talk about the growing crisis due to plastic consumption and the magnitude of its crisis. Sentence 3 imposes a solution which may look as if it is a part of the same argument but is not directly related to the context of the given paragraph.

Answer key/Solution

Bookmark FeedBack

Sec 2

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

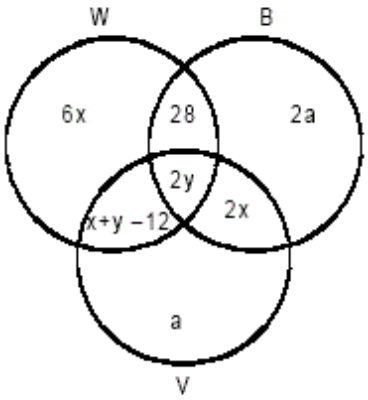
Shasha, a restobar owner, observed the drinking habits of the people who visited his restobar last week. The restobar serves alcoholic drinks of only 3 types – whiskey, vodka and beer. Not all his customers necessarily drank alcoholic drinks but those who did, they had at least one of the 3 types among whiskey, beer and vodka. Further, some of his observations during the last week are as follows:
(i) For every 3 customers who drank only whiskey, there was 1 customer who drank only beer and vodka.
(ii) For every 3 customers who drank beer, there was 1 customer who drank vodka and beer, and for every 3 customers who drank vodka, there was 1 customer who drank whiskey and vodka.
(iii) The number of customers who drank only beer was twice the number of customers who drank only vodka.
(iv) The number of customers who drank both beer and vodka was 24 more than twice the number of customers who drank only vodka and whiskey.
(v) The number of customers who drank only whiskey and beer was 28.

Q.27 [11594329]
What can be the minimum number of customers who visited the restaurant during the week?

Solution:
Correct Answer : 133

Answer key/Solution

W denotes the number of customers who drink whiskey
B denotes the number of customers who drink beer
V denotes the number of customers who drink vodka
Using points (i), (iii), (iv) and (v), we can get the below venn-diagram.



Now, using point (ii), we get
$2x + 2y + 2a + 28 = 3(2x + 2y)$
$\Rightarrow \quad 2x + 2y = a + 14$ ...(1)
and $\quad 3x + 3y + a - 12 = 3(3y + x - 12)$
$\Rightarrow \quad 6y = a + 24$ ...(2)
Putting value of y from (2) in (1), we get
$3x = a + 9$ ...(3)
So, number of customers who drink at least one of the 3 alcoholic drinks

$= 9x + 3y + 3a + 16 = \frac{13}{2}a + 55$

(i.e putting x and y in terms of a)

Also, $y = \frac{a}{6} + 4$ & $x = \frac{a}{3} + 3$

Since x and y are number of people, it has to be a whole number for which 'a' has to be a multiple of 6.

For a	6	12	18	24	30
x	5	7	9	11	13
y	5	6	7	8	9
Those w ho drink atleast one of 3 types of alcoholic drink	94	133	172	211	250

For a = 6, the region of only whiskey and vodka would become negative. Hence, not possible. So, minimum value of 'a' can be 12.

Minimum number of customers who visited during the week = minimum number of customers who drank at least one of the 3 types = 133.

Bookmark FeedBack

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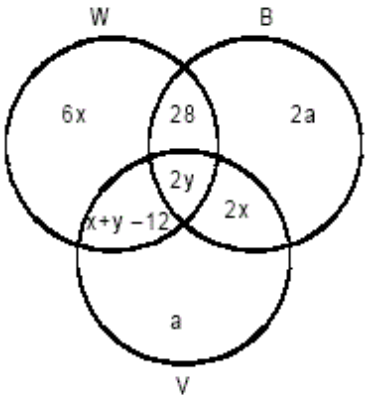
(iii) The number of customers who drank only beer was twice the number of customers who drank only vodka.
(iv) The number of customers who drank both beer and vodka was 24 more than twice the number of customers who drank only vodka and whiskey.
(v) The number of customers who drank only whiskey and beer was 28.

Q.28 [11594329]
If the total number of customers visited restobar during the week was 250, then what could be the minimum number of customers who did not drink any of the 3 alcoholic drinks?

Solution:
Correct Answer : 0

Answer key/Solution

W denotes the number of customers who drink whiskey
B denotes the number of customers who drink beer
V denotes the number of customers who drink vodka
Using points (i), (iii), (iv) and (v), we can get the below venn-diagram.



Now, using point (ii), we get
$2x + 2y + 2a + 28 = 3(2x + 2y)$
$\Rightarrow \quad 2x + 2y = a + 14$ ...(1)
and $\quad 3x + 3y + a - 12 = 3(3y + x - 12)$
$\Rightarrow \quad 6y = a + 24$ ...(2)
Putting value of y from (2) in (1), we get
$3x = a + 9$ ...(3)
So, number of customers who drink at least one of the 3 alcoholic drinks

$= 9x + 3y + 3a + 16 = \frac{13}{2}a + 55$

(i.e putting x and y in terms of a)

Also, $y = \frac{a}{6} + 4$ & $x = \frac{a}{3} + 3$

Since x and y are number of people, it has to be a whole number for which 'a' has to be a multiple of 6.

For a	6	12	18	24	30
x	5	7	9	11	13
y	5	6	7	8	9
Those w ho drink atleast one of 3 types of alcoholic drink	94	133	172	211	250

For a = 6, the region of only whiskey and vodka would become negative. Hence, not possible. So, minimum value of 'a' can be 12.

If total visited customers were 250, then there is a possibility that all of them had at least one of the three mentioned drinks.
So, the required number is zero.

Bookmark FeedBack

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

Shasha, a restobar owner, observed the drinking habits of the people who visited his restobar last week. The restobar serves alcoholic drinks of only 3 types – whiskey, vodka and beer. Not all his customers necessarily drank alcoholic drinks but those who did, they had at least one of the 3 types among whiskey, beer and vodka. Further, some of his observations during the last week are as follows:
(i) For every 3 customers who drank only whiskey, there was 1 customer who drank only beer and vodka.
(ii) For every 3 customers who drank beer, there was 1 customer who drank vodka and beer, and for every 3 customers who drank vodka, there was 1 customer who drank whiskey and vodka.
(iii) The number of customers who drank only beer was twice the number of customers who drank only vodka.
(iv) The number of customers who drank both beer and vodka was 24 more than twice the number of customers who drank only vodka and whiskey.
(v) The number of customers who drank only whiskey and beer was 28.

Q.29 [11594329]
Which of the following could be a possible number of the customers who drank exactly 2 of the 3 types of alcoholic drinks?

1 ○ 40

2 ○ 50

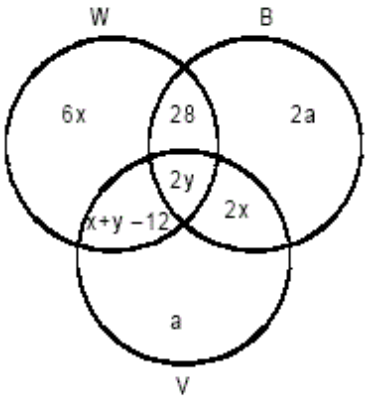
3 ○ 60

4 ○ 70

Solution:
Correct Answer : 2

Answer key/Solution

W denotes the number of customers who drink whiskey
B denotes the number of customers who drink beer
V denotes the number of customers who drink vodka
Using points (i), (iii), (iv) and (v), we can get the below venn-diagram.



Now, using point (ii), we get
$2x + 2y + 2a + 28 = 3(2x + 2y)$
$\Rightarrow \quad 2x + 2y = a + 14$ ...(1)
and $\quad 3x + 3y + a - 12 = 3(3y + x - 12)$
$\Rightarrow \quad 6y = a + 24$ ...(2)
Putting value of y from (2) in (1), we get
$3x = a + 9$ ...(3)
So, number of customers who drink at least one of the 3 alcoholic drinks

$= 9x + 3y + 3a + 16 = \frac{13}{2}a + 55$

(i.e putting x and y in terms of a)

Also, $y = \frac{a}{6} + 4$ & $x = \frac{a}{3} + 3$

Since x and y are number of people, it has to be a whole number for which 'a' has to be a multiple of 6.

For a	6	12	18	24	30
x	5	7	9	11	13
y	5	6	7	8	9
Those who drink atleast one of 3 types of alcoholic drink	94	133	172	211	250

For a = 6, the region of only whiskey and vodka would become negative. Hence, not possible. So, minimum value of 'a' can be 12.

Number of customers who drank exactly 2 of the 3 types of drinks = $28 + 2x + x + y - 12 = 3x + y + 16$
Putting different values of x and y from above table,
Only by $x = 9$ and $y = 7$
We get $3x + y + 16 = 50$.

Bookmark FeedBack

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

Shasha, a restobar owner, observed the drinking habits of the people who visited his restobar last week. The restobar serves alcoholic drinks of only 3 types – whiskey, vodka and beer. Not all his customers necessarily drank alcoholic drinks but those who did, they had at least one of the 3 types among whiskey, beer and vodka. Further, some of his observations during the last week are as follows:
(i) For every 3 customers who drank only whiskey, there was 1 customer who drank only beer and vodka.
(ii) For every 3 customers who drank beer, there was 1 customer who drank vodka and beer, and for every 3 customers who drank vodka, there was 1 customer who drank whiskey and vodka.
(iii) The number of customers who drank only beer was twice the number of customers who drank only vodka.
(iv) The number of customers who drank both beer and vodka was 24 more than twice the number of customers who drank only vodka and whiskey.
(v) The number of customers who drank only whiskey and beer was 28.

Q.30 [11594329]
What is the difference between the number of customers who drank only whiskey and the number of customers who drank only beer?

