

Mock CAT - 02 2018

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VARC

LRDI

QA

Sec 1

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

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For decades, astronomers have come at that question by confining their search to organisms broadly similar to the ones here. In 1976, NASA's Viking landers examined soil samples on Mars, and tried to animate them using the kind of organic nutrients that Earth microbes like, with inconclusive results. Later this year, the European Space Agency's ExoMars Trace Gas Orbiter will begin scoping out methane in the Martian atmosphere, which could be produced by Earth-like bacterial life. NASA's Mars 2020 rover will likewise scan for carbon-based compounds from possible past or present Mars organisms.

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To open our minds, we need to go back to basics and consider the fundamental conditions that are necessary for life. First, it needs some form of energy, such as from volcanic hot springs or hydrothermal vents. That would seem to rule out any planets or moons lacking a strong source of internal heat. Life also needs protection from space radiation, such as an atmospheric ozone layer. Many newly discovered Earth-size worlds, including ones around TRAPPIST-1 and Proxima Centauri, orbit red dwarf stars whose powerful flares could strip away a planet's atmosphere. Studies by the James Webb Space Telescope (JWST), set to launch next year, will reveal whether we should rule out these worlds, too. Finally, everything we know about life indicates that it requires some kind of liquid solvent in which chemical interactions can lead to self-replicating molecules. Water is exceptionally effective in that regard. It facilitates making and breaking chemical bonds, assembling proteins or other structural molecules, and – for an actual organism – feeding and getting rid of waste. That's why planetary scientists currently focus on the 'habitable zone' around stars, the locations where a world could have the right temperature for liquid water on its surface.

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Q.1
Why is it challenging for humans to find life beyond earth?

- 1 The universe is too complex to find something one has never seen before.
- 2 The scientific knowhow and resources on Earth are not ample to find life beyond earth.
- 3 Aliens are different from the organisms found on earth and hence can hide effectively.

4 The environment on the other planets might have enabled life to flourish under water and hence undetectable.

Solution:

Correct Answer: 1

Genre: Science and Technology

■ Bookmark

Answer key/Solution

It's an easy question if one has paid attention to the main idea of the passage. The entire passage focuses on the possibility that humans don't know what they are looking for.

The correct answer is 1. The first paragraph states that since the organisms are so complex, we don't know what to look for. It also highlights the limitation of the human knowledge. 2 is wrong because there is no reference to the scientific know-how of humans and it is beyond the scope of the passage3 and 4 are mentioned in the passage as speculations. They don't represent the author's main focus. They are, in fact, presented as reasons why we must try to look for the unknown. Hence, 1 remains the correct answer.

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Q.2
Which of the following could not be a solution to the problem of inability to find life beyond earth?

- 1 Finding the availability of some source of energy to sustain life
- $2 \bigcirc$ Improving the skill set and knowledge about life beyond earth
- 3 Working on the fundamental conditions that support life

4 Thinking beyond known examples of biosignatures

Solution:

Correct Answer: 2

Genre: Science and Technology

■ Bookmark

Answer key/Solution

It's an extremely easy factual question.

1, 3, and 4 are mentioned in the last two paragraphs. 1 is clearly mentioned fourth paragraph that energy is an important need for life. 3 also can be inferred from the first line of the fourth paragraph. 4 can be inferred from the last line of the third paragraph. 2 is not mentioned anywhere in the passage with relation to the question at hand.

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Q.3
Why have scientists ruled out the presence of life on earth size worlds TRAPPIST-1 and Proxima Centauri?

- 1 JWST doesn't have enough data to be provided to the scientists since it will be launched next year.
- $2 \bigcirc$ These worlds don't show the presence of any kind of liquid solvent on their surfaces.

There is no form of energy like volcanic hot springs or hydrothermal vents that would support life on these worlds.

These worlds have no protection from space radiations.

Solution:
Correct Answer: 4
Genre: Science and Technology

Answer key/Solution

It's another very easy question which is directly mentioned in the passage.

The correct answer is 4. The last few lines of the fourth paragraph say that since protection from space radiation is not present in these worlds, the possibility of life reduces there. 1 is not mentioned as a reason. 2 and 4 are not mentioned with reference to these worlds specifically.

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Q.4
According to the planetary scientists, which of the following could be a 'habitable zone'?

1 A planet with ozone layer protection

2 A planet with some form of liquid to sustain life

3 A planet with the appropriate temperature

4 A planet with liquid water for sustaining life

Solution:

Correct Answer: 3

Genre: Science and Technology

■ Bookmark

Answer key/Solution

This is a moderate level question.

The correct answer is 3. Refer to the lines "That's why planetary scientists currently focus on the 'habitable zone' around stars, the locations where a world could have the right temperature for liquid water on its surface.". The focus is on the temperature and not on the presence of water per say. Even if the planet doesn't already have water, if the temperature is appropriate, it will help sustain water in the future. So, 3 is the correct choice. 2 and 4 are trap options. They are not the focus of the planetary scientists. The correct answer is 3. First line of the last paragraph says habitable zones are where the temperature is appropriate to maintain liquid water, like earth.

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Q.5
Which of the following can be inferred from the passage?

- 1 Once the presence of liquid water is detected on a planet, finding life as we know it will be probable.
- 2 Life can flourish under uncertain conditions and we have to broaden our belief system to embrace alien life on our planet.

- 3 Redefining our search parameters such as biosignatures will help our quest for alien life.
- 4 If we are to find life on other planets, we need to rethink our fundamental beliefs about living.

Correct Answer: 3

Genre: Science and Technology

■ Bookmark

Answer key/Solution

This is a typical inference based question with all the right traps.

First of all we need to use the method of elimination to choose the correct

option. 1 is clearly misleading. The option has two parts: Presence of liquid water and Probability of finding life. However 'life as we know it' is something the author keeps us cautioning about in order for humans to discover other forms of life. So, 1 isn't a logical conclusion. 2 is typically misleading option. It looks correct. However, 'broaden our belief system' and 'embrace life on our planet' combine to produce a very misleading sentence. The author talks about life on other planets primarily. 3 clearly reiterates the central premise of the passage. 4 is another misleading option as it talks about 'beliefs about living' and it misses out the word 'living being'. So, 3 is the correct answer.

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Q.6

According to the author, how can a scientist open his mind away from the traditional basis of finding life beyond earth?

1 A scientist should keep in mind that life beyond earth could be completely different from what we find on earth.

$2 \bigcirc$ A scientist needs to be more patient as the search may take a lot of time because the possibilities are numerous.				
3 \bigcirc A scientist needs to look for the availability of energy and water on the surface of the planet and protection from space radiation.				
$4 {\color{red} \bigcirc}$ A scientist needs to look beyond common biosignatures.				
Solution: Correct Answer : 1 Genre: Science and Technology	■ Bookmark Answer key/Solution			

This is an easy question. Questions life this basically ask us to look for an option that matches the main idea of the passage.

The correct answer is 1. The third paragraph says that scientists have a standardized approach to find life but biology can be different beyond the earth's surface. Thus 1 is correct. 4 may look close but it is merely an example and 1 is more detailed. 2 is out of scope. 3 is the standardised approach scientists follow and they need to look beyond that.

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

Not all political thinkers have accepted that ideas and ideologies are of much importance. Politics has sometimes been thought to be little more than a naked struggle for power. If this is true, political ideas are mere propaganda, a form of words or slogans designed to win votes or attract popular support. Ideas and ideologies are therefore simply 'window dressing', used to conceal the deeper realities of political life. This is certainly a position supported by behaviourism, the school of psychology associated with John B. Watson and B. F. Skinner. From the perspective of behaviourism, human beings are little more than biological machines, conditioned to act (or, more correctly, react) to external stimuli. The thinking subject, together with their ideas, values, feelings and intentions, is simply an irrelevance. A very similar view also informed 'dialectical materialism', the crude form of Marxism that dominated intellectual enquiry in the Soviet Union and other orthodox communist states. This held that political ideas can only be understood in the light of the economic or class interests of those who express them. Ideas have a 'material basis', they have no meaning or significance on their own. Orthodox Marxists therefore analyse politics strictly in terms of social class and treat political ideologies as nothing more than an expression of the interests of particular classes.

The opposite argument has also been put. John Maynard Keynes, for example, argued that the world is ruled by little other than the ideas of economists and political philosophers. As he put it in the closing pages of his General Theory: "Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back."

Far from dismissing ideas as being conditioned responses to practical circumstances, this position highlights the degree to which beliefs and theories provide the wellspring of human action. The world is ultimately ruled by 'academic scribblers'. Such a view suggests, for instance, that modern capitalism, in important respects, developed out of the classical economics of Adam Smith and David Ricardo, that Soviet communism was significantly shaped by the writing of Karl Marx and V. I. Lenin, and that the history of Nazi Germany can only be understood by reference to the doctrines advanced in Hitler's Mein Kampf.

In reality, both these accounts of political life are one-sided and inadequate. Political ideas are not merely a passive reflection of vested interests or personal ambition, but have the capacity to inspire and guide political action itself and so can shape material life. At the same time, political ideas do not emerge in a vacuum: they do not drop from the sky like rain. All political ideas are moulded by the social and historical circumstances in which they develop and by the political ambitions they serve. Quite simply, political theory and political practice are inseparably linked. Any balanced and persuasive account of political life must therefore acknowledge the constant interplay between ideas and ideologies on the one hand, and historical and material forces on the other.

Q.7 Which of the following can be inferred from the passage?
1 Humans merely react to their surroundings and their thoughts are not pertinent to their existence.
2 \bigcirc According to Marxism, understanding a person's economic motive and his position in the societal hierarchy is necessary to understand that person's ideology.

3 Everything significant that a man thinks of has its seeds in the ideas of his predecessor.

 $4 \bigcirc$ Political thought arises out of the intermingling of the concerned agent's interest, social surroundings and the past writings.

Solution:

Correct Answer : 4
Genre: Political Theory

■ Bookmark

Answer key/Solution

This is relatively an easy question if one goes through the last paragraph of the given passage. Refer to the closing sentence of the last paragraph -"Any balanced and persuasive account of political life must therefore acknowledge the constant interplay between ideas and ideologies on the one hand, and historical and material forces on the other." This clearly makes option 4 the correct answer. Option 1 is incorrect. Option 2 is incorrect as Marxism talks about the ideology of a particular class and not an individual. Option 3 eliminates 'a man's' relationship with his present social surroundings, therefore it is also incorrect.

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Q.8

If politics is not a naked struggle for power then which of the following must be false?

- A. The world is ruled by the ideas of leading economic and political philosophers.
- B. Political ideas are designed to influence others in order to promote a particular political view.
- C. Political ideas are just a veneer to hide the underlying power struggle of politics.

1 Only A			
2 Only C			

3 Only A and B

4 Only B and C

Solution:
Correct Answer: 4
Genre: Political Theory

Bookmark

Answer key/Solution

This is a moderate level question. One may refer to the 1st paragraph of the given passage to locate the answer. Refer to the following sentence- "Politics has sometimes been thought to be little more than a naked struggle for power. If this is true, political ideas are mere propaganda, a form of words or slogans designed to win votes or attract popular support. Ideas and ideologies are therefore simply 'window dressing', used to conceal the deeper realities of political life." Both statements, B and C can be located here. "The opposite argument has also been put. John Maynard Keynes, for example, argued that the world is ruled by little other than the ideas of economists and political philosophers." This particular sentence from the passage makes A incorrect.

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

Not all political thinkers have accepted that ideas and ideologies are of much importance. Politics has sometimes been thought to be little more than a naked struggle for power. If this is true, political ideas are mere propaganda, a form of words or slogans designed to win votes or attract popular support. Ideas and ideologies are therefore simply 'window dressing', used to conceal the deeper realities of political life. This is certainly a position supported by behaviourism, the school of psychology associated with John B. Watson and B. F. Skinner. From the perspective of behaviourism, human beings are little more than biological machines, conditioned to act (or, more correctly, react) to external stimuli. The thinking subject, together with their ideas, values, feelings and intentions, is simply an irrelevance. A very similar view also informed 'dialectical materialism', the crude form of Marxism that dominated intellectual enquiry in the Soviet Union and other orthodox communist states. This held that political ideas can only be understood in the light of the economic or class interests of those who express them. Ideas have a 'material basis', they have no meaning or significance on their own. Orthodox Marxists therefore analyse politics strictly in terms of social class and treat political ideologies as nothing more than an expression of the interests of particular classes.

The opposite argument has also been put. John Maynard Keynes, for example, argued that the world is ruled by little other than the ideas of economists and political philosophers. As he put it in the closing pages of his General Theory: "Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back."

Far from dismissing ideas as being conditioned responses to practical circumstances, this position highlights the degree to which beliefs and theories provide the wellspring of human action. The world is ultimately ruled by 'academic scribblers'. Such a view suggests, for instance, that modern capitalism, in important respects, developed out of the classical economics of Adam Smith and David Ricardo, that Soviet communism was significantly shaped by the writing of Karl Marx and V. I. Lenin, and that the history of Nazi Germany can only be understood by reference to the doctrines advanced in Hitler's Mein Kampf.

In reality, both these accounts of political life are one-sided and inadequate. Political ideas are not merely a passive reflection of vested interests or personal ambition, but have the capacity to inspire and guide political action itself and so can shape material life. At the same time, political ideas do not emerge in a vacuum: they do not drop from the sky like rain. All political ideas are moulded by the social and historical circumstances in which they develop and by the political ambitions they serve. Quite simply, political theory and political practice are inseparably linked. Any balanced and persuasive account of political life must therefore acknowledge the constant interplay between ideas and ideologies on the one hand, and historical and material forces on the other.

Q.9
According to the passage, which of the following is closest to being an academic scribbler?

1 A well regarded researcher whose ideas are lost in obscurity

2 An amateur researcher who produces a paper that is unconventional and does not follow the rigours of the research method

3 A thinker whose work goes on to shape the way others think about that particular domain

Correct Answer : 3
Genre: Political Theory

■ Bookmark

Answer key/Solution

This is also a moderate level question. One has to understand the way this phrase "academic scribblers" has been used in the passage. Refer to the second paragraph of the passage. An 'academic scribbler' is someone who intellectually influences or shapes the way of people's thinking like Adam Smith in case of economic theory or Karl Marx in case of communism. "Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back." 1 and 2 doesn't define 'academic scribbler' correctly. Option 4 is close but the phrase 'political research' makes it incorrect as an 'academic scribbler' can belong to any particular field.

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

Not all political thinkers have accepted that ideas and ideologies are of much importance. Politics has sometimes been thought to be little more than a naked struggle for power. If this is true, political ideas are mere propaganda, a form of words or slogans designed to win votes or attract popular support. Ideas and ideologies are therefore simply 'window dressing', used to conceal the deeper realities of political life. This is certainly a position supported by behaviourism, the school of psychology associated with John B. Watson and B. F. Skinner. From the perspective of behaviourism, human beings are little more than biological machines, conditioned to act (or, more correctly, react) to external stimuli. The thinking subject, together with their ideas, values, feelings and intentions, is simply an irrelevance. A very similar view also informed 'dialectical materialism', the crude form of Marxism that dominated intellectual enquiry in the Soviet Union and other orthodox communist states. This held that political ideas can only be understood in the light of the economic or class interests of those who express them. Ideas have a 'material basis', they have no meaning or significance on their own. Orthodox Marxists therefore analyse politics strictly in terms of social class and treat political ideologies as nothing more than an expression of the interests of particular classes.

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In reality, both these accounts of political life are one-sided and inadequate. Political ideas are not merely a passive reflection of vested interests or personal ambition, but have the capacity to inspire and guide political action itself and so can shape material life. At the same time, political ideas do not emerge in a vacuum: they do not drop from the sky like rain. All political ideas are moulded by the social and historical circumstances in which they develop and by the political ambitions they serve. Quite simply, political theory and political practice are inseparably linked. Any balanced and persuasive account of political life must therefore acknowledge the constant interplay between ideas and ideologies on the one hand, and historical and material forces on the other.

Q.10

After reading about the two contradictory schools of thought regarding the utility and origin of political ideas, we can infer that the author:

- $1 \bigcirc$ supports the view that political ideas have no value apart from hiding the hunger for political power.
- 2 believes that political ideas are neither a ploy to hide the struggle for power nor a tool to propagate the ideas of some dominant academician.
- $3 \bigcirc$ believes that the truth lies somewhere in the middle of these two schools of thought.

 $4 \bigcirc$ agrees with the Keynes and others on the fact that all political beliefs are based on the work done by the predecessors.

Solution:

Correct Answer : 3
Genre: Political Theory

■ Bookmark

Answer key/Solution

In case of the 1st argument, it is stated that political theory can be understood "... in the light of the economic or class interests of those who express them."

The 2nd argument states that it is the work of the academic scribblers who completely shapes the intellect of the people. Now, refer to the last paragraph of the passage -"In reality, both these accounts of political life are one-sided and inadequate. Political ideas are not merely a passive reflection of vested interests or personal ambition, but have the capacity to inspire and guide political action itself and so can shape material life. At the same time, political ideas do not emerge in a vacuum:". This clearly states that the author is hinting at something in between these two theories. Hence 3 is the correct answer.

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

Not all political thinkers have accepted that ideas and ideologies are of much importance. Politics has sometimes been thought to be little more than a naked struggle for power. If this is true, political ideas are mere propaganda, a form of words or slogans designed to win votes or attract popular support. Ideas and ideologies are therefore simply 'window dressing', used to conceal the deeper realities of political life. This is certainly a position supported by behaviourism, the school of psychology associated with John B. Watson and B. F. Skinner. From the perspective of behaviourism, human beings are little more than biological machines, conditioned to act (or, more correctly, react) to external stimuli. The thinking subject, together with their ideas, values, feelings and intentions, is simply an irrelevance. A very similar view also informed 'dialectical materialism', the crude form of Marxism that dominated intellectual enquiry in the Soviet Union and other orthodox communist states. This held that political ideas can only be understood in the light of the economic or class interests of those who express them. Ideas have a 'material basis', they have no meaning or significance on their own. Orthodox Marxists therefore analyse politics strictly in terms of social class and treat political ideologies as nothing more than an expression of the interests of particular classes.

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Q.11 Believers of dialectical materialism are likely to agree with which of the following? 1 Political ideas go beyond self-centric view or personal ambition of the purveyor of the idea. 2 A person's political credo can only be understood through the interests of the person or the class that he belongs to. 3 Ideas are abstract in nature and exist independent of an individual's affiliations.

4 Fairness and equality if what motivates an individual to form a political ideology.

Correct Answer : 2 Genre: Political Theory **■** Bookmark

Answer key/Solution

This is an easy question and the answer can be deduced from the opening paragraph of the given passage. Dialectical materialism refers to the "political ideas can only be understood in the light of the economic or class interests of those who express them."

This clearly makes option 2 the correct choice. Option 4 contradicts the argument. Option 3 is incorrect because according to dialectical materialism, thoughts and ideas cannot exist 'individually'. Option 1 is farfetched and vague as it ignores 'class' in particular while defining dialectical materialism.

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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Which of the following is not one of the main concerns of the author? 1 Evaluating the contrast between dialectical materialism and orthodox Marxism 2 Understanding the origin of political ideology 3 Evaluating the influence of the political thinker 4 Understanding the socio-historic origin of political ideology

Correct Answer: 1
Genre: Political Theory

■ Bookmark

Answer key/Solution

This is again a relatively easy question. Refer to the 1st paragraph of the given passage. It states that dialectical materialism is "the crude form of Marxism that dominated intellectual inquiry in the Soviet Union and other orthodox communist states." Hence it is not contrasting, in fact it plays an integral role in establishing orthodox Marxism. Hence 1 is not the main concern of the author here. All other options can be seen as main concerns of the author.

FeedBack

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

The timing was exquisitely ironic: equity markets peaked – and a week later began crashing – just as pundits left this year's World Economic Forum meeting in Davos, where they concluded that the global economy was on a steady upswing. In the weeks since, experts have divided into two camps.

Some, including new US Federal Reserve Board chairman Jerome Powell, believe that economic fundamentals are strong, and that what stock markets experienced in early February was only a temporary hiccup.

Then there are those who believe that fundamentals are in fact weak, that the current upswing will prove unsustainable, and that investors should regard stock-market gyrations as a necessary wakeup call.

Both schools of thought share a focus on fundamentals, unlike a third – and, in my opinion, highly plausible – view: that the asset-price volatility we have been seeing has little or nothing to do with changes in fundamentals.

Fundamentalists claim that faster year-on-year growth in US average hourly earnings was the immediate trigger for the crash. But the claim that such a slight change – from 2.7% in December to 2.9% in January (which observers view as an aberration, caused by seasonal factors) – could trigger a stock-market correction is in itself a strike against the fundamentalist view.

Moreover, whereas the wage growth in question was supposed to be a harbinger of inflation, ten-year break-even inflation moved down. Also, the ten-year Treasury yields did not break the 3% ceiling, while exchange rates hardly moved, all suggesting that rumours of inflation have been greatly exaggerated.

The human brain is wired to structure knowledge around narratives in which we can tell if and how A (and B and C) causes X. We tend to be uncomfortable with the notion that an economy's fundamentals do not determine its asset prices, so we look for causal links between the two. But wanting those links does not make them valid.

The idea that asset-price movements can be unrelated to fundamentals is a part of economic theory. There are two reasons to hold an equity claim: dividend earning and expected price increase. Price movements (the expected capital gain) can drive buying and selling decisions even in the absence of changes to expected dividends (the fundamentals). Therefore, it is perfectly rational to pursue a "keep buying because the price will keep rising" strategy – until it is not.

But when will such a bubble burst? Economic theory is silent here. Bubbles can persist for decades (real-

estate prices in fashionable cities) or just minutes (hard-to-justify intraday fluctuations). The only sure thing, Keynes has claimed, is that the market can remain misaligned much longer than you or I can remain solvent.

It is not just nerdy professors who are skeptical on the importance of fundamentals. There is a rise of a new breed of oil trader who trades "based on moves in currencies, interest rates, or the price of oil itself." rather than focusing on oil's demand-supply aspects. Ready for an oil price bubble, anyone?

There might already be a huge one in the US stock market, with its being the priciest stock market before the Jan 23 crash. Commenting on this, Robert Shiller said that, "it is impossible to pin down the full cause of the high price of the US stock market."

The questions which then arise are 'Where should the line be drawn? When does a little "good" volatility turn into excessive "bad" volatility?' These are difficult questions, and the answers can only be time- and context-specific.

A final disclaimer: believing that fundamentals do not always pin down asset prices is not the same as believing they are irrelevant, much less that current US fundamentals are in good shape. An additional fiscal stimulus at a time of near-full employment and large public debt is exactly what the doctor did not order. Precisely because of all the offsetting factors, the US Congress Joint Committee on Taxation estimates that the recent tax cuts will add just 0.08 percentage points to the average annual growth rate over the next decade, and the long-run output effects could be smaller or even negative.

Yet the US business community remains gung-ho on the reform. So it is possible that conservative American business executives will invest more not because the tax cut will improve the fundamentals of the US economy and increase demand for their products, but just because they believe it will.

That, too, would be an exquisite irony.

Q.13

Based on the passage, it could be said that:

- 1 the US stock market is overpriced, being the priciest of all before the Jan 23 crash.
- 2 asset prices have little or nothing to do with the perception towards changes in fundamentals.
- 3 the threshold between good and bad volatility is dynamic.
- 4 businessmen have increasingly stopped looking at fundamentals while making business decisions.

Correct Answer: 3
Genre: Economics

■ Bookmark

Answer key/Solution

It is an easy question if one reads the passage with attention.

Option 3 is correct as it is captured in the third last paragraph in the line "little good volatility......The answers can only be time and context specific." Refer to Rober Shiller's comment in the last line of the fourth last para. Option 1 is incorrect because the word 'overpriced' is incorrect. Option 2 contradicts the idea present in the passage. The last paragraph points out that business executives would invest more (which may affect the asset prices) because of their 'belief' that the fundamentals will improve. Option 4 is incorrect as it generalizes the example of oil traders given in the passage. Oil traders cannot be substituted will 'all businessmen'.

FeedBack

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0.14

The author makes the argument regarding inflation to:

- 1 indicate that the rumours of inflation were exaggerated.
- 2 substantiate the human tendency to look for cause-effect relationships even where there may be none.
- 3 of further the argument that the change in wage growth did not cause the crash in equity markets.
- 4 point out that the asset prices would have risen if inflation had happened.

Correct Answer: 3
Genre: Economics

■ Bookmark

Answer key/Solution

It is a tricky question but can be answered with careful attention.

The reason behind making the argument is to further the assertion made in

the earlier paragraph that the wage growth, in addition to being slight and aberrant, probably did not even result in inflation which, if it had happened, could have become one of the reasons behind the asset market crash. This makes option 3 correct. Option 1 is the argument itself, and not the reason behind making it, hence it cannot be the answer. Option 4 cannot be the answer as it is alien to the passage. Option 2 is just an extension of the argument and not the reason behind it.

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Q.15

The author would agree with all of the following EXCEPT:

- 1 The asset markets can remain overpriced or underpriced for long durations.
- 2 Both the camps of experts commenting on the crash are fundamentalists.
- 3 The timing of the recent crash was ironic.
- 4 Rationality cannot explain asset price changes without changes in the economic fundamentals.

Correct Answer: 4
Genre: Economics

■ Bookmark

Answer key/Solution

It is an extremely easy question.

In the eighth paragraph, the author opposes option 4 based on rational economic theory. So it is the correct answer. Option 1 is the last line of the sixth last paragraph where the author appears to be in agreement with Keynes. Option 2 is mentioned in the fourth paragraph. Option 3 is the first line of the passage.

FeedBack

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estate prices in fashionable cities) or just minutes (hard-to-justify intraday fluctuations). The only sure thing, Keynes has claimed, is that the market can remain misaligned much longer than you or I can remain solvent.

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There might already be a huge one in the US stock market, with its being the priciest stock market before the Jan 23 crash. Commenting on this, Robert Shiller said that, "it is impossible to pin down the full cause of the high price of the US stock market."

The questions which then arise are 'Where should the line be drawn? When does a little "good" volatility turn into excessive "bad" volatility?' These are difficult questions, and the answers can only be time- and context-specific.

A final disclaimer: believing that fundamentals do not always pin down asset prices is not the same as believing they are irrelevant, much less that current US fundamentals are in good shape. An additional fiscal stimulus at a time of near-full employment and large public debt is exactly what the doctor did not order. Precisely because of all the offsetting factors, the US Congress Joint Committee on Taxation estimates that the recent tax cuts will add just 0.08 percentage points to the average annual growth rate over the next decade, and the long-run output effects could be smaller or even negative.

Yet the US business community remains gung-ho on the reform. So it is possible that conservative American business executives will invest more not because the tax cut will improve the fundamentals of the US economy and increase demand for their products, but just because they believe it will.

That, too, would be an exquisite irony.

Q.16

What is the central argument of the author of the passage?

- 1 Financial asset price movements can be unrelated to economic fundamentals.
- 2 Economic fundamentals are not as important as they are made out to be.
- 3 Economic fundamentals do not impact the financial asset market.
- 4 People's belief in a cause-effect relation between economic fundamentals and asset prices is self-prophesying.

Correct Answer: 1
Genre: Economics

■ Bookmark

Answer key/Solution

It is an extremely easy question.

This passage is an elaboration of the author's view that is introduced in the

fourth paragraph- "the asset-price volatility we have been seeing has little or nothing to do with changes in fundamentals". It is re-iterated in his 'final disclaimer'. Option 3, though a close option, is eliminated as it is definitive (use of 'do not') whereas the author in his final disclaimer says that economic fundamentals 'do not always' pin down asset prices. Moreover, it talks about the market as a whole and not just prices. Option 2 is eliminated as it does not talk about asset prices. Option 4 is eliminated as it is alien to the passage.

FeedBack

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

The timing was exquisitely ironic: equity markets peaked – and a week later began crashing – just as pundits left this year's World Economic Forum meeting in Davos, where they concluded that the global economy was on a steady upswing. In the weeks since, experts have divided into two camps.

Some, including new US Federal Reserve Board chairman Jerome Powell, believe that economic fundamentals are strong, and that what stock markets experienced in early February was only a temporary hiccup.

Then there are those who believe that fundamentals are in fact weak, that the current upswing will prove unsustainable, and that investors should regard stock-market gyrations as a necessary wakeup call.

Both schools of thought share a focus on fundamentals, unlike a third – and, in my opinion, highly plausible – view: that the asset-price volatility we have been seeing has little or nothing to do with changes in fundamentals.

Fundamentalists claim that faster year-on-year growth in US average hourly earnings was the immediate trigger for the crash. But the claim that such a slight change – from 2.7% in December to 2.9% in January (which observers view as an aberration, caused by seasonal factors) – could trigger a stock-market correction is in itself a strike against the fundamentalist view.

Moreover, whereas the wage growth in question was supposed to be a harbinger of inflation, ten-year break-even inflation moved down. Also, the ten-year Treasury yields did not break the 3% ceiling, while exchange rates hardly moved, all suggesting that rumours of inflation have been greatly exaggerated.

The human brain is wired to structure knowledge around narratives in which we can tell if and how A (and B and C) causes X. We tend to be uncomfortable with the notion that an economy's fundamentals do not determine its asset prices, so we look for causal links between the two. But wanting those links does not make them valid.

The idea that asset-price movements can be unrelated to fundamentals is a part of economic theory. There are two reasons to hold an equity claim: dividend earning and expected price increase. Price movements (the expected capital gain) can drive buying and selling decisions even in the absence of changes to expected dividends (the fundamentals). Therefore, it is perfectly rational to pursue a "keep

buying because the price will keep rising" strategy - until it is not.

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mat, too, would be all exquisite nony.
Q.17 What is the 'exquisite irony' that the author brings out in the last paragraph?
1 Oespite being conservative, US business executives would invest more in the economy.
$2 {}^{\bigcirc}$ The flawed belief regarding improvement in fundamentals would make conservative executives invest more without any change in the fundamentals.
3 The belief that improvement in fundamentals would result in more demand for the executives' products would turn out to be false.
4 The tax cut will not result in an improvement in the fundamentals.

Correct Answer: 2
Genre: Economics

■ Bookmark

Answer key/Solution

It is a tricky question and can be answered with slight attention.

"Irony refers to a state of affairs or an event that seems deliberately contrary

to what one expects and is often wryly amusing as a result." Option 1 is an incomplete answer. Option 4, while true, doesn't bring out the irony. Options 2 and 3 have to be closely analysed. Option 3 is incorrect because the paragraph doesn't state that despite improvement in fundamentals, there would not be an increase in demand. It states that there would be no improvement. This makes 2 the correct answer.

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Q.18

It can be inferred from the line 'Ready for an oil price bubble, anyone?' that the author:

- 1 odesn't buy the fact that the current oil trading practices would lead to an oil price bubble.
- 2 believes that the oil price market is misaligned with a bubble gradually building up.
- 3 is cautioning the reader against an oil price bubble similar to that of the US stock market.
- 4 is speculating about the formation of a bubble in the oil price market.

Correct Answer: 4
Genre: Economics

■ Bookmark

Answer key/Solution

It is an easy question.

Option 3, though a close option, is incorrect as the author in the sixth

paragraph, states that there 'might be' a bubble in the US stock market. There is no line in the fifth paragraph to indicate whether the author believes or does not believe that a bubble is building up in the oil price market. So both options 1 and 2 can be eliminated. It appears to be only a conjecture of the author, based on the possibility presented in the last line of the eighth para and the information in the fifth para. Hence, option 4 is correct.

FeedBack

Directions for questions (19 to21): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

I love the term 'politically incorrect', the word-collective expressing a requirement to adhere to certain norms of civility and respectability. It is also rather confuddling because of all people notorious for making statements, which are as far detached from reason as tea leaf reading is from science, most happen to be politicos and lawmakers, people who one expects to generally display a certain composure of sanity.

But then, given how 'sensibility' is not a part of the definition of 'politically correct', I guess it's only natural that the most classic gaffes come from the circles that ru(i)n our nation.

Recently we had a politician claim that Darwin had it all wrong, as man certainly didn't evolve from apes. For proof, he reproduced hard facts, like folklore of the 'someone once told a friend who told me' variety. It's hard to refute such gripping evidence. His empirical logic was that since none of our ancestors ever saw, or mentioned, an ape turn into a man, clearly the theory of evolution was flawed at a very basic level of assumption.

Remember, cannabis was all the legal rage back then, so if you haven't seen an ape turn into a man even when stoned, then surely no such thing ever happened. Darwin was clearly a fool who lost his mind observing birds on remote islands whereas this chap has, instead, completed some unspoken-of doctorate while also serving in the police force.

This is the same ex-commissioner who criticized any girl who decided to get married in a pair of jeans: popular claim is that his argument stemmed from sanskaar. I, however, believe that the conglomerate of top Indian wedding designers — from Sabyasachi to Valaya and Tahiliani — paid this chap to make sure that lehengas never go out of style.

As if the world is running out of stupid things to make fun of, the foremost citizens of our country offer up such prime beef for the world's picking, it's a social service that no one asked for. For a country that built the Taj Mahal and the Stupas, gave the world the decimal system and performed the first cosmetic surgeries, these ministers and judges are the new wave of evolution. A fetching example really, except that instead of exhibiting how man gradually yet continually evolved forth from apes, these chaps are proof that humans can (and do) regress into monkeys!