1 ○ 18

2 ○ 16

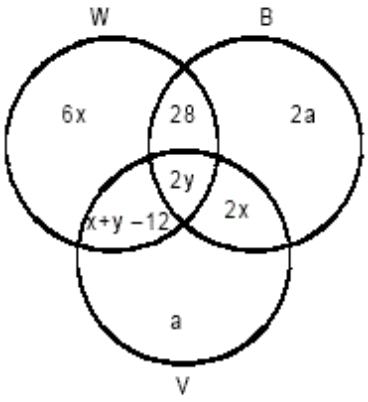
3 ○ 24

4 ○ Cannot be determined

Solution:
Correct Answer : 1

Answer key/Solution

W denotes the number of customers who drink whiskey
B denotes the number of customers who drink beer
V denotes the number of customers who drink vodka
Using points (i), (iii), (iv) and (v), we can get the below venn-diagram.



Now, using point (ii), we get
$2x + 2y + 2a + 28 = 3(2x + 2y)$
$\Rightarrow \quad 2x + 2y = a + 14$ ...(1)
and $\quad 3x + 3y + a - 12 = 3(3y + x - 12)$
$\Rightarrow \quad 6y = a + 24$ ...(2)
Putting value of y from (2) in (1), we get
$3x = a + 9$ ...(3)
So, number of customers who drink at least one of the 3 alcoholic drinks

$= 9x + 3y + 3a + 16 = \frac{13}{2}a + 55$

(i.e putting x and y in terms of a)

Also, $y = \frac{a}{6} + 4$ & $x = \frac{a}{3} + 3$

Since x and y are number of people, it has to be a whole number for which 'a' has to be a multiple of 6.

For a	6	12	18	24	30
x	5	7	9	11	13
y	5	6	7	8	9
Those who drink atleast one of 3 types of alcoholic drink	94	133	172	211	250

For a = 6, the region of only whiskey and vodka would become negative. Hence, not possible. So, minimum value of 'a' can be 12.

Number of customers who drank only whiskey = 6x
Number of customers who drank only beer = 2a
Therefore, difference = (6x – 2a) = 18 (using (3))

Bookmark FeedBack

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

Five football players of India were asked to rank 5 football teams - P, Q, R, S and T - of other countries from 1 to 5 as per their performances in last year's tournament, where rank 1 being the highest and rank 5 being the lowest. Team P was ranked same by all the five players while team Q was ranked same by exactly 4 players. Team R was given the same rank by 3 players and another same rank by 2 players. Team S was given the same rank by 3 players and two different ranks by the other 2 players and team T was ranked same by only 2 players and ranked different by the other 3. At the end, each team was assigned a final rank equivalent to the rank that was assigned to that team by maximum number of players. All five teams had different final ranks and final ranks of teams P, Q and R were 1, 2 and 3 respectively. Also, team R was ranked 4 by exactly two players. Each player had given a different ranking to each of the five teams.

Q.31 [11594329]

Which of the following ranks were given by a player to team Q?

1 ○ 3

2 ○ 4

3 ○ 5

4 ○ 4 or 5

Solution:

Correct Answer : 3

Answer key/Solution

(i) The final rank of team P was 1 and it was ranked same by all the five players, this implies that every player had given rank 1 to team P.

(ii) The final rank of team Q was 2 and it was ranked same by exactly four players, it means exactly four players had given rank 2 to team Q.

(iii) The final rank of team R was 3 and it was ranked same by three players so these three players must have given rank 3 to team R. Remaining two players had given rank 4 to team R which is given in the question.

So, the table till now will be

	P	Q	R	S	T
Player 1	1	2	3		
Player 2	1	2	3		
Player 3	1	2	3		
Player 4	1	2	4		
Player 5	1		4		

Now, each player gave different ranking to each team.

The possible ranks which could be given to team T were 2, 3, 4 and 5.

Players 1, 2, 3 and 4 already gave rank 2 to team Q, therefore, the player 5 gave rank 2 to team T.

Now rank given by player 5 to team Q could be either 3 or 5. If we consider 3, then it will not satisfy the given conditions for team S and T. So, only possible rank for team Q given by player 5 would be 5.

For team S, the only possible rank is 4 or 5.

If we consider 4, this means 3 players would have given rank 4 to team S and other two had given different ranks.

	P	Q	R	S	T
Player 1	1	2	3	4	5

Player 2	1	2	3	4	5	
Player 3	1	2	3	4	5	→ Not possible
Player 4	1	2	4	5	3	
Player 5	1	5	4	3	2	

The above case is not possible. Team S had rank 4, implies that rank of team T would be 5. But it is given that Team T was ranked same by only 2 players and the final rank would be that which was assigned by maximum number of players. So rank 5 should be given by only two players but in the above case, rank 5 assigned to team T was possible by 3 players which is incorrect.
Hence, rank of team S and team T were 5 and 4 respectively.
So, according to the given conditions two cases are possible
Case 1:

	P	Q	R	S	T
Player 1	1	2	3	5	4
Player 2	1	2	3	5	4
Player 3	1	2	3	4	5
Player 4	1	2	4	5	3
Player 5	1	5	4	3	2

Case 2:

	P	Q	R	S	T
Player 1	1	2	3	5	4
Player 2	1	2	3	5	4
Player 3	1	2	4	5	3
Player 4	1	2	4	3	5
Player 5	1	5	3	4	2

Among the options rank 5 was given to team Q.

Bookmark FeedBack

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

Five football players of India were asked to rank 5 football teams - P, Q, R, S and T - of other countries from 1 to 5 as per their performances in last year's tournament, where rank 1 being the highest and rank 5 being the lowest. Team P was ranked same by all the five players while team Q was ranked same by exactly 4 players. Team R was given the same rank by 3 players and another same rank by 2 players. Team S was given the same rank by 3 players and two different ranks by the other 2 players and team T was ranked same by only 2 players and ranked different by the other 3. At the end, each team was assigned a final rank equivalent to the rank that was assigned to that team by maximum number of players. All five teams had different final ranks and final ranks of teams P, Q and R were 1, 2 and 3 respectively. Also, team R was ranked 4 by exactly two players. Each player had given a different ranking to each of the five teams.

Q.32 [11594329]

How many players can rank team S as 4?

Solution:

Correct Answer : 1

Answer key/Solution

(i) The final rank of team P was 1 and it was ranked same by all the five players, this implies that every player had given rank 1 to team P.

(ii) The final rank of team Q was 2 and it was ranked same by exactly four players, it means exactly four players had given rank 2 to team Q.

(iii) The final rank of team R was 3 and it was ranked same by three players so these three players must have given rank 3 to team R. Remaining two players had given rank 4 to team R which is given in the question.

So, the table till now will be

	P	Q	R	S	T
Player 1	1	2	3		
Player 2	1	2	3		
Player 3	1	2	3		
Player 4	1	2	4		
Player 5	1		4		

Now, each player gave different ranking to each team.

The possible ranks which could be given to team T were 2, 3, 4 and 5.

Players 1, 2, 3 and 4 already gave rank 2 to team Q, therefore, the player 5 gave rank 2 to team T.

Now rank given by player 5 to team Q could be either 3 or 5. If we consider 3, then it will not satisfy the given conditions for team S and T. So, only possible rank for team Q given by player 5 would be 5.

For team S, the only possible rank is 4 or 5.

If we consider 4, this means 3 players would have given rank 4 to team S and other two had given different ranks.

	P	Q	R	S	T	
Player 1	1	2	3	4	5	
Player 2	1	2	3	4	5	
Player 3	1	2	3	4	5	→ Not possible
Player 4	1	2	4	5	3	
Player 5	1	5	4	3	2	

The above case is not possible. Team S had rank 4, implies that rank of team T would be 5. But it is given that Team T was ranked same by only 2 players and the final rank would be that which was assigned by maximum number of players. So rank 5 should be given by only two players but in the above case, rank 5 assigned to team T was possible by 3 players which is incorrect.

Hence, rank of team S and team T were 5 and 4 respectively.

So, according to the given conditions two cases are possible

Case 1:

	P	Q	R	S	T
Player 1	1	2	3	5	4
Player 2	1	2	3	5	4
Player 3	1	2	3	4	5
Player 4	1	2	4	5	3
Player 5	1	5	4	3	2

Case 2:

	P	Q	R	S	T
Player 1	1	2	3	5	4
Player 2	1	2	3	5	4
Player 3	1	2	4	5	3
Player 4	1	2	4	3	5
Player 5	1	5	3	4	2

Only one player can rank team S as 4.

Bookmark FeedBack

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

Five football players of India were asked to rank 5 football teams - P, Q, R, S and T - of other countries from 1 to 5 as per their performances in last year's tournament, where rank 1 being the highest and rank 5 being the lowest. Team P was ranked same by all the five players while team Q was ranked same by exactly 4 players. Team R was given the same rank by 3 players and another same rank by 2 players. Team S was given the same rank by 3 players and two different ranks by the other 2 players and team T was ranked same by only 2 players and ranked different by the other 3. At the end, each team was assigned a final rank equivalent to the rank that was assigned to that team by maximum number of players. All five teams had different final ranks and final ranks of teams P, Q and R were 1, 2 and 3 respectively. Also, team R was ranked 4 by exactly two players. Each player had given a different ranking to each of the five teams.

Q.33 [11594329]

Find the sum of the two ranks given to the team S, which were different from the same rank given by the three players?

1 ○ 6

2 ○ 8

3 ○ 7

4 ○ 5

Solution:

Correct Answer : 3

Answer key/Solution

(i) The final rank of team P was 1 and it was ranked same by all the five players, this implies that every player had given rank 1 to team P.

(ii) The final rank of team Q was 2 and it was ranked same by exactly four players, it means exactly four players had given rank 2 to team Q.

(iii) The final rank of team R was 3 and it was ranked same by three players so these three players must have given rank 3 to team R. Remaining two players had given rank 4 to team R which is given in the question.

So, the table till now will be

	P	Q	R	S	T
Player 1	1	2	3		
Player 2	1	2	3		
Player 3	1	2	3		
Player 4	1	2	4		
Player 5	1		4		

Now, each player gave different ranking to each team.
The possible ranks which could be given to team T were 2, 3, 4 and 5.
Players 1, 2, 3 and 4 already gave rank 2 to team Q, therefore, the player 5 gave rank 2 to team T.
Now rank given by player 5 to team Q could be either 3 or 5. If we consider 3, then it will not satisfy the given conditions for team S and T. So, only possible rank for team Q given by player 5 would be 5.