1 O To comment on the deplorable intellectual capacity of the average Indian I	awmaker
2 To highlight the lack of intellectual reasoning ability of the Indian police of	ficers
3 ○ To showcase the ubiquitous nature of political gaffes	
4 O To criticize the lack of reasoning among certain Indians	
Solution: Correct Answer : 4	■ Bookmark
Genre: Social Satire.	4 Answer key/Solution

This is an easy question.

The given passage is written in a plain and lucid style. The first paragraph gives away the main idea in the line, 'It is also rather confuddling because of all people notorious for making statements, which are as far detached from reason as tea leaf reading is from science, most happen to be politicos and lawmakers, people who one expects to generally display a certain composure of sanity.' The passage is satirical in nature dealing with how some Indians, especially those in power are prone to making irrational statements.

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What's the main purpose behind the structure of the first paragraph? 1 The author implicitly builds the case for his subsequent rebuttal of the issue. 2 The author explicitly exposes the loophole in the definition of a popular term in order to preach his own stance on the issue. 3 The author redefines a popular term to expose certain logical fallacies that affect our political domain. 4 The author reinterprets a popular term in order to expose the flawed reasoning of the Indian political

Q.20

system.

Correct Answer: 3
Genre: Social Satire.

■ Bookmark

Answer key/Solution

This is a medium level difficulty question.

1 is wrong since the author builds up the passage based on the arguments provided in the first paragraph.

2 and 4 is wrong since the passage is neither about definitions or the Indian political system.

3 is the correct answer as the author through satire uses the concept of political incorrectness to show the irrationality which grips the political domain.

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0.21

Which of the following is a key assumption made by the author?

- 1 All the people making such irrational statements possess low IQ level.
- 2 All the people making such gaffes are doing a disservice to the nation.
- 3 All the people making such statements have deliberately tried to be politically incorrect.
- 4 All the people making such irrational statements have not been quoted out of context.

Solution:

Correct Answer: 4
Genre: Social Satire.

■ Bookmark

Answer key/Solution

This is an easy question.

The passage is replete with irrational quotations ascribed to certain Indian politicians. In none of the given quotes a context has been provided with. This shows that the author has assumed that the quotes are not out of context, making 4 the correct answer.

FeedBack

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

The one who uses parrhesia, the parrhesiastes, is someone who says everything he has in mind: he does not hide anything, but opens his heart and mind completely to other people through his discourse. In parrhesia, the speaker is supposed to give a complete and exact account of what he has in mind so that the audience is able to comprehend exactly what the speaker thinks. And he does this by avoiding any kind of rhetorical form which would veil what he thinks. Instead, the parrhesiastes uses the most direct words and forms of expression he can find. Whereas rhetoric provides the speaker with technical devices to help him prevail upon the minds of his audience, in parrhesia, the parrhesiastes acts on other people's mind by showing them as directly as possible what he actually believes.

There are two types of parrhesia which we must distinguish. First, there is a pejorative sense of the word not very far from "chattering" and which consists in saying any or everything one has in mind without qualification. This pejorative meaning is also found more frequently in Christian literature where such "bad" parrhesia is opposed to silence as a discipline or as the requisite condition for the contemplation of God. As a verbal activity which reflects every movement of the heart and mind, parrhesia in this negative sense is obviously an obstacle to the contemplation of God.

However, parrhesia does not always have this pejorative meaning in the classical texts, but rather a positive one. "parrhesiazesthai" means "to tell the truth." But does the parrhesiastes say what he thinks is true, or does he say what is really true? To my mind, the parrhesiastes says what is true because he knows that it is true; and he knows that it is true because it is really true. The parrhesiastes is not only sincere and says what is his opinion, but his opinion is also the truth. He says what he knows to be true.

Q.22

Which of the following CANNOT be taken as an example of 'parrhessia' as defined in the passage?

$1\bigcirc$ An interviewee revealing facts about his family background desp context.	ite these facts being irrelevant to the
2 A contrite believer confessing to a priest about all his wrongdoing	gs in the past.
3 O A defendant pleading guilty to crime under an agreement of plea	bargaining.
4 O A child confessing to his/her teacher about stealing the lunchbox	of a classmate.
Solution: Correct Answer : 3 Genre: Philosophy.	■ Bookmark
	م Answer key/Solution

This is a medium level difficulty question.

In plea bargaining, the defendant agrees to plead guilty to a particular charge in return for some concession from the prosecutor. This means that the defendant is not going to present everything that he knows to be the truth. This makes 3 the correct choice.

Option 1 is an example of parrhessia when used in a pejorative sense. In 2 the fact that the confessor is contrite makes it clear that he/she is not going to keep back anything. 4 is again an example of good parrhessia.

FeedBack

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Q.23 Which

Which of the following is the most appropriate description of parrhessia and rhetoric as used in the passage?

- 1 Rhetoric aims at persuading the audience using verbal manoeuvre, while parrhesia aims at depicting what is universally accepted as true.
- 2 Parrhessia focuses on presenting precisely what the speaker knows to be true, while rhetoric focuses on presenting what is politically correct.
- 3 Parrhessia aims at presenting plainly what the speaker knows to be true, while in rhetoric there is room for persuasion with the use of manoeuvres.
- 4 Rhetoric and parrhessia are different ways of presenting the same thing -the truth.

Solution:

Correct Answer: 3 Genre: Philosophy. **■** Bookmark

Answer key/Solution

This is an easy question. The entire discussion starts with the differentiation between rhetoric and parrhessia. In Option 1, the second part of the sentence is not appropriate as parrhesia is about what the speaker knows to be true and not about what is universally accepted. In option 2, rhetoric is given as being politically correct, which is not true. 4 is incorrect since rhetoric is not about presenting what is true. If we look at this portions, 'The one who uses parrhesia, the parrhesiastes, is someone who says everything he has in mind: he does not hide anything, but opens his heart and mind completely to other people through his discourse. In parrhesia, the speaker is supposed to give a complete and exact account of what he has in mind so that the audience is able to comprehend exactly what the speaker thinks. And he does this by avoiding any kind of rhetorical form which would veil what he thinks.' we can validate Option 3.

FeedBack

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Q.24
Why is bad parrhessia taken as an impediment in the contemplation of God?

1 Because it is against the very act of contemplating god.

2 Because it may capture even the insignificant turns of the mind and heart.

3 Because it incites passion, which interferes with clear focus.

4 Because it is pejorative in nature.

Solution:
Correct Answer: 2
Genre: Philosophy.

This is an easy question. The last line of the second last paragraph states that, 'As a verbal activity which reflects every movement of the heart and mind, parrhesia in this negative sense is obviously an obstacle to the contemplation of God.' Bad parrhesia is characterized as similar to "chattering" and "reflects every movement of the heart and mind" as opposed to silence as a discipline which is a prerequisite for the contemplation of god. This makes option 2 correct.

FeedBack

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

Q.25

There are ways to improve the talent acquisition process, especially for high-level positions that require a unique set of skills and abilities to be successful. Outsourcing your recruitment efforts to a firm that has knowledge of your field and experience recruiting top candidates can be a great way to streamline your talent acquisition process. Positions such as CEO, CFO, controller, general manager and others often require a depth and breadth of skills which the general applicant pool may not be able to fulfil. Additionally, in those high-level positions, cultural fit is just as important as the individual's ability to perform.

- 1. Outsourcing the recruitment process for high-level positions, which demand a technically and culturally fit candidate, helps to streamline the talent acquisition process.
- 2. High level positions in an organization demand an individual with not only the right skills and talent but also the cultural compatibility.
- 3. The process of finding the candidate who is the right fit for organization both technically and culturally can be streamlined with the help of the specialized recruitment agencies having the experience of recruiting candidates.
- 4. An outsourced recruitment engagement can significantly simplify and streamline the talent acquisition process for nearly any employer in any industry.

Solution:

Correct Answer: 1

Option 2 doesn't talk about the outsourcing of talent acquisition process which is the main idea of the passage. Hence it can be eliminated. Option 4 can also be eliminated due the usage of words " any employers in any industry" which make this an extreme answer. Option 3 seems to be a good

■ Bookmark

Answer key/Solution

summary of the passage. However, it doesn't focus on the high level positions as is done in the paragraph. Hence option 1 is the correct answer.

FeedBack

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

Q.26

Welfare economists and saner voices may cavil at the undue attention a single number — GDP growth rate — commands among the political class and the intelligentsia alike. But they are the exception. In its ability to capture both headlines and reactions, ranging from exuberance at one end to despondency at the other, few macroeconomic numbers come anywhere close to what social scientist Philipp Lepenies describes as the "most powerful statistical figure in human history".

- 1. GDP growth rate is the most powerful statistical figure in human history.
- 2. Except for welfare economists and some sane people, most of the people pay way too much attention and importance to GDP growth rate figure.
- 3. GDP growth rate is the most attractive number as far as capturing headlines and reactions is considered.
- 4. Philipp Lepenies is of the view that GDP growth rate is a figure that leaves every other figure behind in the race of getting attention from politicians, economists, and intelligentsia.

Correct Answer: 2

The author is trying to tell that most of the groups pay way too much attention to the GDP growth rate figure. This is clear from his usage of words "undue attention". 3 is factually far from what has been given in the para. It talks about any number while the para talks only about macroeconomic numbers.

■ Bookmark

Answer key/Solution

Options 1 and 4 are clearly out of context. Option 4 can be eliminated as this para is not primarily about what Philipp said.

FeedBack

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

Q.27

Unity in variety is the plan of creation. However men and women may vary individually, there is unity in the background. The different individual characters and classes of men and women are natural variations in creation. Hence we ought not to judge them by the same standard or put the same ideal before them. Such a course creates only an unnatural struggle, and the result is that a man begins to hate himself and is hindered from becoming religious and good. Our duty is to encourage everyone in his struggle to live up to his own highest ideal, and strive at the same time to make that ideal as near as possible to the truth.

- 1. Judging everyone by the same parameter is a mistake; it makes an individual hateful of himself.
- 2. One should not judge everyone using a single yardstick; one should encourage others to achieve their own highest ideal.
- 3. As nature has itself created a variety of individuals, judging them by the same standards will create an unnatural struggle of living up to an unrealistic ideal which can have detrimental effect on individuals and societies
- 4. Diversity should be accepted; different people can have different ideals.

Solution:

Correct Answer: 2

Option 3 is a close choice. However, the usage of the word 'societies' at the end of the sentence, makes it an incorrect option. Option 4 is wrong because the author is not talking about accepting the diversity. He is just telling that diversity is there and due to this reason, people cannot be judged using the same standard.

■ Bookmark

Answer key/Solution

FeedBack

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

- 1. In fact, in many cities, childcare can cost more than the average rent.
- 2. This is particularly challenging for low-income families who often do not make more than minimum wage.
- 3. Childcare has become one of the most expensive costs that a family bears.
- 4. In the past, children often engaged in family labor, now children are protected and nurtured.
- 5. What's more, over the past century, Americans significantly shifted the way we see childhood.

Correct Answer: 31245

Statement 3 opens the paragraph as no other sentence can act as the opening sentence. 3 and 1 create a mandatory pair as "in fact childcare can cost" in 1 is a reference to the expensive costs of childcare mentioned in 3. 2 follows next as it presents an example of where such a condition prevails. 4 and 5 are

& Answer key/Solution

■ Bookmark

a mandatory pair as both of them talk about a change in how childhood is and was perceived. 5 follows 4 as it is an explanation to the latter. Notice the word 'moreover' in 5. It adds to the shifting role of children. Sentences 1 and 4 talk about children. 5 talks about the perception of 'childhood'. So, it is a better conclusion.

FeedBack

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

Q.29

- 1. In April of that year, Martin Luther King Jr. and several other civil rights leaders initiated a nonviolent protest campaign to desegregate public facilities in Birmingham, Alabama.
- 2. City authorities turned fire hoses and police dogs on a large crowd of demonstrators—many of whom were children from local schools—and hundreds of protesters were beaten and arrested.
- 3. Nineteen sixty-three was a pivotal year in the history of race relations in the United States.
- 4. Two months later, President John F. Kennedy appeared on national television to proclaim his support for pending legislation that would forbid racial discrimination in employment, housing, and public accommodations.
- 5. The violent commotion was broadcast in national and world news media, allowing millions to witness the startling brutality of American racism for the first time.

Solution:

Correct Answer: 31254

3 and 1 create a mandatory pair as 3 mentions 1963, and 1 states 'that year'. 2 follows 1 as 1 talks about a protest and 2 talks about the reaction meted out by the protesters. 'Fire hoses and police dogs' mentioned in 2 is summed up in 5 as 'violent commotion'.

■ Bookmark

Answer key/Solution

FeedBack

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

Q.30

- 1. A data file of this type could be sent via email or social media channels.
- 2. Such cash data files retain the advantages of physical cash but would be able to circulate freely on electronic networks.
- 3. If cash data files can be copied and the duplicates used as currency, they cannot serve as a payment instrument.
- 4. An ideal payment system would be one in which monetary value could be transferred electronically via cash data files.
- 5. A specific feature of electronic data is that it can be copied any number of times at negligible cost, which becomes highly undesirable for money.

Solution:

Correct Answer: 42153

Statement 4 opens the paragraph as it introduces the topic-'an ideal payment system via cash data files.' 2 and 1 create a mandatory pair as both talk about the cash data files mentioned in 4. 'Data file of this type' mentioned in 1 is a reference to 'cash data files' mentioned in 2. Moreover, 2 precedes 1 as 2 first

Answer key/Solution

■ Bookmark

gives the hint of a disadvantage of such files and 1 further elaborates. 5 follows next and calls this as 'undesirable'. 3 is a concluding statement as it states that such files cannot serve a s a payment instrument.

FeedBack

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

Q.31

- 1. The physics that explains these massive cosmic bodies is equally esoteric and beyond the comprehension of all but a select few.
- 2. The study was published in the journal Nature Physics.
- 3. Black holes are possibly the most mysterious objects in the universe.
- 4. The most complex physics can, however, be demonstrated by a deceptively simple experiment.
- 5. Recently, physicists at the University of Nottingham, UK, showed how black holes behave, using a bathtub and coloured water.

Correct Answer: 31452

The paragraph opens with sentence 3 which states that Black holes are mysterious. It is followed by 1 which justifies the previous sentence. Sentences 4 and 5 however counter the previously mentioned statements, thereby forming a mandatory pair. 52 create a mandatory pair (physicists showed – the study).

■ Bookmark	
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Answer key/Solution

FeedBack

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

Q.32

- 1. There is no reason to keep women out of certain jobs or prevent them from owning a business.
- 2. Legal barriers that prevent women from working or limit their opportunities to own a business are having a negative impact on global growth and economic equality, a World Bank study has found.
- 3. In 104 economies, women are barred from working at night or in jobs including manufacturing, construction, energy or agriculture, negatively affecting the choices of more than 2.7 billion women, according to the women, business and law report, published every two years.
- 4. Equatorial Guinea is among a number of countries where laws are so regressive that a woman still needs her husband's signature, or the blessing of a male relative, to secure a work contract, take out a loan, or buy a house.
- 5. The study, which looked at 189 economies, found that women continue to face widespread barriers that keep them out of jobs and prevent them from owning a business by restricting their access to credit or control over marital property.

Solution:

Correct Answer: 1

The correct sequence is 2543. All statements, other than 2, state facts about legal restrictions being imposed on women. 1 is more of a personal opinion and hence it is the odd sentence out.

■ Bookmark

Answer key/Solution

FeedBack

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

- 1. In other words, a lot of 'baggage' (or trauma) comes with a habit and it is difficult to address the latter without being confronted with the limiting effects of the former.
- 2. If the pain or discomfort persists and we continue to assume the physical shape or behaviour that helps us to cope on some level, the behaviour becomes both a self-conditioned behaviour.
- 3. A physical habit (distinct, here, from 'addiction') begins with an in-the-moment reaction to a stimulus often a physical or emotional discomfort or pain that we learn to numb or avoid by assuming a certain shape or affecting a certain behaviour.
- 4. Of course, it is certainly possible to train the body to learn a new behaviour for example, to develop greater flexibility in the ribs in the breathing process.
- 5. And it is reinforced through 'muscle memory' and an ongoing, inthe-moment reflection of one's relationship with and reaction to the world.

Correct Answer: 4

The other four sentences talk about a physical habit and how it is formed. 4 goes beyond the scope of this paragraph and talks about how new behaviours are acquired. Additionally, the use of the expression 'of course' at the beginning of the sentence doesn't have precedence in the paragraph.

■ Bookmark

Answer key/Solution

FeedBack

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

Q.34

- 1. Such rules are designed first to offer legally binding protections and also redress for those victims of discrimination.
- 2. With that definition as a guide, States are required by the Convention to pass their own laws and to enforce them so as to prevent and to punish racial discrimination in all aspects of public life.
- 3. The function of law, both national and international, is to translate the principle of nondiscrimination into binding norms or rules on how we should behave.
- 4. Over the past half-century or so extensive efforts at international level have been made to find effective uses of law to end racism and racial discrimination.
- 5. Second, these rules impose obligations on Governments and on all of us not to act in a discriminatory manner.

Solution:

Correct Answer: 2

The correct sequence is 3154. 3 is the opening sentence as it talks about both national and international law. 1 and 5 create a mandatory pair and elaborate on the 'rules' mentioned in 3. 4 is the last sentence as it specifically talks about efforts at international level. 2 is the odd sentence out as it mentions

■ Bookmark

Answer key/Solution

'that definition', which cannot be linked to anything in the paragraph. Moreover, the reference to 'convention' is vague.

FeedBack

Sec 2

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

Microhard corporation, a leading software manufacturing company developed a word coding machine namely 'Replocento'. For coding a word, Replocento uses four types of coding operation C0, C1, C2 and C3. Each word is coded by using at least one of the four coding operations. The output generated by the four coding operation is as follows:

- C0: Each of the letters at odd place of input word is replaced by succeeding letter while the letters at even places are replaced by preceding letter and then all letters are reversed.
- C1 : Vowels in the input word are replaced by succeeding letter while consonants are replaced by preceding letter.
- C2 : Each horizontally or vertically symmetrical letter (in capital letters) is replaced by preceding letter while other letters are replaced by succeeding letter.
- C3 : All the letters of the input are reversed, then each of the letters at odd place is replaced by succeeding letter while the letters at even places are replaced by preceding letter.

[Replacement of letters by succeeding or preceding letters is according to english alphabets]

Q.35 If operations C0, C2 and again C0 are applied on KIMIL in the given order, then output is	middle letter in the final
1 O F	
2 ○ P	
3 ○ G	
4 ○ N	
Solution: Correct Answer : 2	■ Bookmark
KIMIL Operation C0 is applied: Input: K I M I L Replacement: L H N H M Reverse: M H N H L Operation C2 is applied: Input: M H N H L (M, H are vertically symmetrical)	← Answer key/Solution An
So, Output: L G O G M Now again operation C0:	
Input: G G O G M Replacement: M F P F N Reverse: N F P F M, which is the final output So, middle letter is P.	
FeedBack	

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

Microhard corporation, a leading software manufacturing company developed a word coding machine namely 'Replocento'. For coding a word, Replocento uses four types of coding operation C0, C1, C2 and C3. Each word is coded by using at least one of the four coding operations. The output generated by the four coding operation is as follows:

- C0: Each of the letters at odd place of input word is replaced by succeeding letter while the letters at even places are replaced by preceding letter and then all letters are reversed.
- C1: Vowels in the input word are replaced by succeeding letter while consonants are replaced by preceding letter.
- C2 : Each horizontally or vertically symmetrical letter (in capital letters) is replaced by preceding letter while other letters are replaced by succeeding letter.
- C3 : All the letters of the input are reversed, then each of the letters at odd place is replaced by succeeding letter while the letters at even places are replaced by preceding letter.

[Replacement of letters by succeeding or preceding letters is according to english alphabets]

Q.36 If operations C3, C1 and C2 are applied on VENTERUM in the given order, then how many pairs of letter in the final output would have same number of letters between them as they have in English alphabet (both forward and backward direction)? 1 0 2 2 0 1 3 0 3 4 0 0 Solution: **■** Bookmark **Correct Answer: 1** Given word is VENTERUM Answer key/Solution Operation C3: Input: V E N Т E R U Μ Output: M U R E T N E M F NTSDU U Operation C1: D F Input: N T S Μ Output : M S R С ٧ Ε Operation C2: M S R С Input: F

FeedBack

T S

В

2 pairs (SU forward and ST backward).

(M, C, V, E are horizontally or vertically symmetrical)

U M D

Output : L

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

Microhard corporation, a leading software manufacturing company developed a word coding machine namely 'Replocento'. For coding a word, Replocento uses four types of coding operation C0, C1, C2 and C3. Each word is coded by using at least one of the four coding operations. The output generated by the four coding operation is as follows:

- C0: Each of the letters at odd place of input word is replaced by succeeding letter while the letters at even places are replaced by preceding letter and then all letters are reversed.
- C1: Vowels in the input word are replaced by succeeding letter while consonants are replaced by preceding letter.
- C2 : Each horizontally or vertically symmetrical letter (in capital letters) is replaced by preceding letter while other letters are replaced by succeeding letter.
- C3 : All the letters of the input are reversed, then each of the letters at odd place is replaced by succeeding letter while the letters at even places are replaced by preceding letter.

[Replacement of letters by succeeding or preceding letters is according to english alphabets]

Q.37

FeedBack

If operations C1, C2 and C0 are applied on MISIPESU in the given order, then number of vowels in the final output is

Solution: **■** Bookmark **Correct Answer: 1** Firstly operation C1 is applied on MISIPESU Input: M I S I P E S U Answer key/Solution Output: L J R J O F R V Operation C2 is applied OFR Input: L J R J Output: M K S K N G S U Now, operation C0 is applied M K S K N Replacement: N F Т Т 0 Т J J T F O J Т Т N Reverse: Final output is T T F O J So, number of vowels is 1.

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

Microhard corporation, a leading software manufacturing company developed a word coding machine namely 'Replocento'. For coding a word, Replocento uses four types of coding operation C0, C1, C2 and C3. Each word is coded by using at least one of the four coding operations. The output generated by the four coding operation is as follows:

- C0: Each of the letters at odd place of input word is replaced by succeeding letter while the letters at even places are replaced by preceding letter and then all letters are reversed.
- C1: Vowels in the input word are replaced by succeeding letter while consonants are replaced by preceding letter.
- C2 : Each horizontally or vertically symmetrical letter (in capital letters) is replaced by preceding letter while other letters are replaced by succeeding letter.
- C3 : All the letters of the input are reversed, then each of the letters at odd place is replaced by succeeding letter while the letters at even places are replaced by preceding letter.

[Replacement of letters by succeeding or preceding letters is according to english alphabets]

Q.38 If operations C2, C3 and C1 are applied on UPENTUK in the given order output is	r, then the last letter in the final
1 0	
2 O S	
3 O U	
4 ○ V	
Solution: Correct Answer : 4	■ Bookmark
Operation C2 is applied: Input: U P E N T U K Output: T Q D O S T J	ر Answer key/Solution
Then, operation C3 is applied: Input: T Q D O S T J Reverse: J T S O D Q T K S T N E P U	
Operation C1 is applied: Input: K S T N E P U Output: J R S M F O V So, final output is JRSMFOV and hence the last letter	
is V. FeedBack	

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

There were ten houses in a society. Each of the ten houses has applied for connection of electricity supplied by state electricity board. Before the connection and installation process, the actual load valuation of each of the houses are required. So the officers of state electricity board asked all of them about the actual maximum load (in kw), but all of them told the value of the load which is 80% of their actual maximum load (e.g. if actual load was 10kw then they told 8 kw) to reduce their electricity bill by using wrong means. The sum of total load told by them was 52 kw so the state electricity board provided connection to all of them and established a transformer with maximum capacity of 52 kw in the society to supply electricity to these ten houses only. Maximum load of a house means maximum electricity which that house can consume at any point of time. Actual load (in kw) and load (in kw) told by all the houses was a positive integer. If at any point of time total consumption by all the ten houses increases more than the provided load, supply get stopped. Each of the ten houses has a remote which stopped the meter reading while electricity continues to flow. All of them used remote at the time of their peak consumption. At the time of peak consumption (using maximum load) each of the ten houses consumed electricity double to their average consumption per hour in a day. Peak consumption remains for only two hours in a day and routine for the consumption also remains same for every day. At the end of the month it was found that supply never stopped

Q.39 If the actual load (in kw) of N houses of the society was equal, then value of N cannot be more than	
1 0 5	
2 ○ 6	
3 0 8	
4 🔾 9	

Correct Answer: 4

As we know that both actual load and load told was an integer and supply is of 52kw. Possible actual loads by ten houses are as follows: -

Case I

House No.	4	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	10	10	10	65
Load Told	4	4	4	4	4	4	4	8	8	8	52

Case II

House No.	1	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	5	10	15	65
Load Told	4	4	4	4	4	4	4	4	8	12	52

Case III

House No.	4	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	5	5	20	65
Load Told	4	4	4	4	4	4	4	4	4	16	52

So here we can find the actual load of seven houses i.e. 5kw.

Maximum 9 houses of the society can have equal load.

FeedBack

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

There were ten houses in a society. Each of the ten houses has applied for connection of electricity supplied by state electricity board. Before the connection and installation process, the actual load valuation of each of the houses are required. So the officers of state electricity board asked all of them about the actual maximum load (in kw), but all of them told the value of the load which is 80% of their actual maximum load (e.g. if actual load was 10kw then they told 8 kw) to reduce their electricity bill by using wrong means. The sum of total load told by them was 52 kw so the state electricity board provided connection to all of them and established a transformer with maximum capacity of 52 kw in the society to supply electricity to these ten houses only. Maximum load of a house means maximum electricity which that house can consume at any point of time. Actual load (in kw) and load (in kw) told by all the houses was a positive integer. If at any point of time total consumption by all the ten houses increases more than the provided load, supply get stopped. Each of the ten houses has a remote which stopped the meter reading while electricity continues to flow. All of them used remote at the time of their peak consumption. At the time of peak consumption (using maximum load) each of the ten houses consumed electricity double to their average consumption per hour in a day. Peak consumption remains for only two hours in a day and routine for the consumption also remains same for every day. At the end of the month it was found that supply never stopped

Q.40

Find the maximum consumption by the ten houses in units in a day, if one unit means 1kw consumption for one hour.

■ Bookmark

Correct Answer: 780

As we know that both actual load and load told was an integer and supply is of 52kw. Possible actual loads by ten houses are as follows: -

Case I

House No.	4	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	10	10	10	65
Load Told	4	4	4	4	4	4	4	8	8	8	52

Case II

House No.	1	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	5	10	15	65
Load Told	4	4	4	4	4	4	4	4	8	12	52

Case III

House No.	1	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	5	5	20	65
Load Told	4	4	4	4	4	4	4	4	4	16	52

So here we can find the actual load of seven houses i.e. 5kw.

We know that peak consumption is double the average consumption, while maximum they can consume even at the time of their peak consumption is equal to their actual load. So their maximum average consumption is equal to half of their actual load.

Total actual load = 65kw, so average consumption = 32.5kw.

So, maximum units consumed in a day = $32.5 \times 24 = 780$ units.

FeedBack

■ Bookmark

Answer key/Solution

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

There were ten houses in a society. Each of the ten houses has applied for connection of electricity supplied by state electricity board. Before the connection and installation process, the actual load valuation of each of the houses are required. So the officers of state electricity board asked all of them about the actual maximum load (in kw), but all of them told the value of the load which is 80% of their actual maximum load (e.g. if actual load was 10kw then they told 8 kw) to reduce their electricity bill by using wrong means. The sum of total load told by them was 52 kw so the state electricity board provided connection to all of them and established a transformer with maximum capacity of 52 kw in the society to supply electricity to these ten houses only. Maximum load of a house means maximum electricity which that house can consume at any point of time. Actual load (in kw) and load (in kw) told by all the houses was a positive integer. If at any point of time total consumption by all the ten houses increases more than the provided load, supply get stopped. Each of the ten houses has a remote which stopped the meter reading while electricity continues to flow. All of them used remote at the time of their peak consumption. At the time of peak consumption (using maximum load) each of the ten houses consumed electricity double to their average consumption per hour in a day. Peak consumption remains for only two hours in a day and routine for the consumption also remains same for every day. At the end of the month it was found that supply never stopped

0.41

If in the peak hour all the ten houses were using electricity equal to their maximum capacity, find the maximum number of houses whose peak consumption can be at same point of time?

Solution:

Correct Answer: 9

As we know that both actual load and load told was an integer and supply is of 52kw. Possible actual loads by ten houses are as follows: -

Case I

House No.	4	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	10	10	10	65
Load Told	4	4	4	4	4	4	4	8	8	8	52

Case II

House No.	1	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	5	10	15	65
Load Told	4	4	4	4	4	4	4	4	8	12	52

Case III

House No.	***	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	5	5	20	65
Load Told	4	4	4	4	4	4	4	4	4	16	52

So here we can find the actual load of seven houses i.e. 5kw.

Maximum number of houses whose peak consumption can be at same time = 9, when all nine are consuming 5kw.

FeedBack

■ Bookmark

Answer key/Solution

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

There were ten houses in a society. Each of the ten houses has applied for connection of electricity supplied by state electricity board. Before the connection and installation process, the actual load valuation of each of the houses are required. So the officers of state electricity board asked all of them about the actual maximum load (in kw), but all of them told the value of the load which is 80% of their actual maximum load (e.g. if actual load was 10kw then they told 8 kw) to reduce their electricity bill by using wrong means. The sum of total load told by them was 52 kw so the state electricity board provided connection to all of them and established a transformer with maximum capacity of 52 kw in the society to supply electricity to these ten houses only. Maximum load of a house means maximum electricity which that house can consume at any point of time. Actual load (in kw) and load (in kw) told by all the houses was a positive integer. If at any point of time total consumption by all the ten houses increases more than the provided load, supply get stopped. Each of the ten houses has a remote which stopped the meter reading while electricity continues to flow. All of them used remote at the time of their peak consumption. At the time of peak consumption (using maximum load) each of the ten houses consumed electricity double to their average consumption per hour in a day. Peak consumption remains for only two hours in a day and routine for the consumption also remains same for every day. At the end of the month it was found that supply never stopped

Q.42

Find the maximum consumption by the ten houses in units in a day, if one unit means 1kw consumption for one hour and all the ten houses paid bill of equal number of units.

1 9480

2 0 600

3 780

4 900

Solution:

Correct Answer: 2

As we know that both actual load and load told was an integer and supply is of 52kw. Possible actual loads by ten houses are as follows: -

Case I

House No.											
Actual Load	5	5	5	5	5	5	5	10	10	10	65
Load Told	4	4	4	4	4	4	4	8	8	8	52

Case II

House No.	1	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	5	10	15	65
Load Told	4	4	4	4	4	4	4	4	8	12	52

Case III

House No.	4-	2	3	4	5	6	7	8	9	10	Total
Actual Load	5	5	5	5	5	5	5	5	5	20	65
Load Told	4	4	4	4	4	4	4	4	4	16	52

So here we can find the actual load of seven houses i.e. 5kw.

Here number of units consumed by all the houses is same. So average usage of the house whose actual load is more than 5kw must also consume equal to the house having actual capacity equal to 5kw. Maximum consumption in a day by a house having 5kw as their actual load = maximum average usage × 24.

Maximum average usage = half of its maximum peak usage which is 5kw

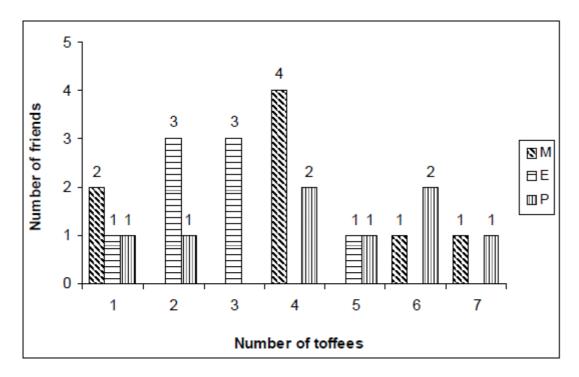
So, maximum units consumed in a day = $2.5 \times 10 \times 24$ = 600 units.

FeedBack

■ Bookmark

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

Mann invited 8 of his friends – Yash, Aditya, Lakshya, Shivansh, Saarthak, Ishaan, Ansh and Aarush – for the celebration of his birthday party. He planned to distribute three types of toffees – Melody(M), Eclairs(E) and Pulse(P) to his friends. Each friend gets at least one toffee of each type and not more than 7 toffees of any type. The following diagram represents the distribution of three types of toffees to his 8 friends



Moreover Yash, Aditya, Lakshya and Saarthak all received equal number of toffees in total. Interestingly, Mann distributed the toffees in such a way that the number of Melody(M), Eclairs(E) and Pulse(P) for each of these four friends are in the form of three distinct natural numbers and the combination of these three numbers were identical but in any order for all the four friends.

Q.43
Total number of toffees with Yash is?

Solution:

Correct Answer: 7

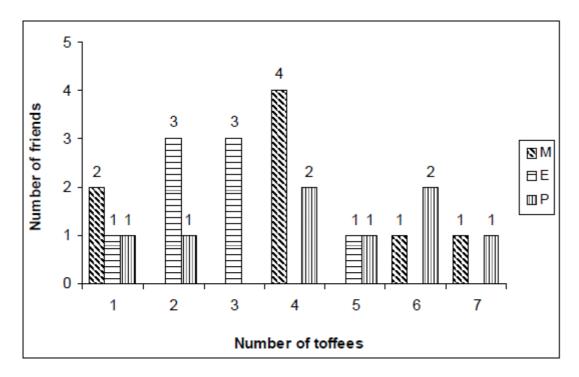
As four friends Yash, Aditya, Lakshya and Saarthak received equal number of toffees and also total toffees with each of them was summation of identical numbers, therefore the possible value is 7 as there are only numbers 1, 2 and 4 which can be used as identical numbers for summation as per the distribution represented in the given diagram. Rest of the numbers can be used at maximum for three friends.