For team S, the only possible rank is 4 or 5.
If we consider 4, this means 3 players would have given rank 4 to team S and other two had given different ranks.

	P	Q	R	S	T	
Player 1	1	2	3	4	5	
Player 2	1	2	3	4	5	
Player 3	1	2	3	4	5	→ Not possible
Player 4	1	2	4	5	3	
Player 5	1	5	4	3	2	

The above case is not possible. Team S had rank 4, implies that rank of team T would be 5. But it is given that Team T was ranked same by only 2 players and the final rank would be that which was assigned by maximum number of players. So rank 5 should be given by only two players but in the above case, rank 5 assigned to team T was possible by 3 players which is incorrect.
Hence, rank of team S and team T were 5 and 4 respectively.
So, according to the given conditions two cases are possible
Case 1:

	P	Q	R	S	T
Player 1	1	2	3	5	4
Player 2	1	2	3	5	4
Player 3	1	2	3	4	5
Player 4	1	2	4	5	3
Player 5	1	5	4	3	2

Case 2:

	P	Q	R	S	T
Player 1	1	2	3	5	4
Player 2	1	2	3	5	4
Player 3	1	2	4	5	3
Player 4	1	2	4	3	5
Player 5	1	5	3	4	2

The two different ranks which were different from the rest three same ranks were 4 and 3. So, sum is 4 + 3 = 7.

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

Five football players of India were asked to rank 5 football teams - P, Q, R, S and T - of other countries from 1 to 5 as per their performances in last year's tournament, where rank 1 being the highest and rank 5 being the lowest. Team P was ranked same by all the five players while team Q was ranked same by exactly 4 players. Team R was given the same rank by 3 players and another same rank by 2 players. Team S was given the same rank by 3 players and two different ranks by the other 2 players and team T was ranked same by only 2 players and ranked different by the other 3. At the end, each team was assigned a final rank equivalent to the rank that was assigned to that team by maximum number of players. All five teams had different final ranks and final ranks of teams P, Q and R were 1, 2 and 3 respectively. Also, team R was ranked 4 by exactly two players. Each player had given a different ranking to each of the five teams.

Q.34 [11594329]

Which of the following is the correct order of teams, when arranged in increasing order of the sum of the ranks given to them by the 5 players?

1 ○ P, Q, R, S, T

2 ○ P, Q, R, T, S

3 ○ P, Q, T, R, S

4 ○ Sum is same for two or more teams

Solution:
Correct Answer : 2

Answer key/Solution

(i) The final rank of team P was 1 and it was ranked same by all the five players, this implies that every player had given rank 1 to team P.
(ii) The final rank of team Q was 2 and it was ranked same by exactly four players, it means exactly four players had given rank 2 to team Q.
(iii) The final rank of team R was 3 and it was ranked same by three players so these three players must have given rank 3 to team R. Remaining two players had given rank 4 to team R which is given in the question.
So, the table till now will be

	P	Q	R	S	T
Player 1	1	2	3		
Player 2	1	2	3		
Player 3	1	2	3		
Player 4	1	2	4		
Player 5	1		4		

Now, each player gave different ranking to each team.
The possible ranks which could be given to team T were 2, 3, 4 and 5.
Players 1, 2, 3 and 4 already gave rank 2 to team Q, therefore, the player 5 gave rank 2 to team T.
Now rank given by player 5 to team Q could be either 3 or 5. If we consider 3, then it will not satisfy the given conditions for team S and T. So, only possible rank for team Q given by player 5 would be 5.

For team S, the only possible rank is 4 or 5.
If we consider 4, this means 3 players would have given rank 4 to team S and other two had given different ranks.

	P	Q	R	S	T
Player 1	1	2	3	4	5
Player 2	1	2	3	4	5
Player 3	1	2	3	4	5
Player 4	1	2	4	5	3
Player 5	1	5	4	3	2

→ Not possible

The above case is not possible. Team S had rank 4, implies that rank of team T would be 5. But it is given that Team T was ranked same by only 2 players and the final rank would be that which was assigned by maximum number of players. So rank 5 should be given by only two players but in the above case, rank 5 assigned to team T was possible by 3 players which is incorrect.
Hence, rank of team S and team T were 5 and 4 respectively.
So, according to the given conditions two cases are possible

Case 1:

	P	Q	R	S	T
Player 1	1	2	3	5	4
Player 2	1	2	3	5	4
Player 3	1	2	3	4	5
Player 4	1	2	4	5	3
Player 5	1	5	4	3	2

Case 2:

	P	Q	R	S	T
Player 1	1	2	3	5	4
Player 2	1	2	3	5	4
Player 3	1	2	4	5	3
Player 4	1	2	4	3	5
Player 5	1	5	3	4	2

The sum of the ranks assigned to each team by the five players were
For team P, sum is 1 + 1 + 1 + 1 + 1 = 5
For team Q, sum is 2 + 2 + 2 + 2 + 5 = 13
For team R, it is 3 + 3 +3 + 4 + 4 = 17
For team S, it is 5 + 5 + 5 + 4 + 3 = 22
For team T, it is 4 + 4 + 5 + 3 + 2 = 18.
∴ Correct order is P, Q, R, T, S.

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

A newly inaugurated drama school has organised some plays to introduce its director's and choreographer's capabilities in the city. They wanted to do this with a fresh batch of talent, hence decided to select actors from four different schools - S_1, S_2, S_3, S_4 - and trained them to act in their five different plays namely Birbal, Shakespeare, Romeo-Juliet, LOC and Charlie Chaplin. The table shown below gives the number of actors required in a play from the four schools. Also, it is known that maximum of 20, 15, 7 and 12 could have been selected from the schools S_1, S_2, S_3, S_4 respectively.

	Birbal	Shakespeare	Romeo-Juliet	LOC	Charlie Chaplin
S_1	8	7	6	4	3
S_2	4	5	2	9	7
S_3	2	6	3	7	5
S_4	3	4	5	8	6

Q.35 [11594329]

At most how many actors were selected for all the 5 plays?

Answer key/Solution

Solution:

Correct Answer : 10

From school S_1, the maximum number of actors required for play Charlie Chaplin is 3, which is minimum as compared to the number of actors required of other 4 plays. So, these 3 actors can participate in all 5 plays.

Similarly, from school S_2, the maximum number of actors who were selected for all 5 plays can be 2, from S_3 it can be 2 and from S_4 it can be 3.

So, total maximum number of actors selected for all 5 plays from 5 different schools = 3 + 2 + 2 +3 = 10

Bookmark FeedBack

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

A newly inaugurated drama school has organised some plays to introduce its director's and choreographer's capabilities in the city. They wanted to do this with a fresh batch of talent, hence decided to select actors from four different schools - S_1, S_2, S_3, S_4 - and trained them to act in their five different plays namely Birbal, Shakespeare, Romeo-Juliet, LOC and Charlie Chaplin. The table shown below gives the number of actors required in a play from the four schools. Also, it is known that maximum of 20, 15, 7 and 12 could have been selected from the schools S_1, S_2, S_3, S_4 respectively.

	Birbal	Shakespeare	Romeo-Juliet	LOC	Charlie Chaplin
S_1	8	7	6	4	3
S_2	4	5	2	9	7
S_3	2	6	3	7	5
S_4	3	4	5	8	6

Q.36 [11594329]

At least how many actors were selected for more than one play in all the 4 schools taken together?

1 ○ 16

2 ○ 24

3 ○ 26

4 ○ 25

Solution:

Correct Answer : 1

Answer key/Solution

In order to find the minimum number of actors selected for more than one play, one can count the maximum number of actors selected in exactly one play for all the 4 schools and then subtract it from total.
In school S_1, if two actors were selected who participated in all 5 plays and remaining were selected for exactly one play, then from each play we get the selected students as
(6 + 2), (5 + 2), (4 + 2), (2 + 2), (1 +2), where the second number in bracket represents the actors selected in all five plays and first number represents the number of actors selected in only one play, for all the five plays from school S_1.

Birbal	Shakespeare	Romeo-Juliet	LOC	Charlie Chaplin
8	7	6	4	3
8 – 2 = 6	7 – 2 = 5	6 – 2 = 4	4 – 2 = 2	3 – 2 = 1

Therefore, maximum number of actors selected for exactly one play from S_1 = 6 + 5 + 4 + 2 + 1 = 18.
So, minimum number of actors selected for more than one play = 20 - 18 = 2
For School S_2,
If 2 actors were selected for all 5 plays, and 2 other were selected for 3 plays, then the number of (actors selected for 1 play, actors selected for 3 plays, actors selected for 5 plays) is as (0,2,2), (1, 2, 2), (0,0,2), (5, 2, 2), (5, 0, 2)

Birbal	Shakespeare	Romeo-Juliet	LOC	Charlie Chaplin
4	5	2	9	7
4 – 2 = 2	5 – 2 = 3	2 – 2 = 0	9 – 2 = 7	7 – 2 = 5
2 – 2 = 0	3 – 2 = 1	0	7 – 2 = 5	5

Therefore, maximum number of actors selected for exactly one play form S_2 = 11.
So, minimum number of actors selected for more than one play = 15 – 11 = 4
Similarly, for school S_3, we get maximum number of actors selected for only 1 play is 1.

Birbal	Shakespeare	Romeo-Juliet	LOC	Charlie Chaplin
2	6	3	7	5
2	6 – 3 = 3	3 – 3 = 0	7 – 3 = 4	5 – 3 = 2
2 – 2 = 0	3 – 2 = 1	0	4 – 2 = 2	2 – 2 = 0
0	1 – 1 = 0	0	2 – 1 = 1	0

So, minimum number of actors selected for more than 1 play = 7 - 1 = 6
For School S_3,
Maximum number of actors selected for only one play is 8.