FeedBack

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

Mann invited 8 of his friends – Yash, Aditya, Lakshya, Shivansh, Saarthak, Ishaan, Ansh and Aarush – for the celebration of his birthday party. He planned to distribute three types of toffees – Melody(M), Eclairs(E) and Pulse(P) to his friends. Each friend gets at least one toffee of each type and not more than 7 toffees of any type. The following diagram represents the distribution of three types of toffees to his 8 friends



Moreover Yash, Aditya, Lakshya and Saarthak all received equal number of toffees in total. Interestingly, Mann distributed the toffees in such a way that the number of Melody(M), Eclairs(E) and Pulse(P) for each of these four friends are in the form of three distinct natural numbers and the combination of these three numbers were identical but in any order for all the four friends.

Q.44
If both Lakshya and Saarthak have 4 Melody toffees, then how many Eclairs toffee does Aditya have?

Solution: Correct Answer : 2

	М	E	Р
Yash	1	2	4
Aditya	1	2	4
Lakshya	4	2/1	1/2
Saarthak	4	1/2	2/1

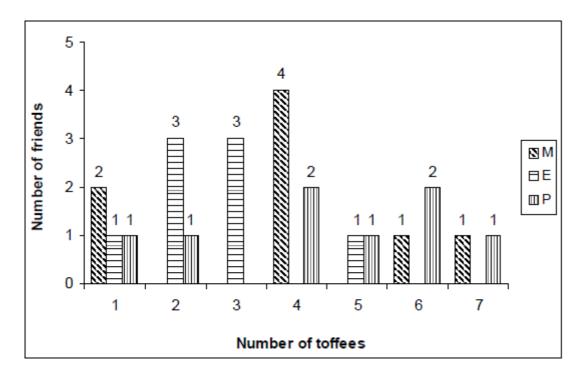
If Lakshya and Saarthak have four melody each, then Yash and Aditya will have one melody each. Now, Yash and Aditya will have two eclairs and four pulse each.

FeedBack

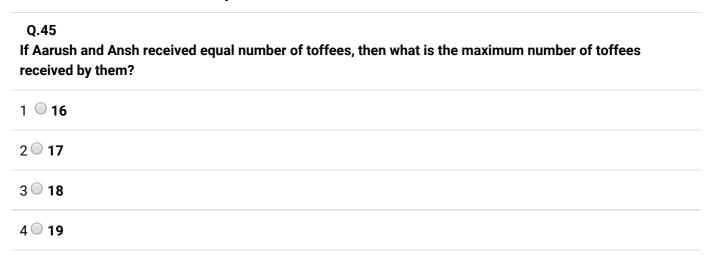
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Moreover Yash, Aditya, Lakshya and Saarthak all received equal number of toffees in total. Interestingly, Mann distributed the toffees in such a way that the number of Melody(M), Eclairs(E) and Pulse(P) for each of these four friends are in the form of three distinct natural numbers and the combination of these three numbers were identical but in any order for all the four friends.



Correct Answer: 2

The number of Melody, Eclairs and Pulse left out to be distributed to other four friends Aarush, Ansh, Shivansh and Ishaan is given below.

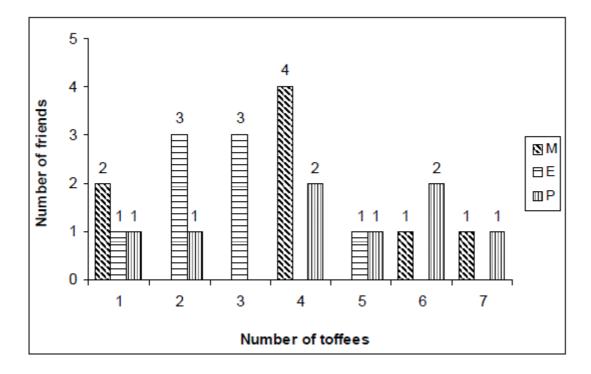
М	4, 4, 6, 7
Е	3, 3, 3, 5
Р	5, 6, 6, 7

■ Bookmark

Answer key/Solution

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

Mann invited 8 of his friends – Yash, Aditya, Lakshya, Shivansh, Saarthak, Ishaan, Ansh and Aarush – for the celebration of his birthday party. He planned to distribute three types of toffees– Melody(M), Eclairs(E) and Pulse(P) to his friends. Each friend gets at least one toffee of each type and not more than 7 toffees of any type. The following diagram represents the distribution of three types of toffees to his 8 friends



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Q.46

If Ishaan received total 14 toffees, then maximum how many of these can be Melody?

2 **12** 3 0 15 4 0 10 Solution: **■** Bookmark **Correct Answer: 1** Ishaan can receive 14 toffees in the following ways Answer key/Solution 4 + 3 + 7 = 14(M) (E) (P) 4 + 5 + 5 = 14(M) (E) (P) 6 + 3 + 5 = 14(M) (E) (P) Therefore, maximum number of Melody he can receive is 6. FeedBack

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

Akram, Bimal, Charlie and Diljeet played chess against each other such that every player played exactly one match against every other player. After all matches were played, they were asked about the results of the matches. The replies were:

Akram: I won against Bimal. I lost to Charlie.

Bimal: I won two matches. I lost to Diljeet.

Charlie: I lost only one match. I won against Bimal.

Diljeet: I won against Akram. I won against Charlie.

It is also known that any player who lost more than 1 match always lies otherwise always speaks the truth.

Q.47

The number of matches won by Diljeet is?

Correct Answer: 3

Let X – Y means X is the winner of match between X and Y. If we go by the statements of Bimal, it will give us a lot of information

Case 1: Bimal is speaking truth.

Hence Bimal won the two matches against Akram and Charlie but lost to Diljeet. Hence the results are B – A, B – C and D – B. This means Akram's 1st statement is false and hence the 2^{nd} one must also be false. So Akram won against Charlie i.e. A – C. Also, if Akram is a liar, he must have lost more than 1 match so he must have lost to Diljeet i.e. D – A.

So, Diljeet's both statements must be true and hence he won against Charlie i.e. D - C.

Hence the final results are B-A, B-C, D-B, A-C, D-A and D-C.

Case 2: Birmal is lying.

Hence, Bimal won against Diljeet i.e. B-D. Also, he must have lost both the remaining matches i.e. A-B and C-B. So, Akram's 1st statement is correct and hence the 2^{nd} one must also be correct. So, Akram lost to Charlie i.e. C-A. Here Charlie has won 2 matches so must speak truth and hence he lost his one match against Diljeet i.e. D-C. This means the 2^{nd} statement of Diljeet is correct and hence the 1^{st} one should also be correct so D-A. But this all proves Akram has lost two matches and hence must be a liar which is a contradiction. Hence only case 1 is valid.

FeedBack

■ Bookmark

Answer key/Solution

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

Akram, Bimal, Charlie and Diljeet played chess against each other such that every player played exactly one match against every other player. After all matches were played, they were asked about the results of the matches. The replies were:

Akram: I won against Bimal. I lost to Charlie.

Bimal: I won two matches. I lost to Diljeet.

Charlie: I lost only one match. I won against Bimal. Diljeet: I won against Akram. I won against Charlie.

It is also known that any player who lost more than 1 match always lies otherwise always speaks the truth.

Q.48 How many people lost more than 1 match? 1 1 2 2 3 3 4 1 or 2

Correct Answer: 2

Let X – Y means X is the winner of match between X and Y. If we go by the statements of Bimal, it will give us a lot of information

Case 1: Bimal is speaking truth.

Hence Bimal won the two matches against Akram and Charlie but lost to Diljeet. Hence the results are B – A, B – C and D – B. This means Akram's 1st statement is false and hence the 2^{nd} one must also be false. So Akram won against Charlie i.e. A – C. Also, if Akram is a liar, he must have lost more than 1 match so he must have lost to Diljeet i.e. D – A.

So, Diljeet's both statements must be true and hence he won against Charlie i.e. D - C.

Hence the final results are B-A, B-C, D-B, A-C, D-A and D-C.

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FeedBack

Answer key/Solution

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Charlie: I lost only one match. I won against Bimal.

Diljeet: I won against Akram. I won against Charlie.

It is also known that any player who lost more than 1 match always lies otherwise always speaks the truth.

Q.49
Bimal won against

1 Akram only

2 Akram and Charlie

3 Charlie and Diljeet

4 Charlie only

Correct Answer: 2

Let X – Y means X is the winner of match between X and Y. If we go by the statements of Bimal, it will give us a lot of information

Case 1: Bimal is speaking truth.

Hence Bimal won the two matches against Akram and Charlie but lost to Diljeet. Hence the results are B – A, B – C and D – B. This means Akram's 1st statement is false and hence the 2^{nd} one must also be false. So Akram won against Charlie i.e. A – C. Also, if Akram is a liar, he must have lost more than 1 match so he must have lost to Diljeet i.e. D – A.

So, Diljeet's both statements must be true and hence he won against Charlie i.e. D - C.

Hence the final results are B – A, B – C, D – B, A – C, D – A and D – C.

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Hence, Bimal won against Diljeet i.e. B-D. Also, he must have lost both the remaining matches i.e. A-B and C-B. So, Akram's 1st statement is correct and hence the 2^{nd} one must also be correct. So, Akram lost to Charlie i.e. C-A. Here Charlie has won 2 matches so must speak truth and hence he lost his one match against Diljeet i.e. D-C. This means the 2^{nd} statement of Diljeet is correct and hence the 1^{st} one should also be correct so D-A. But this all proves Akram has lost two matches and hence must be a liar which is a contradiction. Hence only case 1 is valid.

FeedBack

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Charlie: I lost only one match. I won against Bimal.

Diljeet: I won against Akram. I won against Charlie.

It is also known that any player who lost more than 1 match always lies otherwise always speaks the truth.

Q.50
Charlie lost to

1 Akram and Diljeet

2 Diljeet and Bimal

3 All 3

4 Cannot be determined

■ Bookmark

Correct Answer: 3

Let X – Y means X is the winner of match between X and Y. If we go by the statements of Bimal, it will give us a lot of information

Case 1: Bimal is speaking truth.

Hence Bimal won the two matches against Akram and Charlie but lost to Diljeet. Hence the results are B – A, B – C and D – B. This means Akram's 1st statement is false and hence the 2^{nd} one must also be false. So Akram won against Charlie i.e. A – C. Also, if Akram is a liar, he must have lost more than 1 match so he must have lost to Diljeet i.e. D – A.

So, Diljeet's both statements must be true and hence he won against Charlie i.e. D - C.

Hence the final results are B – A, B – C, D – B, A – C, D – A and D – C.

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FeedBack

■ Bookmark

Answer key/Solution

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

In the player's auction for IPL 2018, four teams RR, DD, SH and MI participated. There were three rounds of auction where all four teams participated in the 1st round. After the auction in each round, each team has an option to retain a player from the players sold in that round only and they can take that person back from the team who purchased that player. At the end of each round, the team with number of players in double digits will eliminate and will not participate in further rounds. Initially the teams had no players and SH and DD got eliminated after round 1 and 2 respectively. Further it is known that:

- i. 26 players were sold in round1, 12 in round 2 and 7 in round 3.
- ii. SH retained a player from MI and 2 players from DD in round 1 whereas DD retained a player each from RR and MI in round 2. No other player was retained by any team in any round.
- iii. The number of players purchased minus the players retained from MI by some other team is same for MI in each round.
- iv. RR purchased 1 more player than SH in round 1 and DD purchased 1 more player in round 1 than in round 2.
- v. At the end of round 3, all teams had at least 10 players.

0.51

How many players were purchased by DD in round 2?

1 0 4

2 0 5

3 0 6

4 0 7

Solution:

Correct Answer: 2

■ Bookmark

Answer key/Solution

In round 1, SH had at least 10 players after retaining 3 players i.e. they purchased at least 7 players in this round. Also RR purchased 1 more player than SH but it must have less than 10 players at the end of this round as RR did not get eliminated. So the only two cases are: RR and SH purchased (9, 8) players or (8, 7) player respectively.

CASE 1: RR purchased 9 and SH purchased 8 players. So, DD and MI together purchased 9 players in round 1. Using (iv), if DD purchased 'x' players in round 1 then it purchased 'x - 1' players in round 2. So, MI purchased '9 - x' players in round 1 and 2 both. So, RR purchased 12 - (x - 1) - (9 - x) = 4 players in round 2. In this case RR must have eliminated at the end of round 2 so this case is not possible.

CASE 2: RR purchased 8 and SH purchased 7 players in round 1. So, DD and MI together purchased 11 players in round 1. Using (iv), if DD purchased 'x' players in round 1 then it purchased 'x - 1' players in round 2. So, MI purchased '1 - x' players in round 1 and 2 both. So, RR purchased 1 - (x - 1) - (11 - x) = 2 players in round 2. Also, DD eliminated at the end of round 2 so they must have had at least 10 players at this stage. DD retained 2 players in round 2 but also gave away 2 in 1^{st} round so the total number of players purchased by DD in these two rounds must be at least 10 i.e. x + x - 1 should be at least 10 or x is at least 6.

Also, MI must be having 12 players at the end of round 3 as they had equal players in each round. The final table looks like:

2 Retained

	RR	DD	МІ	SH
Round 1	8	6	5 1 Retained	→ 7
Round 2	2 1 Retained	5 = 1 Retained	- 5	XXXX
Round 3	3	XXXX	4	XXXX
Total	12	11	12	10

FeedBack

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- iii. The number of players purchased minus the players retained from MI by some other team is same for MI in each round.
- iv. RR purchased 1 more player than SH in round 1 and DD purchased 1 more player in round 1 than in round 2.
- v. At the end of round 3, all teams had at least 10 players.

Q.52 The number of players with SH at the end of round 3 was?	
1 0 12	
2 🔾 13	
3 🔾 10	
4 🔾 11	

Correct Answer: 3

■ Bookmark

Answer key/Solution

In round 1, SH had at least 10 players after retaining 3 players i.e. they purchased at least 7 players in this round. Also RR purchased 1 more player than SH but it must have less than 10 players at the end of this round as RR did not get eliminated. So the only two cases are: RR and SH purchased (9, 8) players or (8, 7) player respectively.

CASE 1: RR purchased 9 and SH purchased 8 players. So, DD and MI together purchased 9 players in round 1. Using (iv), if DD purchased 'x' players in round 1 then it purchased 'x - 1' players in round 2. So, MI purchased '9 - x' players in round 1 and 2 both. So, RR purchased 12 - (x - 1) - (9 - x) = 4 players in round 2. In this case RR must have eliminated at the end of round 2 so this case is not possible.

CASE 2: RR purchased 8 and SH purchased 7 players in round 1. So, DD and MI together purchased 11 players in round 1. Using (iv), if DD purchased 'x' players in round 1 then it purchased 'x - 1' players in round 2. So, MI purchased '1 - x' players in round 1 and 2 both. So, RR purchased 1 - (x - 1) - (11 - x) = 2 players in round 2. Also, DD eliminated at the end of round 2 so they must have had at least 10 players at this stage. DD retained 2 players in round 2 but also gave away 2 in 1st round so the total number of players purchased by DD in these two rounds must be at least 10 i.e. x + x - 1 should be at least 10 or x is at least 6.

Also, MI must be having 12 players at the end of round 3 as they had equal players in each round. The final table looks like:

2 Retained

		and the same of th		
	RR	DD	MI	SH
Round 1	8	6	5 1 Retained	→ 7
Round 2	2 1 Retained	5 1 Retained	5	XXXX
Round 3	3	XXXX	4	XXXX
Total	12	11	12	10

FeedBack

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

In the player's auction for IPL 2018, four teams RR, DD, SH and MI participated. There were three rounds of auction where all four teams participated in the 1st round. After the auction in each round, each team has an option to retain a player from the players sold in that round only and they can take that person back from the team who purchased that player. At the end of each round, the team with number of players in double digits will eliminate and will not participate in further rounds. Initially the teams had no players and SH and DD got eliminated after round 1 and 2 respectively. Further it is known that:

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- iii. The number of players purchased minus the players retained from MI by some other team is same for MI in each round.
- iv. RR purchased 1 more player than SH in round 1 and DD purchased 1 more player in round 1 than in round 2.
- v. At the end of round 3, all teams had at least 10 players.

Q.53 The number of players purchased by MI in round 3 is what percent more than those purchased by RR in round 2?
1 0100%
2 🔾 75%
3 ○ 50%
4 0 25%

Correct Answer: 1

■ Bookmark

Answer key/Solution

In round 1, SH had at least 10 players after retaining 3 players i.e. they purchased at least 7 players in this round. Also RR purchased 1 more player than SH but it must have less than 10 players at the end of this round as RR did not get eliminated. So the only two cases are: RR and SH purchased (9, 8) players or (8, 7) player respectively.