Birbal	Shakespeare	Romeo-Juliet	LOC	Charlie Chaplin
3	4	5	8	6
3 – 2 = 1	4 – 2 = 2	5 – 2 = 3	8 – 2 = 6	6 – 2 = 4
1	2 – 2 = 0	3 – 2 = 1	6 – 2 = 4	4 – 2 = 2

So, minimum number of actors selected for more than one play = 12 - 8 = 4
So, required number of actors selected from all the 4 schools = 2 + 4 + 6 + 4 =16

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

A newly inaugurated drama school has organised some plays to introduce its director's and choreographer's capabilities in the city. They wanted to do this with a fresh batch of talent, hence decided to select actors from four different schools - S_1, S_2, S_3, S_4 - and trained them to act in their five different plays namely Birbal, Shakespeare, Romeo-Juliet, LOC and Charlie Chaplin. The table shown below gives the number of actors required in a play from the four schools. Also, it is known that maximum of 20, 15, 7 and 12 could have been selected from the schools S_1, S_2, S_3, S_4 respectively.

	Birbal	Shakespeare	Romeo-Juliet	LOC	Charlie Chaplin
S_1	8	7	6	4	3
S_2	4	5	2	9	7
S_3	2	6	3	7	5
S_4	3	4	5	8	6

Q.37 [11594329]

Find the sum of the maximum possible number of actors who could be selected for only one play from the schools S_1 and S**2**.

1 ○ 29

2 ○ 35

3 ○ 30

4 ○ 32

Solution:

Correct Answer : 1

As discussed in previous question, the maximum number of actors selected for one play from S_1 and S_2 = 18 + 11 = 29

Answer key/Solution

Bookmark FeedBack

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

A newly inaugurated drama school has organised some plays to introduce its director's and choreographer's capabilities in the city. They wanted to do this with a fresh batch of talent, hence decided to select actors from four different schools - S_1, S_2, S_3, S_4 - and trained them to act in their five different plays namely Birbal, Shakespeare, Romeo-Juliet, LOC and Charlie Chaplin. The table shown below gives the number of actors required in a play from the four schools. Also, it is known that maximum of 20, 15, 7 and 12 could have been selected from the schools S_1, S_2, S_3, S_4 respectively.

	Birbal	Shakespeare	Romeo-Juliet	LOC	Charlie Chaplin
S_1	8	7	6	4	3
S_2	4	5	2	9	7
S_3	2	6	3	7	5
S_4	3	4	5	8	6

Q.38 [11594329]

The difference between the maximum number of actors selected for exactly four plays and the minimum number of actors selected for exactly one play from school S_3 is

Solution:

Correct Answer : 5

Answer key/Solution

Maximum number of actors selected for exactly four plays from school S_3 is 3 who will act in four plays - Shakespeare, Romeo-Juliet, LOC and Charlie Chaplin. And 2 actors will participate in 4 plays - Birbal, Shakespeare, LOC and Charlie-Chaplin. So, maximum total 5 actors are there who can act in exactly 4 plays.

Birbal	Shakespeare	Romeo-Juliet	LOC	Charlie Chaplin
2	6	3	7	5
2	6 – 3 = 3	3 – 3 = 0	7 – 3 = 4	5 – 3 = 2
2 – 2 = 0	3 – 2 = 1	0	4 – 2 = 2	2 – 2 = 0
0	1 – 1 = 0	0	2 – 1 = 1	0

For finding minimum number of actors selected for only one play: Let all those actors who are selected in Birbal, Shakespeare, Romeo-Juliet, Charlie Chaplin are also selected for play LOC in such a way that all the actors selected for LOC are also selected in one of the other plays. Hence, minimum number of actors selected for exactly one play from school S_3 can be 0.

So, the required difference is 5 - 0 = 5

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

Mr. Sharma is hosting a house party wherein he invited his friends and relatives. Mr. Sharma's wife suggested him to order food out of the six different food types – Pizza, Pasta, Cold drink, Burger, noodles, and thali - for the guests. As per the suggestion of his wife, he ordered the food keeping the following points in mind:
1. He can order multiple numbers of a food type.
2. The order must contain at least 6 food items of at least 3 different types.
3. At most, 2 thali can be ordered.
4. At most, 3 burgers can be ordered.
5. There can be at most one of each of the type - Pizza, Pasta, Cold drink, Noodles - in an order.
6. If Mr. Sharma adds pizza in his order, then he has to order cold drink also.
7. If he orders pasta as one of the food types, then he cannot order noodles.

Q.39 [11594329]
What is the maximum numbers of food items that can be ordered?

Solution:
Correct Answer : 8
Maximum numbers of food items that can be ordered:-
2 thali + 3 burger + 1 pizza + 1 cold drink + 1 pasta / 1 noodles = 8 items.

Answer key/Solution

Bookmark FeedBack

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

Mr. Sharma is hosting a house party wherein he invited his friends and relatives. Mr. Sharma's wife suggested him to order food out of the six different food types – Pizza, Pasta, Cold drink, Burger, noodles, and thali - for the guests. As per the suggestion of his wife, he ordered the food keeping the following points in mind:
1. He can order multiple numbers of a food type.
2. The order must contain at least 6 food items of at least 3 different types.
3. At most, 2 thali can be ordered.
4. At most, 3 burgers can be ordered.
5. There can be at most one of each of the type - Pizza, Pasta, Cold drink, Noodles - in an order.
6. If Mr. Sharma adds pizza in his order, then he has to order cold drink also.
7. If he orders pasta as one of the food types, then he cannot order noodles.

Q.40 [11594329]
If Mr. Sharma has to order cold drink and pasta necessarily, then any of the following pairs of food types would complete the order, EXCEPT

1 ○ Thali and burger

2 ○ Pizza and thali

3 ○ Pizza and burger

4 ○ All are possible

Answer key/Solution

Solution:
Correct Answer : 2
In option 1,
1 cold drink + 1 pasta + 2 thali + 3 burger + 7 items.
This can complete the order.
In option 2,
1 cold drink + 1 pasta + 1 pizza + 2 thali, therefore there could be maximum 5 items.
This will not complete the order.
In option 3,
1 cold drink + 1 pasta + 1 pizza + 3 burger = 6 items.
This can complete the order.
So, only option 2 cannot complete the order 2.

Bookmark FeedBack

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

Mr. Sharma is hosting a house party wherein he invited his friends and relatives. Mr. Sharma's wife suggested him to order food out of the six different food types – Pizza, Pasta, Cold drink, Burger, noodles, and thali - for the guests. As per the suggestion of his wife, he ordered the food keeping the following points in mind:
1. He can order multiple numbers of a food type.
2. The order must contain at least 6 food items of at least 3 different types.
3. At most, 2 thali can be ordered.
4. At most, 3 burgers can be ordered.
5. There can be at most one of each of the type - Pizza, Pasta, Cold drink, Noodles - in an order.
6. If Mr. Sharma adds pizza in his order, then he has to order cold drink also.
7. If he orders pasta as one of the food types, then he cannot order noodles.

Q.41 [11594329]
If it is necessary to order pasta when cold drink is ordered, then which of the following must be true?

1 ○ Order cannot contain more than 6 items

2 ○ Pizza is definitely ordered if pasta is ordered.

3 ○ No order will contain less than 7 items.

4 ○ Noodles will not be ordered if pizza is ordered.

Answer key/Solution

Solution:
Correct Answer : 4
(a) order can contain more than 6 items:-
2 thali + 3 burger + 1 pizza + 1 CD + 1 pasta = 8 items
(b) It is false, because, pasta is definitely ordered if pizza is ordered since. Cold drink is definitely ordered if pizza is ordered.
(c) It is false. An order can contain less than 7 items. i.e.
2 thali + 3 burger + 1 Noodles = 6 items.
(d) It is definitely true if pizza is ordered, then pasta is definitely ordered and noodles are not ordered if pizza is ordered.

Bookmark FeedBack

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

Mr. Sharma is hosting a house party wherein he invited his friends and relatives. Mr. Sharma's wife suggested him to order food out of the six different food types – Pizza, Pasta, Cold drink, Burger, noodles, and thali - for the guests. As per the suggestion of his wife, he ordered the food keeping the following points in mind:
1. He can order multiple numbers of a food type.
2. The order must contain at least 6 food items of at least 3 different types.
3. At most, 2 thali can be ordered.
4. At most, 3 burgers can be ordered.
5. There can be at most one of each of the type - Pizza, Pasta, Cold drink, Noodles - in an order.
6. If Mr. Sharma adds pizza in his order, then he has to order cold drink also.
7. If he orders pasta as one of the food types, then he cannot order noodles.

Q.42 [11594329]
Had the noodles were also possible to be ordered with pasta, then how many different combinations of food items could have been ordered by Mr. Sharma when number of items is at most 7?

1 ○ 29

2 ○ 24

3 ○ 36

4 ○ None of these.

Solution:

Correct Answer : 3

Answer key/Solution

Since number of items can be at most 7, so there are two possibilities: either Mr. Sharma ordered 6 items or 7 items.
Since two complete any of the two possibilities thali and burger are necessary to order.

Case 1:

When he ordered no thali.

(i) When number of items ordered is 6.
If all Pizza, Pasta, Cold drink and noodles are ordered, then two burgers must be ordered.
If any three of them ordered, then 3 burgers must be ordered. But any three can be ordered in 3 ways: (Pizza, pasta, colddrink), (pizza, colddrink, noodles), (pasta, colddink, noodles). So, total three ways.
If any two them is ordered, then 4 burger must be ordered which is not possible. Also, if it was possible, then there are 4 ways to order any two out of the four as: (Pizza, cold drink), (cold drink, pasta), (cold drink, noodles), (noodles, pasta).
(ii) When number of items ordered is 7.
If all 4 ordered, then 3 burgers must be ordered.
So, total 1 + 3 + 1 = 5 ways.

Case 2:

When he ordered 1 thali.

(i) When number of items ordered is 6.
If all Pizza, Pasta, Cold drink and noodles are ordered, then one burgers must be ordered and 1 thali.
If any three of them ordered, then 2 burgers must be ordered. So, total three ways.
If any two them is ordered, then 3 burger must be ordered. So, total 4 ways.
(ii) When number of items ordered is 7.
If all 4 ordered, then 2 burgers must be ordered.
If any three ordered, 3 burgers and 1 thali must be ordered. So, total 3 ways.
So, total 1 + 3 + 4 + 1 + 3 = 12 ways.

Case 3:

When he ordered 2 thali.