CASE 1: RR purchased 9 and SH purchased 8 players. So, DD and MI together purchased 9 players in round 1. Using (iv), if DD purchased 'x' players in round 1 then it purchased 'x - 1' players in round 2. So, MI purchased 'y - x' players in round 1 and 2 both. So, RR purchased y - x0 players in round 2. In this case RR must have eliminated at the end of round 2 so this case is not possible.

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		and the same of th		
	RR	DD	MI	SH
Round 1	8	6	5 1 Retained	→ 7
Round 2	2 1 Retained	5 1 Retained	5	XXXX
Round 3	3	XXXX	4	XXXX
Total	12	11	12	10

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- iv. RR purchased 1 more player than SH in round 1 and DD purchased 1 more player in round 1 than in round 2.
- v. At the end of round 3, all teams had at least 10 players.

Q.54 Which two teams had equal number of players at the end of round 3?
1 ORR and DD
2 ODD and MI
3 ODD and SH
4 O RR and MI

Correct Answer: 4

■ Bookmark

Answer key/Solution

In round 1, SH had at least 10 players after retaining 3 players i.e. they purchased at least 7 players in this round. Also RR purchased 1 more player than SH but it must have less than 10 players at the end of this round as RR did not get eliminated. So the only two cases are: RR and SH purchased (9, 8) players or (8, 7) player respectively.

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Also, MI must be having 12 players at the end of round 3 as they had equal players in each round. The final table looks like:

2 Retained

	RR	DD	МІ	SH
Round 1	8	6	5 1 Retained	> 7
Round 2	2 1 Retained	5 L Retained	-5	XXXX
Round 3	3	XXXX	4	XXXX
Total	12	11	12	10

FeedBack

Basuki, Mutuki, Tutuki, Rushuki, Kifuki, Hanuki and Datuki are seven aliens from seven different planets named Coozo, Arzoo, Funzoo, Dukzoo, Swapzoo, Puzo and Pazoo, not necessarily in the same order.

The aliens are marching towards planet Earth to attend the Milky Way conference organized by Elou Musk.

The vehicles used by the aliens are of three types – solar powered, hydrogen powered or water powered.

Some additional information is also known:

- (i) Two of the seven aliens are using solar powered vehicles, three are using hydrogen powered, and the rest using water powered vehicles.
- (ii) Basuki of planet Coozo, is not using water powered vehicle.
- (iii) The one from planet Arzoo is the only alien who marches using same vehicle as Basuki's.
- (IV) Mutuki and Hanuki are not using hydrogen powered vehicle, and they are from planet Pazoo and Swapzoo respectively.
- (V) Tutuki is from planet Funzoo.
- (VI) Datuki is neither from Puzo nor from Arzoo.
- (VII) Kifuki marches through the same kind of vehicle as that of the alien from planet Dukzoo.

Q.55 Datuki belongs to which planet? 1 Dukzoo 2 Coozo 3 Swapzoo 4 Funzoo Solution:

Correct Answer: 1

Using the information provided in the question, we can form the following table about the planet every alien belongs to and the type of vehicle used by them:

Alien	Vehicle	Planet
Basuki	Solar	Coozo
Mutuki	Water	Pazoo
Tutuki	Hydrogen	Funzoo
Rushuki	Solar	Arzoo
Kifuki	Hydrogen	Puzo
Hanuki	Water	Sw apzoo
Datuki	Hydrogen	Dukzoo

FeedBack

■ Bookmark

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- (i) Two of the seven aliens are using solar powered vehicles, three are using hydrogen powered, and the rest using water powered vehicles.
- (ii) Basuki of planet Coozo, is not using water powered vehicle.
- (iii) The one from planet Arzoo is the only alien who marches using same vehicle as Basuki's.
- (IV) Mutuki and Hanuki are not using hydrogen powered vehicle, and they are from planet Pazoo and Swapzoo respectively.
- (V) Tutuki is from planet Funzoo.
- (VI) Datuki is neither from Puzo nor from Arzoo.
- (VII) Kifuki marches through the same kind of vehicle as that of the alien from planet Dukzoo.

Q.56

The aliens who travel through hydrogen powered vehicle are

- 1 O Datuki, Kifuki, Rushuki
- 2 Datuki, Hanuki, Tutuki
- 3 Hanuki, Kifuki, Tutuki
- 4 Datuki, Kifuki, Tutuki

Solution:

Correct Answer: 4

Using the information provided in the question, we can form the following table about the planet every alien belongs to and the type of vehicle used by them:

Alien	Vehicle	Planet
Basuki	Solar	Coozo
Mutuki	Water	Pazoo
Tutuki	Hydrogen	Funzoo
Rushuki	Solar	Arzoo
Kifuki	Hydrogen	Puzo
Hanuki	Water	Sw apzoo
Datuki	Hydrogen	Dukzoo

FeedBack

■ Bookmark

Basuki, Mutuki, Tutuki, Rushuki, Kifuki, Hanuki and Datuki are seven aliens from seven different planets named Coozo, Arzoo, Funzoo, Dukzoo, Swapzoo, Puzo and Pazoo, not necessarily in the same order.

The aliens are marching towards planet Earth to attend the Milky Way conference organized by Elou Musk.

The vehicles used by the aliens are of three types – solar powered, hydrogen powered or water powered.

Some additional information is also known:

- (i) Two of the seven aliens are using solar powered vehicles, three are using hydrogen powered, and the rest using water powered vehicles.
- (ii) Basuki of planet Coozo, is not using water powered vehicle.
- (iii) The one from planet Arzoo is the only alien who marches using same vehicle as Basuki's.
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- (V) Tutuki is from planet Funzoo.
- (VI) Datuki is neither from Puzo nor from Arzoo.
- (VII) Kifuki marches through the same kind of vehicle as that of the alien from planet Dukzoo.

Q.57

Which of the following combinations is correct?

- 1 Rushuki-solar-Puzo
- 2 Rushuki-solar-Arzoo
- 3 Datuki-water-Dukzoo
- 4 Kifuki-water-Swapzoo

Solution:

Correct Answer: 2

Using the information provided in the question, we can form the following table about the planet every alien belongs to and the type of vehicle used by them:

Alien	Vehicle	Planet
Basuki	Solar	Coozo
Mutuki	Water	Pazoo
Tutuki	Hydrogen	Funzoo
Rushuki	Solar	Arzoo
Kifuki	Hydrogen	Puzo
Hanuki	Water	Sw apzoo
Datuki	Hydrogen	Dukzoo

FeedBack

■ Bookmark

Basuki, Mutuki, Tutuki, Rushuki, Kifuki, Hanuki and Datuki are seven aliens from seven different planets named Coozo, Arzoo, Funzoo, Dukzoo, Swapzoo, Puzo and Pazoo, not necessarily in the same order.

The aliens are marching towards planet Earth to attend the Milky Way conference organized by Elou Musk.

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Some additional information is also known:

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- (V) Tutuki is from planet Funzoo.
- (VI) Datuki is neither from Puzo nor from Arzoo.
- (VII) Kifuki marches through the same kind of vehicle as that of the alien from planet Dukzoo.

Q.58 Which alien is from planet Arzoo? 1 Datuki 2 Hanuki 3 Rushuki 4 Cannot be determined Solution: **■** Bookmark

Correct Answer: 3

Using the information provided in the question, we can form the following table about the planet every alien belongs to and the type of vehicle used by them:

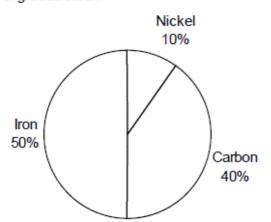
Alien	Vehicle	Planet
Basuki	Solar	Coozo
Mutuki	Water	Pazoo
Tutuki	Hydrogen	Funzoo
Rushuki	Solar	Arzoo
Kifuki	Hydrogen	Puzo
Hanuki	Water	Sw apzoo
Datuki	Hydrogen	Dukzoo

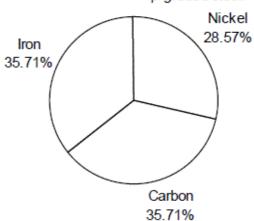
FeedBack

The tata steel plant at Amravati specialises in manufacturing steels of different strength and flexibility. The plant supervisor has developed a method in which he makes a homogenised solution of Moltress Nickel, Carbon and Iron. This solution is then patented by the organisation and is called the "Ultra Flash". By varying the proportion of the solution, steels of varied properties can be made. In order to meet the daily target, the plant operator requires 30 m³ of ultra flash to manufacture α -graded steel, 28 m³ for β -graded, 51 m³ for γ -graded, 72 m³ for δ -graded and 38 m³ for σ -graded steel.

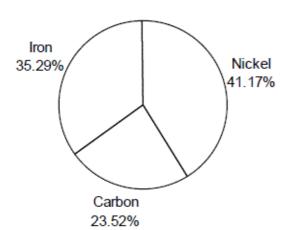
The detailed composition of ultra flash required for different graded steel are as follows:-

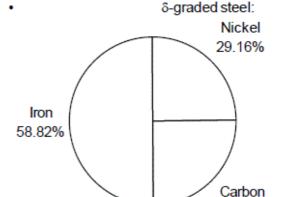
α-graded steel:
 β-graded steel:





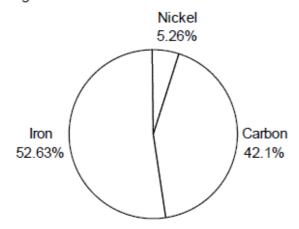
γ-graded steel:





29.16%

σ-graded steel:



The Iron used is of two types:

- (i) Tangible
- (ii) Intangible

40% of the Iron used in α -steel is Tangible.

55% of the Iron used in β -steel is Intangible.

45% of the Iron used in y-steel is Tangible.

■ Bookmark Q Answer key/Solution

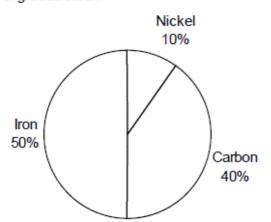
75% of the Iron used in $\delta\text{-steel}$ is Tangible.

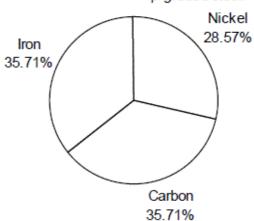
Directions for questions 59 to 62: Answer the questions on the basis of the information given below.

The tata steel plant at Amravati specialises in manufacturing steels of different strength and flexibility. The plant supervisor has developed a method in which he makes a homogenised solution of Moltress Nickel, Carbon and Iron. This solution is then patented by the organisation and is called the "Ultra Flash". By varying the proportion of the solution, steels of varied properties can be made. In order to meet the daily target, the plant operator requires 30 m³ of ultra flash to manufacture α -graded steel, 28 m³ for β -graded, 51 m³ for γ -graded, 72 m³ for δ -graded and 38 m³ for σ -graded steel.

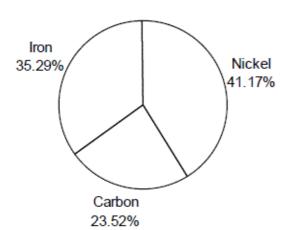
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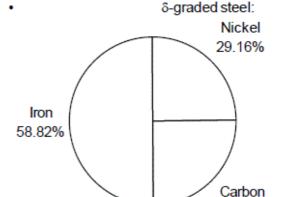
α-graded steel:
 β-graded steel:





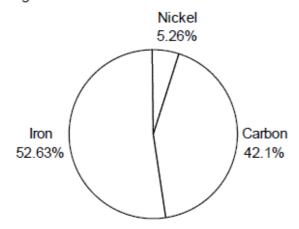
γ-graded steel:





29.16%

σ-graded steel:



The Iron used is of two types:

- (i) Tangible
- (ii) Intangible

40% of the Iron used in α -steel is Tangible.

55% of the Iron used in β -steel is Intangible.

45% of the Iron used in y-steel is Tangible.

100% of the Iron used in ^G -steel is Intangible.	
Q.60 What percentage of total ultra flash for the day is used for γ-graded steel?	
1 0 29%	
2 • 23%	
3 31 %	
4 ○ 42 %	

Correct Answer: 2

The required percentage

$$= \left(\frac{51}{30 + 28 + 51 + 72 + 38}\right) \times 100 = \frac{51}{219} \times 100\% = 23\%.$$
FeedBack

■ Bookmark

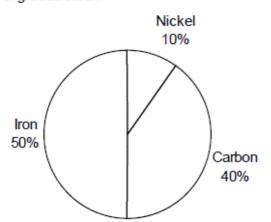
Answer key/Solution

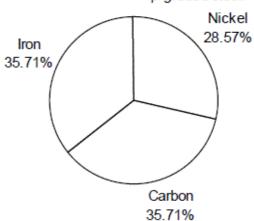
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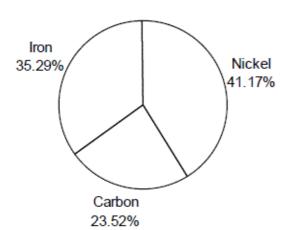
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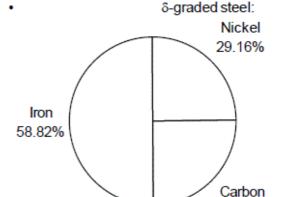
α-graded steel:
 β-graded steel:





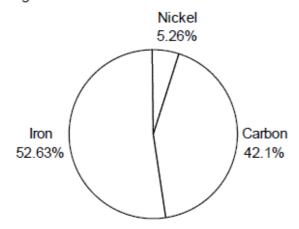
γ-graded steel:





29.16%

σ-graded steel:



The Iron used is of two types:

- (i) Tangible
- (ii) Intangible

40% of the Iron used in α -steel is Tangible.

55% of the Iron used in β -steel is Intangible.

45% of the Iron used in y-steel is Tangible.

75% of the Iron used in δ -steel is Tangible.

100% of the Iron used in σ -steel is Intangible.

Q.61

The ratio of volume of tangible Iron to that of intangible iron consumed is

1 0.8

2 0.7

3 0.6

4 0 0.9

Solution:

Correct Answer: 4

Total daily consumption of tangible Iron for α -graded

steel =
$$30 \times \frac{5}{10} \times \frac{40}{100} = 6$$
.

Similarly for β-graded steel = 4.49

 γ - graded steel = 8.09

δ- graded steel = 31.76

σ- graded steel = 0 Total = 50.34

Similarly for intangible = 9 + 5.49 + 9.89 + 10.58 + 19.99 = 54.95.

$$\therefore$$
 ratio = $\frac{50.34}{54.95}$ = 0.9.

FeedBack

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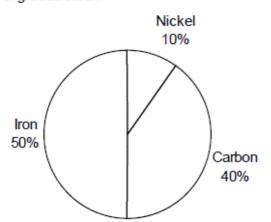
Answer key/Solution

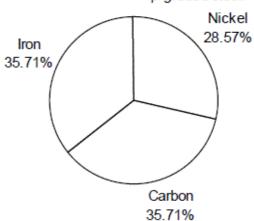
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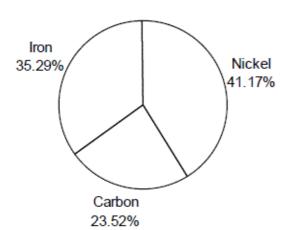
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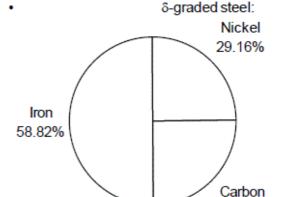
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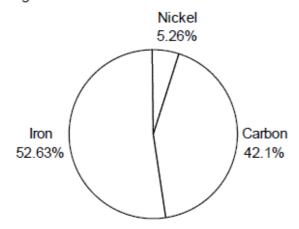
γ-graded steel:





29.16%

σ-graded steel:



The Iron used is of two types:

- (i) Tangible
- (ii) Intangible

40% of the Iron used in α -steel is Tangible.

55% of the Iron used in β -steel is Intangible.

45% of the Iron used in y-steel is Tangible.

75% of the Iron used in δ-steel is Tangible. 100% of the Iron used in σ -steel is Intangible.

Q.62

Due to the make in India outburst, the manager decides to increase the Nickel content in γ -graded steel by 100% and reduce the Iron content by two thirds and carbon content by 3/4. What will now be the total volume of the daily consumption (m³) of Nickel and Iron respectively to make the product competitive?

- 1 0 62 and 68
- 2 152 and 64
- 3 76 and 93
- 4 9 81 and 79

Solution:

Correct Answer: 3

He has increased the nickel content in γ -graded steel from 21 to 42 and so total Nickel requirement increased from 55 to (55 + 21) = 76 m³.

Also, Iron content reduced by $\frac{2}{3}$, i.e. $\frac{2}{3} \times 18 = 12 \text{ m}^3$.