(i) When number of items ordered is 6.
If all Pizza, Pasta, Cold drink and noodles are ordered, then no burger can be ordered.
If any three of them ordered, then 1 burgers must be ordered. So, total three ways.
If any two them is ordered, then 2 burger must be ordered. So, total 4 ways.
If any one of them is ordered, then 3 burgers must be ordered. And it is possible in 3 ways, as pizza can't be ordered alone.
(ii) When number of items ordered is 7.
If all 4 ordered, then 1 burgers must be ordered.
If any three ordered, 2 burgers and 2 thali must be ordered. So, total 3 ways.
If any two ordered, 3 burgers must be ordered.
So, total 1 + 3 + 4 + 3 + 1 + 3 + 4 = 19 ways.
So, total possibilities = 5 + 12 + 19 = 36 ways.

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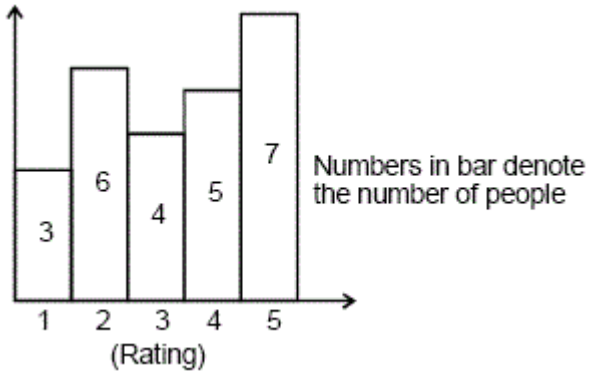
Directions for question 43 to 46: Answer the questions on the basis of the information given below.

Five MBA colleges- P, Q, R, S, and T – were rated from 1 to 5 in five different attributes – Placement (PL), Hostel Facilities (HF), Food (FD), Personality Development (PD), and Ethical Awareness (EA), where 1 being the lowest rating and 5 being the highest. According to the overall rating of each college i.e the sum of the ratings got by a college in all five attributes, the college which was rated highest was tagged as the “most aspiring” college and the one which was rated least was tagged as the “under-developed”. The following bar graph shows the details about the number of people for each given ratings.



Further details known to us are:
1. All colleges got a rating of 5 in at most three attributes.
2. No college got an overall rating of less than 12.
3. Each of the five colleges got the rating of both 2 and 4 at least once in some of the attribute(s).

Q.43 [11594329]
If according to the overall rating, the five colleges are in the order P>Q>R>S>T, where T has the minimum possible overall rating and P has the maximum possible overall rating, then what is the overall rating for R?

1 ○ 15

2 ○ 17

3 ○ 14

4 ○ Cannot be determined

Solution:
Correct Answer : 2

Answer key/Solution

Given:- T has the minimum possible rating and P has the maximum possible overall rating and each of the five colleges got the rating of both 2 and 4 atleast once.

	P	Q	R	S	T
	2	2	2	2	2
	4	4	4	4	4
	5	5	5	5	1
	5	5	3	1	2
	5	3	3	1	3
Total	21	19	17	13	12

This is the only possible combination where in P, Q, R, S and T have difference ratings and in a descending order respectively.

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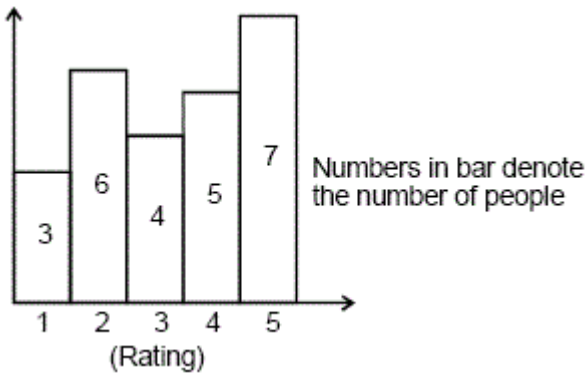
Directions for question 43 to 46: Answer the questions on the basis of the information given below.

Five MBA colleges- P, Q, R, S, and T – were rated from 1 to 5 in five different attributes – Placement (PL), Hostel Facilities (HF), Food (FD), Personality Development (PD), and Ethical Awareness (EA), where 1 being the lowest rating and 5 being the highest. According to the overall rating of each college i.e the sum of the ratings got by a college in all five attributes, the college which was rated highest was tagged as the “most aspiring” college and the one which was rated least was tagged as the “under-developed”. The following bar graph shows the details about the number of people for each given ratings.



Further details known to us are:
1. All colleges got a rating of 5 in at most three attributes.
2. No college got an overall rating of less than 12.
3. Each of the five colleges got the rating of both 2 and 4 at least once in some of the attribute(s).

Q.44 [11594329]
If only two colleges P and S got the overall rating as 17 and despite getting a rating of 1 in one of the attributes, none of them were tagged as under developed, then what can be the smallest possible overall rating of the college tagged as the “most aspiring”?

1 ○ 17

2 ○ 19

3 ○ 18

4 ○ 20

Solution:
Correct Answer : 3

Answer key/Solution

Since P and S both got the rating 17 and also got 1 as a rating in one of the attributes, they were not tagged as under developed therefore, some college definitely got the rating was than 17 and except P and S every college got a different rating.

P	Q	R	S	T
2	2	2	2	2
4	4	4	4	4
1			1	
5			5	
5			5	
17			17	

You will observe that for no combination, 17 will be the smallest possible overall rating.
Let's try for 18:-

P	Q	R	S	T
2	2	2	2	2
4	4	4	4	4
1	5	5	1	3
5	5	3	5	3
5	2	1	5	3
17	18	15	17	15

So smallest possible overall rating of the college tagged as the most aspiring is 18.

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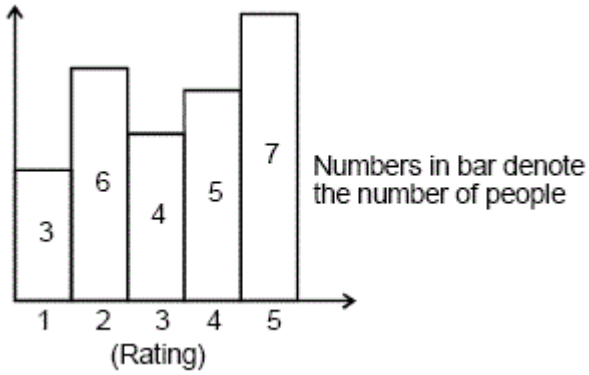
Directions for question 43 to 46: Answer the questions on the basis of the information given below.

Five MBA colleges- P, Q, R, S, and T – were rated from 1 to 5 in five different attributes – Placement (PL), Hostel Facilities (HF), Food (FD), Personality Development (PD), and Ethical Awareness (EA), where 1 being the lowest rating and 5 being the highest. According to the overall rating of each college i.e the sum of the ratings got by a college in all five attributes, the college which was rated highest was tagged as the “most aspiring” college and the one which was rated least was tagged as the “under-developed”. The following bar graph shows the details about the number of people for each given ratings.



Further details known to us are:
1. All colleges got a rating of 5 in at most three attributes.
2. No college got an overall rating of less than 12.
3. Each of the five colleges got the rating of both 2 and 4 at least once in some of the attribute(s).

Q.45 [11594329]
Which of the following cannot be an overall rating of the college tagged as the “under-developed”?

1 ○ 12

2 ○ 13

3 ○ 15

4 ○ All are possible

Solution:
Correct Answer : 4

Answer key/Solution

In the previous parts, we have noticed that 12 and 15 can be an overall rating of the college tagged as the "under-developed"
Let's check for 13:-

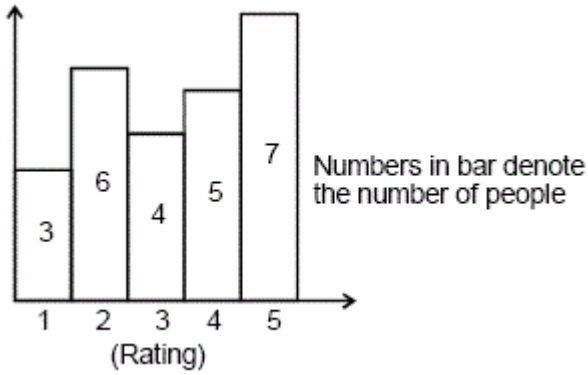
	P	Q	R	S	T
	2	2	2	2	2
	4	4	4	4	4
	5	5	5	3	5
	5	5	3	3	1
	5	3	1	2	1
Total	21	19	15	14	13

∴ All are possible.

Bookmark FeedBack

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

Five MBA colleges- P, Q, R, S, and T – were rated from 1 to 5 in five different attributes – Placement (PL), Hostel Facilities (HF), Food (FD), Personality Development (PD), and Ethical Awareness (EA), where 1 being the lowest rating and 5 being the highest. According to the overall rating of each college i.e the sum of the ratings got by a college in all five attributes, the college which was rated highest was tagged as the "most aspiring" college and the one which was rated least was tagged as the "under-developed". The following bar graph shows the details about the number of people for each given ratings.



Further details known to us are:
1. All colleges got a rating of 5 in at most three attributes.
2. No college got an overall rating of less than 12.
3. Each of the five colleges got the rating of both 2 and 4 at least once in some of the attribute(s).

Q.46 [11594329]
If three of the five colleges got their overall rating as distinct prime numbers, then what could be the possible sum of the ratings of the colleges tagged as the "most aspiring" and the "under-developed"?

1 ○ 33

2 ○ 31

3 ○ 36

4 ○ 30

Solution:
Correct Answer : 1
Since three of the five colleges got their overall rating as distinct prime numbers then it must be the case mentioned in answer (63), there minimum rating was 12 and maximum rating was 21.

The sum is:- 12 + 21 = 33.

Answer key/Solution

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

A chess tournament is taking place at the college club, and the players at all four of the tables are engaged in their fourth game against their prospective opponents. Tables are placed in a row adjacent to each other. The arrangement is such that the opponents are facing each other i.e. one is facing the North direction and the other is facing South. The players with white pieces are: Shahrukh, Sanjay, Saif and Shakti and all are facing the same direction. The players with black pieces are: Salman, Sunny, Sunil and Sohail, they all are facing the same direction. The current scores are 3 : 0, 2.5 : 0.5, 2 : 1, and 1.5 : 1.5 (**Note:** Tied games result in a score of 0.5 points for each player and each win awards 1 point whereas on losing, a player gets 0 point).

Further information:
(i) The player who is using the white pieces at table 4 is Shakti and the current score at table 4 is not 2 : 1.
(ii) Saif is playing at the table to the right of Sohail who has lost all of his games until now.
(iii) Sunil who is not in the lead over his opponent, has not been in a tied game.
(iv) Salman is in lead over his opponent.
(v) Sanjay is playing against Sunny.

Q.47 [11594329]
What table is Sohail playing at, if he is facing the North direction, and what is the score at that table?

1 ○ Table 1, 2.5 : 1.5

2 ○ Table 2, 3 : 0

3 ○ Table 1, 3 : 0

4 ○ Cannot be determined

Solution:

Correct Answer : 4

Answer key/Solution

Let players with black pieces are facing north and players with white pieces are facing south.
By (i), Shakti is at table 4 and his table score is either 3 : 0, 2.5 : 0.5, or 1.5 : 1.5.
By (iii), Sunil's table score is either 3 : 0, 2 : 1 or 2.5 : 0.5.
By (iv), since Salman is leading, therefore, his score is either 2.5 : 0.5, 3 : 0 or 2 : 1.
Now by (ii) or (v), Saif is playing at the table to the right of Sohail, and has lost all his matches.
Therefore, his tables score is definitely 3 : 0 and Sanjay is playing against Sunny.
Therefore, possible arrangements could be:

Case 1:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Saif	Sanjay	Shakti	South ↓
Sohail	Salman/Sunil	Sunny	Sunil/Salman	North ↑
3 : 0	2 : 1	1.5 : 1.5	2.5 : 0.5	

Case 2:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Sanjay	Saif	Shakti	South ↓
Sohail	Sunny	Salman/Sunil	Sunil/Salman	North ↑
3 : 0	1.5 : 1.5	2 : 1	2.5 : 0.5	

Case 3:

Table 1	Table 2	Table 3	Table 4	
Sanjay	Shahrukh	Saif	Shakti	South ↓
Sunny	Sohail	Salman/Sunil	Sunil/Salman	North ↑
1.5 : 1.5	3 : 0	2 : 1	2.5 : 0.5	

Case 4:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Sanjay	Saif	Shakti	North ↓
Salman/Sunil	Sunny	Sunil/Salman	Sohail	South ↑
2 : 1 / 2.5 : 0.5	1.5 : 1.5	2.5 : 0.5 / 2 : 1	3 : 0	
Other cases are also possible.				

If Sohail is facing the North direction, then he is playing at either table 1 or table 2 and his scores at these tables will be 3 : 0 and 3 : 0 respectively. Hence, cannot be determined.

Bookmark FeedBack

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

A chess tournament is taking place at the college club, and the players at all four of the tables are engaged in their fourth game against their prospective opponents. Tables are placed in a row adjacent to each other. The arrangement is such that the opponents are facing each other i.e. one is facing the North direction and the other is facing South. The players with white pieces are: Shahrukh, Sanjay, Saif and Shakti and all are facing the same direction. The players with black pieces are: Salman, Sunny, Sunil and Sohail, they all are facing the same direction. The current scores are 3 : 0, 2.5 : 0.5, 2 : 1, and 1.5 : 1.5 (**Note:** Tied games result in a score of 0.5 points for each player and each win awards 1 point whereas on losing, a player gets 0 point).

Further information:
(i) The player who is using the white pieces at table 4 is Shakti and the current score at table 4 is not 2 : 1.
(ii) Saif is playing at the table to the right of Sohail who has lost all of his games until now.
(iii) Sunil who is not in the lead over his opponent, has not been in a tied game.
(iv) Salman is in lead over his opponent.
(v) Sanjay is playing against Sunny.

Q.48 [11594329]
Whose score is highest among all the players if Shahrukh is playing against Sunil?

1 ○ Salman

2 ○ Saif

3 ○ Shakti

4 ○ Shahrukh

Solution:
Correct Answer : 3

Answer key/Solution

Let players with black pieces are facing north and players with white pieces are facing south.
By (i), Shakti is at table 4 and his table score is either 3 : 0, 2.5 : 0.5, or 1.5 : 1.5.
By (iii), Sunil's table score is either 3 : 0, 2 : 1 or 2.5 : 0.5.
By (iv), since Salman is leading, therefore, his score is either 2.5 : 0.5, 3 : 0 or 2 : 1.
Now by (ii) or (v), Saif is playing at the table to the right of Sohail, and has lost all his matches.
Therefore, his tables score is definitely 3 : 0 and Sanjay is playing against Sunny.
Therefore, possible arrangements could be:

Case 1:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Saif	Sanjay	Shakti	South ↓
Sohail	Salman/Sunil	Sunny	Sunil/Salman	North ↑
3 : 0	2 : 1	1.5 : 1.5	2.5 : 0.5	

Case 2:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Sanjay	Saif	Shakti	South ↓
Sohail	Sunny	Salman/Sunil	Sunil/Salman	North ↑
3 : 0	1.5 : 1.5	2 : 1	2.5 : 0.5	

Case 3:

Table 1	Table 2	Table 3	Table 4	
Sanjay	Shahrukh	Saif	Shakti	South ↓
Sunny	Sohail	Salman/Sunil	Sunil/Salman	North ↑
1.5 : 1.5	3 : 0	2 : 1	2.5 : 0.5	

Case 4:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Sanjay	Saif	Shakti	North ↓
Salman/Sunil	Sunny	Sunil/Salman	Sohail	South ↑
2 : 1 / 2.5 : 0.5	1.5 : 1.5	2.5 : 0.5 / 2 : 1	3 : 0	
Other cases are also possible.				

If Shahrukh is playing against Sunil, then Shakti's score is highest among all the given players.

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

A chess tournament is taking place at the college club, and the players at all four of the tables are engaged in their fourth game against their prospective opponents. Tables are placed in a row adjacent to each other. The arrangement is such that the opponents are facing each other i.e. one is facing the North direction and the other is facing South. The players with white pieces are: Shahrukh, Sanjay, Saif and Shakti and all are facing the same direction. The players with black pieces are: Salman, Sunny, Sunil and Sohail, they all are facing the same direction. The current scores are 3 : 0, 2.5 : 0.5, 2 : 1, and 1.5 : 1.5 (**Note:** Tied games result in a score of 0.5 points for each player and each win awards 1 point whereas on losing, a player gets 0 point).

Further information:
(i) The player who is using the white pieces at table 4 is Shakti and the current score at table 4 is not 2 : 1.
(ii) Saif is playing at the table to the right of Sohail who has lost all of his games until now.
(iii) Sunil who is not in the lead over his opponent, has not been in a tied game.
(iv) Salman is in lead over his opponent.
(v) Sanjay is playing against Sunny.

Q.49 [11594329]

Which player has black pieces and the highest score?

1 ○ Salman

2 ○ Sunny

3 ○ Sunil

4 ○ Sohail

Solution:

Correct Answer : 1

Answer key/Solution

Let players with black pieces are facing north and players with white pieces are facing south.
By (i), Shakti is at table 4 and his table score is either 3 : 0, 2.5 : 0.5, or 1.5 : 1.5.
By (iii), Sunil's table score is either 3 : 0, 2 : 1 or 2.5 : 0.5.
By (iv), since Salman is leading, therefore, his score is either 2.5 : 0.5, 3 : 0 or 2 : 1.
Now by (ii) or (v), Saif is playing at the table to the right of Sohail, and has lost all his matches.
Therefore, his tables score is definitely 3 : 0 and Sanjay is playing against Sunny.
Therefore, possible arrangements could be:

Case 1:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Saif	Sanjay	Shakti	South ↓
Sohail	Salman/Sunil	Sunny	Sunil/Salman	North ↑
3 : 0	2 : 1	1.5 : 1.5	2.5 : 0.5	

Case 2:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Sanjay	Saif	Shakti	South ↓
Sohail	Sunny	Salman/Sunil	Sunil/Salman	North ↑
3 : 0	1.5 : 1.5	2 : 1	2.5 : 0.5	

Case 3:

Table 1	Table 2	Table 3	Table 4	
Sanjay	Shahrukh	Saif	Shakti	South ↓
Sunny	Sohail	Salman/Sunil	Sunil/Salman	North ↑
1.5 : 1.5	3 : 0	2 : 1	2.5 : 0.5	

Case 4:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Sanjay	Saif	Shakti	North ↓
Salman/Sunil	Sunny	Sunil/Salman	Sohail	South ↑
2 : 1 / 2.5 : 0.5	1.5 : 1.5	2.5 : 0.5 / 2 : 1	3 : 0	
Other cases are also possible.				

Salman will have the highest score.

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

A chess tournament is taking place at the college club, and the players at all four of the tables are engaged in their fourth game against their prospective opponents. Tables are placed in a row adjacent to each other. The arrangement is such that the opponents are facing each other i.e. one is facing the North direction and the other is facing South. The players with white pieces are: Shahrukh, Sanjay, Saif and Shakti and all are facing the same direction. The players with black pieces are: Salman, Sunny, Sunil and Sohail, they all are facing the same direction. The current scores are 3 : 0, 2.5 : 0.5, 2 : 1, and 1.5 : 1.5 (**Note:** Tied games result in a score of 0.5 points for each player and each win awards 1 point whereas on losing, a player gets 0 point).

Further information:
(i) The player who is using the white pieces at table 4 is Shakti and the current score at table 4 is not 2 : 1.
(ii) Saif is playing at the table to the right of Sohail who has lost all of his games until now.
(iii) Sunil who is not in the lead over his opponent, has not been in a tied game.
(iv) Salman is in lead over his opponent.
(v) Sanjay is playing against Sunny.

Q.50 [11594329]
Who is the winning player at Table 4?