∴ Iron content now = 105 – 12 = 93.
So, the total volume of daily consumption of Iron and Nickel in m³ are 76 and 93 respectively.

FeedBack

■ Bookmark

Answer key/Solution

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

Akbar called a carpenter to make a special bed for Jodhabai, his beloved wife. When Akbar enquired about the labour charge of making the bed and time required for the same, the carpenter replied that it will take seven days and the total labour charges would be equivalent to 140 grams of gold i.e. 20 grams gold for each day. As Akbar had a gold biscuit of dimension 7cm × 1 cm × 1 cm, weighing exactly 140 grams, he decided to pay the carpenter with that only. The carpenter requested Akbar to give the whole gold biscuit on the first day of work. But it was known to Akbar that the carpenter is defaulter, and if he got advance payment for even a single day, he would not turn up to work on the next day. So Akbar decided to cut the biscuit in seven equal pieces and make the payment at the end of each day. But the carpenter told Akbar that after cutting the biscuit into seven pieces the value of the same will get reduced, as value of the gold is inversely proportional to its total surface area. Akbar got confused and called Birbal to resolve the issue. Birbal utilised his wisdom and came up with a plan to solve the above problem by cutting the biscuit in minimum number of pieces. Finally, the carpenter agreed and started working and finished it in exactly seven days.

Q.63

The minimum number of pieces of the gold biscuits made by Birbal is

Correct Answer: 3

Birbal advised to break the gold biscuit into 3 parts as

$$\left(\frac{1}{7},\frac{2}{7}\,\text{and}\,\frac{4}{7}\right)$$
 of gold biscuit i.e., three pieces of 20g, 40g and

80a

Payment to the contractor is as follows:

Day 1: Birbal gave the contractor 20g of gold.

Day 2: Birbal gave contractor 40g piece and takes back 20 g piece from the contractor.

Day 3: Birbal gave away 20g to contractor.

Day 4: Birbal gave away 80g gold piece to the contractor and

took back the 20 and 40g pieces.

Day 5: Birbal gave away 20g.

Day 6: Birbal gave 40g and took back 20g.

Day 7: Birbal gave the 20g piece.

So, the gold pieces with Birbal and the contractor on all seven days is as follows:

Day	Birbal	Carpenter
1	40g, 80g	20g
2	20g, 80g	40g
3	80g	20g, 40g
4	20g, 40g	80g
5	40g	20g, 80g
6	20g	40g, 80g
7	0	20g, 40g, 80g

FeedBack

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

■ Bookmark

Answer key/Solution

Akbar called a carpenter to make a special bed for Jodhabai, his beloved wife. When Akbar enquired about the labour charge of making the bed and time required for the same, the carpenter replied that it will take seven days and the total labour charges would be equivalent to 140 grams of gold i.e. 20 grams gold for each day. As Akbar had a gold biscuit of dimension 7cm × 1 cm × 1 cm, weighing exactly 140 grams, he decided to pay the carpenter with that only. The carpenter requested Akbar to give the whole gold biscuit on the first day of work. But it was known to Akbar that the carpenter is defaulter, and if he got advance payment for even a single day, he would not turn up to work on the next day. So Akbar decided to cut the biscuit in seven equal pieces and make the payment at the end of each day. But the carpenter told Akbar that after cutting the biscuit into seven pieces the value of the same will get reduced, as value of the gold is inversely proportional to its total surface area. Akbar got confused and called Birbal to resolve the issue. Birbal utilised his wisdom and came up with a plan to solve the above problem by cutting the biscuit in minimum number of pieces. Finally, the carpenter agreed and started working and finished it in exactly seven days.

Q.64

The sum of the weights of the heaviest piece and the lightest piece of the gold biscuit was what percent of total weight of the biscuit?

1 0 57.14

2 **71.42**

Correct Answer: 2

Birbal advised to break the gold biscuit into 3 parts as

$$\left(\frac{1}{7}, \frac{2}{7} \text{ and } \frac{4}{7}\right)$$
 of gold biscuit i.e., three pieces of 20g, 40g and

80a

Payment to the contractor is as follows:

Day 1: Birbal gave the contractor 20g of gold.

Day 2: Birbal gave contractor 40g piece and takes back 20 g piece from the contractor.

Day 3: Birbal gave away 20g to contractor.

Day 4: Birbal gave away 80g gold piece to the contractor and took back the 20 and 40g pieces.

Day 5: Birbal gave away 20g.

Day 6: Birbal gave 40g and took back 20g.

Day 7: Birbal gave the 20g piece.

So, the gold pieces with Birbal and the contractor on all seven days is as follows:

Day	Birbal	Carpenter
1	40g, 80g	20g
2	20g, 80g	40g
3	80g	20g, 40g
4	20g, 40g	80g
5	40g	20g, 80g
6	20g	40g, 80g
7	0	20g, 40g, 80g

Sum of heaviest and lightest pieces = 20 + 80 = 100 g Total weight = 140 g

Therefore, the required percentage = 71.42%

FeedBack

■ Bookmark

Answer key/Solution

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

Akbar called a carpenter to make a special bed for Jodhabai, his beloved wife. When Akbar enquired about the labour charge of making the bed and time required for the same, the carpenter replied that it will take seven days and the total labour charges would be equivalent to 140 grams of gold i.e. 20 grams gold for each day. As Akbar had a gold biscuit of dimension 7cm × 1 cm × 1 cm, weighing exactly 140 grams, he decided to pay the carpenter with that only. The carpenter requested Akbar to give the whole gold biscuit on the first day of work. But it was known to Akbar that the carpenter is defaulter, and if he got advance payment for even a single day, he would not turn up to work on the next day. So Akbar decided to cut the biscuit in seven equal pieces and make the payment at the end of each day. But the carpenter told Akbar that after cutting the biscuit into seven pieces the value of the same will get reduced, as value of the gold is inversely proportional to its total surface area. Akbar got confused and called Birbal to resolve the issue. Birbal utilised his wisdom and came up with a plan to solve the above problem by cutting the biscuit in minimum number of pieces. Finally, the carpenter agreed and started working and finished it in exactly seven days.

Q.65

The weight of the gold piece handed over by Birbal to the carpenter to make the transaction complete at the end of the 3rd day was what percent of the total weight of the biscuit?

1 985.71

2 **71.42**

3 **57.14**

4 9 14.28

Solution:

Correct Answer: 4

Birbal advised to break the gold biscuit into 3 parts as

$$\left(\frac{1}{7},\frac{2}{7}\,\text{and}\,\frac{4}{7}\right)$$
 of gold biscuit i.e., three pieces of 20g, 40g and

80g

Payment to the contractor is as follows:

Day 1: Birbal gave the contractor 20g of gold.

Day 2: Birbal gave contractor 40g piece and takes back 20 g piece from the contractor.

Day 3: Birbal gave away 20g to contractor.

Day 4: Birbal gave away 80g gold piece to the contractor and took back the 20 and 40g pieces.

Day 5: Birbal gave away 20g.

Day 6: Birbal gave 40g and took back 20g.

Day 7: Birbal gave the 20g piece.

So, the gold pieces with Birbal and the contractor on all seven days is as follows:

Day	Birbal	Carpenter
1	40g, 80g	20g
2	20g, 80g	40g
3	80g	20g, 40g
4	20g, 40g	80g
5	40g	20g, 80g
6	20g	40g, 80g
7	0	20g, 40g, 80g

Required percentage =
$$20 \times \frac{100}{140}$$
 = 14.28%

FeedBack

■ Bookmark

Akbar called a carpenter to make a special bed for Jodhabai, his beloved wife. When Akbar enquired about the labour charge of making the bed and time required for the same, the carpenter replied that it will take seven days and the total labour charges would be equivalent to 140 grams of gold i.e. 20 grams gold for each day. As Akbar had a gold biscuit of dimension $7 \text{cm} \times 1 \text{ cm}$, weighing exactly 140 grams, he decided to pay the carpenter with that only. The carpenter requested Akbar to give the whole gold biscuit on the first day of work. But it was known to Akbar that the carpenter is defaulter, and if he got advance payment for even a single day, he would not turn up to work on the next day. So Akbar decided to cut the biscuit in seven equal pieces and make the payment at the end of each day. But the carpenter told Akbar that after cutting the biscuit into seven pieces the value of the same will get reduced, as value of the gold is inversely proportional to its total surface area. Akbar got confused and called Birbal to resolve the issue. Birbal utilised his wisdom and came up with a plan to solve the above problem by cutting the biscuit in minimum number of pieces. Finally, the carpenter agreed and started working and finished it in exactly seven days.

0.66

The total weight (in grams) of the pieces of the gold biscuit returned by the carpenter to Birbal on day 4 for making the transaction possible is

Solution:

Correct Answer: 60

Birbal advised to break the gold biscuit into 3 parts as

 $\left(\frac{1}{7}, \frac{2}{7} \text{ and } \frac{4}{7}\right)$ of gold biscuit i.e., three pieces of 20g, 40g and

80g.

Payment to the contractor is as follows:

Day 1: Birbal gave the contractor 20g of gold.

Day 2: Birbal gave contractor 40g piece and takes back 20 g piece from the contractor.

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Day 6: Birbal gave 40g and took back 20g.

Day 7: Birbal gave the 20g piece.

So, the gold pieces with Birbal and the contractor on all seven days is as follows:

Day	Birbal	Carpenter
1	40g, 80g	20g
2	20g, 80g	40g
3	80g	20g, 40g
4	20g, 40g	80g
5	40g	20g, 80g
6	20g	40g, 80g
7	0	20g, 40g, 80g

FeedBack

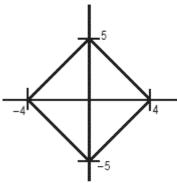
■ Bookmark

Q.67 Find the area (in sq. unit) enclosed by the curve $\frac{|x|}{4} + \frac{|y|}{5} = 1$.

Solution:

Correct Answer: 40

The given curve can be drawn as



So, area bounded by the curve = $4 \times$ area of triangle in a quadrant

$$= 4 \times \frac{1}{2} \times 5 \times 4 = 40.$$

FeedBack

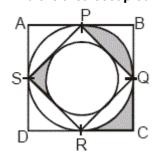
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Answer key/Solution

Q.68

In the figure given below, PQRS is a square formed by joining the mid points of the square ABCD.

Find the area occupied by the shaded region as a percentage (approx) of the area of square ABCD.



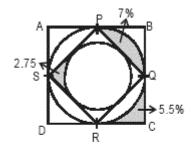
1 0 15.25%

2 **12.5**%

3 **37.5**%

4 0 13.5%

Correct Answer: 1



$$\frac{\text{Area of square}}{\text{Area of circle}} = \frac{4}{\pi} \approx \frac{100}{78}$$

So, if area of square is 100 sq. unit then area of circle will be 78 sq. unit

So, required percentage = 7% + 5.5% + 2.75% = 15.25%.

FeedBack

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♠ Answer key/Solution

Q.69

A cake factory has 36 baking machines, 60 filling machines and 144 jacking machines. If the manager of the factory decides to place equal number of machine in each row such that each row has machines of same category, then what is the least number of rows required?

Solution:

Correct Answer: 20

Least rows required will be equal to the HCF of 36,60,144 HCF (36,60,144) = 12

So, total number of rows = $\frac{36}{12} + \frac{60}{12} + \frac{144}{12} = 20$.

FeedBack

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Answer key/Solution

Q.70

Cersei is selling 100 identical articles at a discount of 34% and making a profit of 20%. If 20 of these articles are found faulty and she repairs them at a cost of 9.09% of initial cost price of each article, at what discount should she sell her articles so as to still make a profit of 20%?

1 32.2%

2 31.6%

3 32.8%

4 0 33.2%

Correct Answer: 3

Let 1 article's C.P be Rs. 100. Profit of 20% ⇒ Rs. 120

Marked price
$$\Rightarrow$$
 M.P. $\left[1 - \frac{34}{100}\right] = 120$

Cost to repair 20 faulty pieces

$$=20\times100\times\frac{9.09}{100}$$
 = Rs.181.8

New C.P. = Rs. 109.09

$$MP. \left[1 - \frac{x}{100} \right] = 122.1816$$

$$181.82 \left[1 - \frac{x}{100} \right] = 122.1816$$

x = 32.8%

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Answer key/Solution

Q.71

A team of 30 painters was employed by "Asian Paints" to paint a building in 90 days. But while the work was reviewed after 60 days, only 40% of the work was completed. Find the number of more men to be employed after those 60 days to meet the deadline.

Solution:

Correct Answer: 60

Using the formula,

$$\frac{\mathsf{Man} \times \mathsf{Day}}{\mathsf{Work}} = \mathsf{Constant}$$

$$\frac{30\times60}{0.4} = \frac{M\times30}{0.6} \Rightarrow M = 90$$

So, additional men required= 90 - 30 = 60

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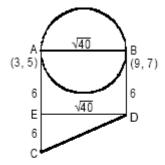
Answer key/Solution

Q.72

If A(3,5) and B(9,7) are two end points of diameter AB of a circle and two tangents AC and BD are drawn to the circle touching it at points A and B. It is known that AC = 2BD = 12cm, then what is the area (in cm^2) enclosed by the figure ABDC?

- 1 **□ 18/√20**
- 2 □ 18√10
- 3 0 12/√10
- 4 9/√20

Correct Answer: 2



$$AB = \sqrt{(1-3)^2 + (7-5)^2} = \sqrt{40} \text{ m}.$$

ABDE is a rectangle

So, area of a rectangle = $6\sqrt{40}$ cm²

Area of triangle DEC = $\frac{1}{2} \times 6 \times \sqrt{40} = 3\sqrt{40} \text{ cm}^2$

Area enclosed by figure ABDC

 $= 6\sqrt{40} + 3\sqrt{40} = 9\sqrt{40} = 18\sqrt{10} \text{ cm}^2.$

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♠ Answer key/Solution

Q.73

A function is defined as $f(x) = ax^4 + bx^3 + cx^2 + dx^2 + e$ such that $(x^2 - 1)$ is a factor of f(x). If f(x) intersects the y-axis at (0, -10), then find the value of (b + e).

Solution:

Correct Answer: -10

FeedBack

 $(x^2 - 1)$ is a factor of f(x) $\Rightarrow (x - 1)$ and (x + 1) is a factor of f(x) $\Rightarrow f(1) = f(-1) = 0$ i.e. a + b + c + d + e = 0, and a - b + c + d + e = 0 $\Rightarrow 2b = 0$ i.e. b = 0Also curve intersects at (0, -10) $\Rightarrow f(0) = -10$ i.e., e = -10So, b + e = -10.

■ Bookmark

Answer key/Solution

Q.74

Arun's present age is 25% of Barun's present age. After some years, Arun's age will become 70% of Barun's age at that time. By what percent will Barun's age increase during this period?

- 1 200
- 2 0 150
- 3 0 100

Correct Answer: 2

Let Barun's present age be x years.

Then, Arun's present age = $\frac{25}{100}$ X

After P years, Barun's age = x + P years

Arun's age after P years = $\frac{25}{100}$ X + P = 70% of (x + P)

$$\therefore \frac{25x}{100} + P = \frac{70}{100}(x + P) \Rightarrow \frac{P}{x} = \frac{3}{2}$$

So,
$$\frac{(x+P)-x}{x} \times 100 = \frac{P}{x} \times 100 = \frac{3}{2} \times 100 = 150\%$$
.

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Answer key/Solution

Q.75

There are 7 students S_1 , S_2 , S_3 , S_4 , S_5 , S_6 and S_7 , in a class. The respective ratio of heights of S_1 , S_2 , S_4 and S_5 is 15 : 16 : 9 : 8, and that of S_2 , S_3 , S_6 and S_7 is 8 : 5 : 11 : 12. If height of S_7 is 16 cm more than that of S_2 , then find the sum of height (in cm) of S_4 , S_5 and S_6 .

- 1 0 100
- 2 0 120
- 3 0 78
- 4 95

Solution:

Correct Answer: 3

 $S_1: S_2: S_4: S_5 = 15: 16: 9: 8$...(i) $S_2: S_3: S_6: S_7 = 8: 5: 11: 12 = 16: 10: 22: 24$...(ii)

As $S_7 = 16 + S_2$ So, heights of S_2 , S_3 , S_5 and S_7 is 32, 20, 44 and 48. Then using (i), heights of S_1 , S_4 and S_5 is 30, 18, 16 Hence the required sum = $S_4 + S_5 + S_5 = 18 + 16 + 44 = 78$ cm

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Answer key/Solution

Q.76

Angela can buy 3 more apples in Rs. 100 if the price of apples is reduced by 14.28%. How many apples can she bought in Rs. 200 before reduction?