1 ○ Salman

2 ○ Shakti

3 ○ Shahrukh

4 ○ Either (1) and (2)

Solution:
Correct Answer : 4

Answer key/Solution

Let players with black pieces are facing north and players with white pieces are facing south.
By (i), Shakti is at table 4 and his table score is either 3 : 0, 2.5 : 0.5, or 1.5 : 1.5.
By (iii), Sunil's table score is either 3 : 0, 2 : 1 or 2.5 : 0.5.
By (iv), since Salman is leading, therefore, his score is either 2.5 : 0.5, 3 : 0 or 2 : 1.
Now by (ii) or (v), Saif is playing at the table to the right of Sohail, and has lost all his matches.
Therefore, his tables score is definitely 3 : 0 and Sanjay is playing against Sunny.
Therefore, possible arrangements could be:

Case 1:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Saif	Sanjay	Shakti	South ↓
Sohail	Salman/Sunil	Sunny	Sunil/Salman	North ↑
3 : 0	2 : 1	1.5 : 1.5	2.5 : 0.5	

Case 2:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Sanjay	Saif	Shakti	South ↓
Sohail	Sunny	Salman/Sunil	Sunil/Salman	North ↑
3 : 0	1.5 : 1.5	2 : 1	2.5 : 0.5	

Case 3:

Table 1	Table 2	Table 3	Table 4	
Sanjay	Shahrukh	Saif	Shakti	South ↓
Sunny	Sohail	Salman/Sunil	Sunil/Salman	North ↑
1.5 : 1.5	3 : 0	2 : 1	2.5 : 0.5	

Case 4:

Table 1	Table 2	Table 3	Table 4	
Shahrukh	Sanjay	Saif	Shakti	North ↓
Salman/Sunil	Sunny	Sunil/Salman	Sohail	South ↑
2 : 1 / 2.5 : 0.5	1.5 : 1.5	2.5 : 0.5 / 2 : 1	3 : 0	
Other cases are also possible.				

Either Salman or Shakti is the winning player at table 4.

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Sec 3

Q.51 [11594329]

R bought a washing machine by paying Rs.5,000 as downpayment and Rs.28,800 in two equal installments at 20% interest compounded anually at the end of each year. Find the cost (in Rs.) of machine without installments.

1 ○ 27000

2 ○ 30000

3 ○ 25000

4 ○ 35000

Solution:
Correct Answer : 1

Answer key/Solution

Mr. R has to repay a total of 28800 in two installments. So each installment will be of Rs. 14400 each. Principal borrowed is $P = \frac{14400}{1.2} + \frac{14400}{(1.2)^2} = 12000 + 10000$

So, total cost of washing machine is 22000 + 5000 = Rs. 27000.

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Q.52 [11594329]

Ravi's present age is 50% of Charu's present age. If a few years ago Ravi's age was 33.33% of the Charu's age, then find out the percentage change in Ravi's age over the time.

Solution:
Correct Answer : 100

Answer key/Solution

Suppose Ravi's present age is x
∴ Charu's present age = 2x
Suppose 'y' years ago
(2x – y) × 33.33% = (x – y)

$\Rightarrow (2x - y) \times \frac{1}{3} = x - y$

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

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

∴ 'y' years ago, Ravi's age was $\left(x - \frac{x}{2}\right) = \frac{x}{2}$

Hence, percentage change in Ravi's present age $= \frac{\frac{x}{2}}{\frac{x}{2}} \times 100 = 100\%$

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Q.53 [11594329]

A person can complete a work in 257 days. First day, that person worked alone. Second day another person joined him who can complete the whole work alone in 128.5 days. Third day one more person joined them, whose efficiency is double as compared to the second person, and so on. Find the number of days required to complete the work.

1 ○ $7\frac{10}{127}$

2 ○ $8\frac{10}{128}$

3 ○ $7\frac{10}{255}$

4 ○ 8

Solution:

Correct Answer : 3

Answer key/Solution

Suppose work to be done be 257 units

$\therefore$ Efficiency of 1st person $= \frac{257}{257} = 1$ unit/day

Efficiency of IInd person $= \frac{257}{128.5} = 2$ units/day

Efficiency of IIIrd person = 4 units/day
Efficiency of IVth person = 8 units/day
and so on.
$\therefore$ Adding work done on consecutive days = 1 + 3 + 7 + 15 + 31 + 63 + 127 + 255
But in first 7 days, 247 units of work is already done.

Hence, remaining 10 units will be completed in $\frac{10}{255}$ days.

Total time taken is $7\frac{10}{255}$ days.

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Q.54 [11594329]

Find the value of $\log_b(2x + y)^{\log_a x \times \log_x y \times \log_y b}$.

1 ○ $\log_b(2x + y)$

2 ○ $\log_a(2x + y)$

3 ○ $\frac{1}{\log_a(2x + y)}$

4 ○ 2x + y

Solution:
Correct Answer : 2

Answer key/Solution

$\log_b(2x+y)^{\log_a x \log_x y \log_y b}$

$= \log_b(2x+y)^{\frac{\log x \log y \log b}{\log a \log x \log y}}$

$= \log_b(2x+y)^{\log_a b}$

$= \frac{\log b}{\log a} \times \frac{\log(2x+y)}{\log b} = \log_a(2x+y)$

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Q.55 [11594329]

If a, b and c be non-zero numbers such that the average of 2a and 3b equals the average of b and 3c, then what is the average of a and b?

1 ○ 3c/2

2 ○ 3c

3 ○ 3c/4

4 ○ c/2

Solution:
Correct Answer : 3

Answer key/Solution

$\frac{2a+3b}{2} = \frac{b+3c}{2}$

$\Rightarrow 2a+2b = 3c$

$\Rightarrow a+b = \frac{3c}{2}$

$\Rightarrow \frac{a+b}{2} = \frac{3c}{4}$

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Q.56 [11594329]

While walking at a speed of 25 km/hr, Ramesh reaches his office 5 minutes late. If he were walking at the speed of 30 km/hr, he would have reached his office 10 minutes early. At what speed (in km/ hr) should he be walking to reach office on time?

1 ○ 26.47

2 ○ 16.67

3 ○ 33.33

4 ○ 23.42

Solution:
Correct Answer : 1

Answer key/Solution

Let distance and time be D and T respectively.

Now, $\frac{D}{25}-\frac{D}{30}=\frac{15}{60}\Rightarrow D=15\times\frac{5}{2}$

And time taken in first case = $\frac{15\times\frac{5}{2}}{25}=\frac{3}{2}\times 60=90$ minutes

Therefore, required time = 85 minutes

So, his speed to reach on time $=\frac{D}{T}=\frac{15\times\frac{5}{2}}{\frac{17}{12}}$ = 26.47 km/h

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Q.57 [11594329]

If n is a number having exactly 7 factors, then find the number of factors of n^2.

Solution:
Correct Answer : 13

Answer key/Solution

If n has 7 factors i.e (6+1) × 1, it is of the type $(prime)^6$.
So, n^2 will be of type $(prime)^{12}$. So, number of factors will be 13.

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Q.58 [11594329]

A class has 20 boys and 10 girls. If the average weight of boys are interchanged with average weight of girls in the class, the new average weight of the class increases by 2. The average of average weight of boys and average weight of girls is how much more than the average weight of the class?

1 ○ 8

2 ○ 5

3 ○ 3

4 ○ 1

Solution:
Correct Answer : 4

Answer key/Solution

Let the average weight of boys be x and that of girls be y.
Sum of the weight of boys = 20x
Sum of the weight of girls = 10y

$\therefore$ Average weight of the class = $\frac{20x+10y}{30}$

Now if their average weights are interchanged then average weight of the class = $\frac{20y+10x}{30}$

$\therefore \frac{20x+10y}{30}+2=\frac{20y+10x}{30}$

$y - x = 6.$

Now, $\frac{x+y}{2}-\left(\frac{20x+10y}{30}\right)=\frac{y-x}{6}=\frac{6}{6}=1.$

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Q.59 [11594329]

If X and Y started a business by investing Rs. 300 and Rs. 500 respectively. After 4 months Z also invested in the business with Rs. 800. If after one year the profit earned in the business is Rs.4,000, then the share (in Rs.) of Y and Z in it taken together is

Solution:
Correct Answer : 3100

Answer key/Solution

	x	y	z
Investment ratio	300	500	800
time	12	12	8

Therefore, ratio = 9 : 15 : 16

So, share of Y and Z together in it = $\frac{31}{40}\times 4000$ =Rs.3100

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Q.60 [11594329]

Garvit was used to sell onions at marked price only. But due to excessive supply of onions, he was forced to offer 50% discount on it due to which his profit percentage comes down to 1/3rd of the original profit percentage. What is the ratio of marked price to the cost price of the onions?

1 ○ 5 : 1

2 ○ 6 : 1

3 ○ 4 : 1

4 ○ 8 : 1

Solution:

Correct Answer : 3

Answer key/Solution

Let marked price = 100 and cost price be C.
Discount offered = 50
So, selling price = 50

Also, $\frac{50-C}{C}\times 100=\frac{1}{3}\times\frac{100-C}{C}\times 100$

Solving it, we get C = 25
So, required ratio = 100 : 25 = 4 : 1

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Q.61 [11594329]

Vikram bought two different varieties of rice R1 and R2 costing Rs. 20/kg and Rs. 50/kg respectively. He mixes them in the ratio 3 : 2 and sells them at Rs. 50/kg. What is his profit percentage (up to two decimal places)?

Solution:

Correct Answer : 56.25

Answer key/Solution

Let Vikram mixes 3 kg and 2 kg of R1 and R2 respectively.

So, cost price of mixture per kg $=\frac{(20\times 3\ +50\times 2)}{5}$ = Rs. 32

Selling price = Rs. 50

So, profit percentage = $\frac{50-32}{32}\times 100=56.25$

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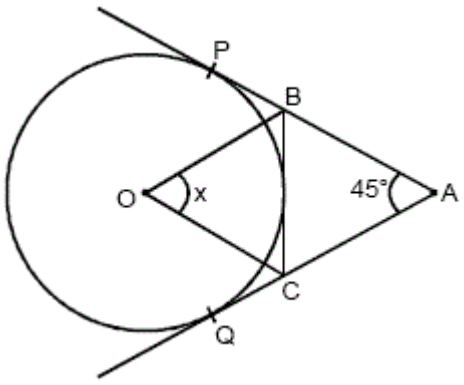
Q.62 [11594329]



AP, AQ and BC are three tangents to the circle, having centre O, as shown in the above figure. Find the measure (in degree) of angle (BOC).