Correct Answer: 36

Suppose Angela buys x apples in Rs.100

∴ C.P. of 1 apple = Rs.
$$\frac{100}{x}$$

$$\frac{100}{x}\left(1-\frac{1}{7}\right) = \frac{100}{x+3}$$

$$\frac{6}{7} = \frac{1}{2}$$

x = 18

.. C.P. of 18 apples is Rs. 100

.. 36 apples are available for Rs. 200

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Answer key/Solution

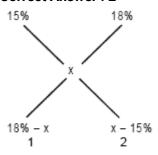
Q.77

A person lends one-third of his money at 15%, while the rest at 18% per annum rate of simple interest. What would be his annual rate of interest on the whole sum?

- 1 **17.25**%
- 2 **17**%
- 3 0 33%
- 4 0 16.5

Solution:

Correct Answer: 2



i.e.,
$$2(18\% - x) = x - 15\%$$

 $x = 17\%$

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Answer key/Solution

Q.78

If $\log_2 x = \log_8 y = m$, and x and y are positive integers, then find $\log_x y$.

1 0 m

2 0 3 3 0 6 4 0 m² Solution: **■** Bookmark **Correct Answer: 2** $log_x = log_y = m$ $log_{,x} = m$ and $log_{,y} = m$

⇒ log,x = m, $\frac{1}{3}\log_2 y = m$

So,
$$\log_x y = \frac{\log_2 y}{\log_2 x} = \frac{3m}{m} = 3$$

FeedBack

Q.79

A and B run in opposite direction around a circular track of radius 140 m. The speed of A is 7m/s whereas speed of B is 3m/s. Whenever they are at a distance of 10 m on the track they say hello or bye to each other. Find the number of times A said hello or bye to B till the time A has covered a total distance of 12320 m.

1 0 16

2 0 20

3 O 32

4 0 40

Solution:

Correct Answer: 4

Length of the track is $2 \times \frac{22}{7} \times 140 = 880$ m.

So total rounds A has covered is $\frac{12320}{880}$ = 14.

Speed of A and B is 7 m/s and 3 m/s, so when A has covered a total of 14 rounds B would have covered 6 rounds, hence together they have covered 20 rounds. At the beginning they must have said hello or bye when they were 10 m apart. When they meet for first time they have completed exactly one round and there will be two instances when there is a difference of 10 m. So in 19 rounds, in each meeting they will say 2 times hello or bye. In 20th meeting they will say hello or bye only once. Hence, they will say 40 times hello or bye to each other.

FeedBack

Answer key/Solution

■ Bookmark

Q.80

How many positive integral values of a will satisfy the equation $2a^3 + 14a^2 - 98a - 686 < 0$?

- 1 0 7
- 2 0 14
- 3 0 6
- 4 Infinite values

Solution:

Correct Answer: 3

 $2a^3 + 14a^2 - 98a - 686 < 0$ can be written as $a^3 + 7a^2 - 49a - 343 < 0$ We can simplify it further as $(a - 7) (a + 7)^2 < 0$ On number line the critical points are



We need to look for the integral solution for which the expression carries negative value. Only 6 values are possible from 1 to 6.

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Answer key/Solution

0.81

If $P^2 \times Q^3$ =1000 and $P^{2n} \times Q^{3n}$ = 100 R^{6n} , then find the value of log_{10} R.

- $1 \circ \frac{1}{2} \frac{n}{3}$
- $^{2} \circ 1 \frac{2}{n}$
- 3 0 2
- $4 \circ \frac{1}{2} \frac{1}{3n}$

Solution:

Correct Answer: 4

FeedBack

 $P^2Q^3 = 1000 = 10^3$ and $(P^2Q^3)^n = 100 R^{6n}$ $(10)^{3n} = 10^2 . R^{6n}$ ⇒ $(10)^{3n-2} = R^{6n}$ Taking log on both sides $(3n-2)\log 10 = 6n\log R$ ⇒ $3n-2 = 6n\log R$ (∴ $\log 10 = 1$) ∴ $\log R = \frac{3n}{6n} - \frac{2}{6n} = \frac{1}{2} - \frac{1}{3n}$

■ Bookmark

Q.82

A robbery was discovered 30 minutes after it occurred. Mr. X, the inspector, started chasing the thief who is absconding on a bike, in his jeep at the speed of 60 kmph. He caught the thief in 4 hrs and 30 minutes. Find the speed (in km/hr) of the bike.

Solution:

Correct Answer: 54

Mr. X catches the thief in 4 hours 30 minutes at the speed of 60 kmph. So, the distance travelled by him is 270 km to catch the thief. Thief has also covered the same distance in 5 hours. So, speed of thief's bike is

$$\frac{270}{5}$$
 = 54 kmph.

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Answer key/Solution

Q.83 If x is real number, then find the minimum value of $\frac{(9x^2-12)}{(3x^2+8)}$

- 1 0 -3

4 O 0

Solution:

Correct Answer: 2

Minimum value of a quadratic equation lies at $-\frac{D}{2a}$. So at x = 0 equation will attain its minimum value which is $-\frac{3}{2}$

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Answer key/Solution

Q.84

A dice is rolled three times. What is the probability that the numbers appearing on the top on every subsequent throw are in increasing order with their sum equal to 9?

1 0 1/72

2 0 1/108	
○ 1/144	
○ 1/36	
Solution: Correct Answer : 1	■ Bookmark
The total possible of cases will be $6 \times 6 \times 6 = 216$. Out of them, favourable one's are $(1, 2, 6)$, $(1, 3, 5)$ and $(2, 3, 4)$	م Answer key/Solution
So, probability $\frac{3}{216} = \frac{1}{72}$.	
FeedBack	
If N = $2197^P \times 144^2 \times 2^R \times 3^S$ is the perfect cube of a natural numentegers, then find the minimum value of (P + R + S). Solution: Correct Answer: 6	mber, where P, R and S are distinct positive
The expression can be rewritten as 1330 . 28 . 34 . 2R . 38.	م Answer key/Solution
To make this expression a perfect cube, the minimum value of R, S and P will be 1, 3 and 2 respectively. So required number = 6	
FeedBack	
ind the sum of the series: 3 + 15 + 35 + 63 + + 9999.	
ind the sum of the series: 3 + 15 + 35 + 63 + + 9999.	
Q.86 Find the sum of the series: 3 + 15 + 35 + 63 + + 9999. 1 161650 2 171700 3 171650	

Correct Answer: 3

The series can be rewritten as $1 \times 3 + 3 \times 5 + 5 \times 7 + 7 \times 9 + ... + 99 \times 101$ or = (2-1)(2+1) + (4-1)(4+1) + (6-1)(6+1) + ... + (100-1)(100+1) $= 2^2 - 1^2 + 4^2 - 1^2 + 6^2 - 1^2 + ... + 100^2 - 1$ $= (2^2 + 4^2 + 6^2 + ... + 100^2) - 50 = 4(1^2 + 2^2 + 3^2 + ... + 50^2) - 50$ $= 4\left(\frac{50 \times 51 \times 101}{6}\right) - 50 = 171650$ FeedBack

■ Bookmark

Answer key/Solution

Q.87

If $f(a + b) = f(a) \cdot f(b - 1)$, and f(0) = 3, then find the value of $f(1) \times f(2) \times f(3) \times f(4) \dots \times f(100)$.

- 1 310109
- 2 O 3⁵⁰⁴⁹
- 3 O 3⁵¹⁵¹
- 4 O 3⁵¹⁵⁰

Solution:

Correct Answer: 4

FeedBack

 $\begin{array}{l} f(a+b)=f(a) \; . \; f(b-1) \\ f(1)=f(0+1)=f(0)\times f(0)=9=3^2 \\ f(2)=f(1+1)=f(1)\times f(0)=9\times 3=27=3^3 \\ f(3)=f(2+1)=f(2)\times f(0)=27\times 3=81=3^4 \\ f(x)=3^{n+1} \\ f(1)\times f(2)\times f(3)\times ...\times f(100)=3^2\times 3^3\times 3^4\times ...\times 3^{101}=3^{(2+3+4+..+101)}=3^{(5+5)}. \end{array}$

■ Bookmark

Answer key/Solution

_ _ _

How many integral values of x satisfy the inequality $(3 - x)(x + 6) \ge 3x$?

- 1 0 8
- 2 0 11
- 3 **7**
- 4 0 9

Correct Answer: 2

$$(x - 3)(x + 6) \le -3x$$

 $\Rightarrow x^2 + 3x - 18 \le -3x$
 $\Rightarrow x^2 + 6x - 18 \le 0$

$$\Rightarrow -3 - 3\sqrt{3} \le x \le 3\sqrt{3} - 3$$

⇒ -8.1961 ≤ x ≤ 2.1961

So, number of integral values are 11.(i.e. -8, -7,2)

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Answer key/Solution

Q.89

ABC is an isosceles right angle triangle, right angled at A. One more isosceles right angle triangle, MBC, is drawn taking BC as its hypotenuse. Now taking M as center and MB as radius a circle is drawn. What percentage (approx) of area of the triangle ABC lies within the circle?

- 1 0 57%
- 2 0 67%
- 3 **15**%
- 4 0 35%

Solution:

Correct Answer: 1



Let AB = a units Area of

1

shaded

region =
$$\frac{\pi a^2}{4} - \frac{1}{2} \times a \times a = \frac{(\pi - 2)a^2}{4}$$

Area of
$$\triangle ABC = \frac{a^2}{2}$$

So, the required percentage = $\frac{(\pi - 2)}{2} \times 100 \approx 57\%$

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■ Bookmark

Answer key/Solution

Q.90

The average monthly salary of 12 workers and 3 managers in a factory was Rs. 600. When one of the managers, whose salary was Rs. 720, and a worker, whose salary was Rs 300, were replaced with a new manager and a new worker, where the salary of the new worker was Rs 200, then the average salary of the team dropped down to Rs.580. What is the salary (in Rs.) of the new manager?

1 © 520	
2 0 420	
3 0 690	
4 0 640	
Solution: Correct Answer : 1	■ Bookmark
The total salary of the 15 employees = $15 \times 600 = 9000$. Total salary reduced after the change of two employees by $15 \times 20 = 300$, out	♣ Answer key/Solution
of which 100 dropped due to the new worker. So, 200 must have dropped due to the new manager. As the salary of the exiting manager is 720, the salary of the new manager = 72 FeedBack	20 - 200 = 520.
Q.91 The sum of 3rd and 28th term of an Arithmetic Progression is same as that of 7 the Arithmetic Progression. If the sum of the first N terms of this Arithmetic Progression. Column	
Solution: Correct Answer : 9	■ Bookmark
Let 'a' and 'd' be the first term and the common difference of the given A.P. Then $t_3 + t_{2s} = t_7 + t_{11} + t_{18}$ $\Rightarrow a + 2d + a + 27d = a + 6d + a + 10d + a + 17d$	م Answer key/Solution
\Rightarrow a + 4d = t_s = 0 This implies that the first 4 terms of this AP will be equal but of opposite signs of the next 4 terms after the 5th term. Hence, first nine terms sum will be 0.	
FeedBack	
Q.92 If a three digit natural number N is increased by 90%, then it becomes a perfect possible values of remainders when N is divided by 7.	t square. Find the sum of all
1 0 4	
2 0 1	
3 ○ 5	
4 0 6	

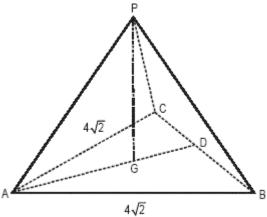
and 760. So, when N is divided by 7, the possible remainders are 1 and 4. Hence the required sum = 5.	Answer key/Solution
FeedBack	
Q.93 Find the number of trailing zeroes in (23! + 24! + 26!).	
Solution: Correct Answer: 10 $(23! + 24! + 26!) = (25 \times 23!) + 26! = (25 \times (23!) \times 625)$, which contains 5^{10} . Hence there will be 10 trailing zeroes in the given value.	■ Bookmark Answer key/Solution
FeedBack	
Q.94 A cube of edge 8 cm is given. The mid parts of 3 edges (which converge to a the triangle ABC and a cutting plane cuts along the plane ABC. Find the volu	
A cube of edge 8 cm is given. The mid parts of 3 edges (which converge to a	
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A cube of edge 8 cm is given. The mid parts of 3 edges (which converge to a the triangle ABC and a cutting plane cuts along the plane ABC. Find the volume 32/3	

■ Bookmark

Solution:

Correct Answer: 3

Correct Answer: 1



The shape cut out will be a tetrahedron base edges (AB/BC or CA) = $4\sqrt{2}$ inclined edges = 4 cm each (PA, BP or PC)

$$AD = \frac{\sqrt{3}}{2} \times 4\sqrt{2}, So AG = \frac{4\sqrt{2}}{\sqrt{3}}$$

$$PG = \sqrt{4^2 - \left(4\sqrt{\frac{2}{3}}\right)^2} = \frac{4}{\sqrt{3}}$$

 $\begin{array}{l} \text{Vol of tetrahedron } = \frac{1}{3} \bigg[\frac{\sqrt{3}}{4} \Big(4 \sqrt{2} \Big)^2 \bigg] \times \frac{4}{\sqrt{3}} = \frac{32}{3} \text{cm}^3. \\ \bigg(\frac{1}{3} \times \text{base area} \times \text{height} \bigg) \end{array}$

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Answer key/Solution

Q.95

Three friends A, B and C bought 5, 6 and 8 articles respectively, from a store. Their individual ranges of expenses on the five articles were 200, 240 and 300 respectively. If each one didn't spend less than 1200 and more than 2000, then what is the difference between the maximum and minimum possible ranges of all their expenses put together?

Solution:

Correct Answer: 500

Minimum possible range = 300 when the other two's ranges become a subset. Maximum possible range = 800 when they cover the entire range from 1200 to 2000 with no overlapping (empty ranges between their expense ranges won't make any difference). Hence the difference of maximum and minimum is 500.

■ Bookmark

Answer key/Solution

FeedBack

Q.96

A solution of acid and water contains 20% acid in it. What percentage of water must be evaporated from the solution to get a 50% acid solution?

- 1 0 40%
- 2 0 75%
- 3 0 60%
- 4 0 50%

Correct Answer: 2

Initially the ratio of acid and water in the solution is 1 :

Let x unit of water is evaporated, then the new ratio is

So,
$$\frac{1}{4-x} = \frac{1}{1} \Rightarrow x = 3$$

So, percentage of water that should be evaporated

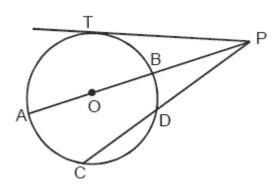
$$=\frac{3}{4}\times100=75\%$$

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♠ Answer key/Solution

Q.97



In the figure given above , AB is the diameter of the circle, PT and PDC are tangent and secant respectively. If PT = 10 cm, BP = 4 cm and DP = 5 cm, find the ratio of length of radius to that of chord CD of the circle.

- 1 0 10:7
- 2 07:5
- 3 7:10
- 4 0 5:7

Correct Answer: 3

Let radius = r and CD = x,

Now, $AP \times BP = PT^2$

 \Rightarrow (2r + 4) × 4 = 100

 \Rightarrow 2r + 4 = 25 \Rightarrow r = 10.5

Also, CP × DP = PT2

 \Rightarrow (x + 5) × 5 = 100

 \Rightarrow x + 5 = 20

⇒ x = 15

 $\therefore \frac{\text{Radius}}{\text{CD}} = \frac{\text{r}}{\text{x}} = \frac{10.5}{15} = \frac{7}{10}$

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Answer key/Solution

Q.98

Sum of two natural numbers A and B is 15, and their HCF is 3. How many ordered pairs of (A, B) are possible?

Solution:

Correct Answer: 4

Since HCF of the two natural numbers is 3, so it must be in the form of 3x and 3y, where x and y are coprime.

■ Bookmark

Answer key/Solution

Now,
$$3x + 3y = 15$$

$$\Rightarrow$$
 x + y = 5

So from here there will be 4 ordered pairs (x, y) which are (1, 4), (4, 1), (2, 3), (3, 2).

FeedBack

Q.99

A man spends exactly Rs. 810 for buying caps and gloves at Rs. 30 and Rs. 70 respectively. What is the ratio of number of gloves to that of caps, if he purchased maximum possible number of gloves?

1 03:2

2 4:5

3 **2:3**

4 0 5:4

Correct Answer: 1

The man spends total Rs.810. Let number of gloves purchased be x.

So, number of caps purchased = $\frac{810 - 70x}{30}$

Now, maximum value of x can be 9 and hence number of caps is 6.

Hence, the required ratio = 9:6 = 3:2

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Answer key/Solution

Q.100

There is enough food for 10 men to survive for 10 days, if each man eats 600g per day. How many men can survive on the same quantity of food for 15 days if each eats 500g a day?

- 1 0 8
- 2 0 **12**
- 3 0 6
- 4 0 4

Solution:

Correct Answer: 1

Total food available = 10 × 10 × 600 g.

If each man eats 500g/day, the number of days for

which 15 men can survive

$$= \frac{10 \times 10 \times 600}{15 \times 500} = 8.$$

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