1 ○ 67.5

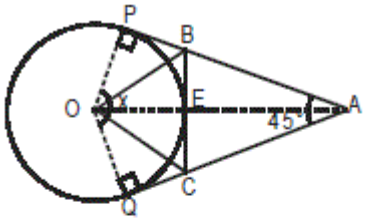
2 ○ 90

3 ○ 45

4 ○ 30

Solution:
Correct Answer : 1

Answer key/Solution



ΔOPA and ΔOQA are congruent

So, $\angle OAP = \angle OAQ = \frac{45}{2} = 22.5^\circ$

$\therefore \angle POA = 180^\circ - (90 + 22.5) = 67.5^\circ$

Also, ΔOPB and ΔOEB are congruent

So, $\angle BOE = \angle BOP = \frac{67.5}{2}$

Similarly, $\angle COE = \angle COQ = \frac{67.5}{2}$

$\therefore \angle BOC = \angle BOE + \angle COE = 67.5$

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Q.63 [11594329]

A special bike is designed in such a way that the front wheel travels two more rounds as compared to the rear wheel when the bike travels 80 m. Had the circumference of front wheel was 25% more and that of rear wheel was 3/5th times more than the original, then the front wheel would have travelled 3 more rounds than the rear wheel for the same given distance. What is the circumference of the rear wheel?

1 ○ 8 m

2 ○ 10 m

3 ○ 16 m

4 ○ None of these

Solution:

Correct Answer : 2

Answer key/Solution

Let rear wheel take x rounds, then front wheel will take x + 2 rounds.

The circumference of front wheel = $\frac{80}{x+2}$

The circumference of rear wheel = $\frac{80}{x}$

Now, new circumference of front wheel will be = $\frac{5}{4}\times\frac{80}{x+2}=\frac{100}{x+2}$

New circumference of rear wheel will be = $\frac{8}{5}\times\frac{80}{x}=\frac{128}{x}$

So, number of rounds of front wheel = $\frac{80}{\frac{100}{x+2}}=\frac{4}{5}(x+2)$

and number of rounds of rear wheel = $\frac{80}{\frac{128}{x}}=\frac{5}{8}x$

$\frac{4}{5}(x+2)-\frac{5}{8}x=3 \Rightarrow x=8$

Circumference of rear wheel = $\frac{80}{x}=\frac{80}{8}=10$ m

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Q.64 [11594329]

If the 2nd term of a Geometric Progression is 3.5 and the 5th term is 2401/16, then find the 4th term of the same series.

1 ○ 343/4

2 ○ 343/8

3 ○ 49/8

4 ○ 49/16

Solution:
Correct Answer : 2

Answer key/Solution

$$\frac{ar^4}{ar} = \frac{2401}{16 \times 3.5} = \frac{343}{8} = r^3$$
$$\Rightarrow r = \frac{7}{2}$$

Therefore, a = 3.5 × 2 / 7 = 1

Therefore, 4th term = ar^3 = 343/8

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Q.65 [11594329]
Find the number of perfect squares less than $(14141)_5$.

1 ○ 36

2 ○ 35

3 ○ 34

4 ○ Cannot be determined

Solution:
Correct Answer : 2

Answer key/Solution

First lets convert $(14141)_5$ in base 10 as
$1 \times 5^4 + 4 \times 5^3 + 1 \times 5^2 + 4 \times 5^1 + 1 \times 5^0 = 1171 = 34.21^2$
So, 35 perfect squares are there less than the given number as 0 is also counted as a perfect square.

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Q.66 [11594329]
M = 728y15x324 is a 10-digit natural number, where x and y are single digits. How many values can (x + y) take for which M is a multiple of 48?

Solution:
Correct Answer : 0

Answer key/Solution

For number to be divisible by 48, it must be divisible by 16 and 3 both. For number to be divisible by 16, it must be divisible by 8 also and since 'M' is not divisible by 8 (checking the last 3 digits), it can never be divisible by 48 for any value of x and y.

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Q.67 [11594329]

The expression $n^3 - 6n^2 + 5n$, where n is an integer greater than 5, is always divisible by which of the following?

1 ○ 5

2 ○ 6

3 ○ 7

4 ○ 9

Solution:

Correct Answer : 2

Answer key/Solution

$n^3 - 6n^2 + 5n = n(n^2 - 6n + 5) = n(n - 1)(n - 2) - 3n(n - 1)$
The product of n, n – 1 and n – 2 be always divisible by 6.
The product of 2 consecutive integers n and n – 1 will be even as one of them is even.
Hence 3n(n – 1) will be divisible by 6.
So, sum of 2 multiples of 6 will be always divisible by 6.

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Q.68 [11594329]

If a and b are the roots of the equation $x^2 - 4x - 5 = 0$, the which of the following equation has its roots as a^3 and b^3?

1 ○ $x^2 - 5x + 6 = 0$

2 ○ $x^2 - 24x + 25 = 0$

3 ○ $x^2 - 124x + 125 = 0$

4 ○ $x^2 - 124x - 125 = 0$

Solution:

Correct Answer : 4

Answer key/Solution

Roots, a and b, of equation $x^2 - 4x - 5 = 0$ are -1 and 5.
So, a^3 and b^3 becomes -1 and 125.
So, equation for these two as roots is $x^2 - 124x - 125 = 0$

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Q.69 [11594329]

Excluding stoppages, the speed of a bus is 120 km/h and including stoppages, it is 90 km/h. For how many minutes does the bus stop per hour?

Solution:

Correct Answer : 15

Answer key/Solution

Excluding stoppages,
bus travels 120 km in one hour.
Including stoppages, bus travels 90 km in one hour.
So, bus stops for 30 km in one hour.
and speed of bus is 120 km/h

So, bus stops for $\frac{30}{120} = \frac{1}{4}$ hr = 15 minutes.

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Q.70 [11594329]

Sum of the roots of a quadratic equation is 1 less than the product of its roots, where one of the roots is 1 more than the other root. Find the constant term of the qudaratic equation.

1 ○ either 2 or 3

2 ○ either 6 or 0

3 ○ either 0 or -1

4 ○ None of these

Solution:

Correct Answer : 2

Answer key/Solution

Let roots of the equation be a and a + 1.
So, a + a + 1 = a(a + 1) - 1
This implies, a = -1 and 2
So, roots can be either -1, 0 or 2, 3
So, equations are
$(x + 1)(x - 0) = 0$ or $(x - 2)(x - 3) = 0$
$x^2 + x = 0$ or $x^2 - 5x + 6 = 0$
So, constant terms can be either 6 or 0.

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Q.71 [11594329]

A man bought 20 toffees in a rupee. How many should he sell in a rupee to earn a loss of 16.66%?

1 ○ 18

2 ○ 24

3 ○ 25

4 ○ 30

Solution:
Correct Answer : 2

Answer key/Solution

Cost of 20 toffees is Re 1

$\therefore$ Cost of 1 toffee is Rs. $\frac{1}{20}$

Loss = 16.66% = $\frac{1}{6}$

$\therefore$ S.P. of 1 toffee = $\frac{1}{20} \times \frac{5}{6} = \text{Rs.} \frac{1}{24}$

$\therefore$ In a rupee, he should sell 24 toffees.

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Q.72 [11594329]

A man was carrying Rs. 'x' and 'y' paise. He spent Rs. 9 and 30 paise on some candies and was left with Rs. '3y' and '2x' paise. Find the value of x.

Solution:
Correct Answer : 40

Answer key/Solution

Initial rupees with the man was x and after spending Rs. 9, he was left with Rs. 3y. Therefore $x > 3y \Rightarrow 2x > y$.
Now, initial paise with him was y and after spending paise 30, he was left with paise 2x, which is more than the initial paise. This is only possible if Rs. 1 is converted into paise while spending paise 30. So framing separate equations for rupees and paise, we get
$(x - 1) - 9 = 3y$ & $(y + 100) - 30 = 2x$
Solving we get $x = 40$ and $y = 10$.

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Q.73 [11594329]

If a square is selected from an 8 × 8 chessboard, then find the probability that the selected square is of size 4 × 4.

1 ○ 25/204

2 ○ 15/102

3 ○ 7/102

4 ○ 2/51

Solution:
Correct Answer : 1

Answer key/Solution

On chess board these are 204 square of all sizes and the number of 4 × 4 square are 25

$\therefore$ Required probability = $\frac{25}{204}$

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Q.74 [11594329]

There are some students in two rooms - A and B. If 10 students are sent from room A to room B, the number of students in each room becomes equal. While if 20 students are sent from room B to room A, the number of students in room A becomes double the number of students in room B. Find the number of students in room A and room B respectively.

1 ○ 80, 60

2 ○ 100, 80

3 ○ 70, 35

4 ○ 60, 40

Solution:
Correct Answer : 2

Answer key/Solution

Let there are x students in room A and y students in room B

$x - 10 = y + 10$ ... (i)

$x + 20 = 2(y - 20)$ ... (ii)

On solving (i) and (ii), we get x = 100 and y = 80.

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Q.75 [11594329]

The monthly telephone bills of a company has a fixed tariff of Rs. 250 for up to 50 outgoing calls, above which charge of Rs. 1.25 per call needs to be paid. If the ratio of the monthly bills paid by A and B is 2 : 3 and the number of outgoing calls by A is 90, then what is the total number of outgoing calls made by B in that month?

Answer key/Solution

Solution:

Correct Answer : 210

$\Rightarrow$ Bill of A = 250 + (90 – 50) 1.25 = 300

Ratio of Bills A : B

300 : x = 2 : 3

B = 450

$\therefore$ No of calls made by B = $50 + \frac{(450-250)}{1.25} = 210.$

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