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Master series Mock CAT – 8 2019

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Qs Analysis (QsAnalysis.jsp?sid=aaagsPXaw1_Wbd6ba0x_wSun Jan 12 09:30:17 IST 2020&qsetId=JTBvp3vA9yw=&qsetName=Master series Mock CAT – 8 2019)

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VARC

LRDI

QA

Sec 1

Directions for questions (1 to 3): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

Last week Cornwall became the latest beauty spot on the planet to admit it was the victim of its own success in attracting tourists. Such is the swell in numbers that there's barely enough space to place a beach towel on the sands of Porthcurno beach and Kynance Cove. The local tourist board, tasked with getting people to come to the coast, has resorted to pleading with people to stay away. No doubt the long, hot summer sent people scuttling for the coast. But Cornwall's overtourism problem highlights a number of familiar trends. First is how society now views nature itself as merely one more good to be consumed; second, the shallow, modern need to present a life free from the tyranny of a nine-to-five office job in the tight frame of Instagram; last, the influx of "set-jetters", who seek out the locations of their favourite television dramas or films.

Cities across Europe now regularly see locals take to the streets to protest about everything from noise and litter to Airbnb out-of-towners warping house prices. Deregulation of taxi laws has seen a spike in ride-hailing services like Uber clog streets. This is unsustainable: the desire for the authentic is coming at the expense of the locals who are supposed to provide it. Barcelona's mayor responded by making it harder for visitors to stay. Others say tourist profits ought to be offset by a bill for damage caused. The answer to such questions rest with whether there is an ecologically and socially viable model of seeing the world. They also lie with governments, in the rich and poor world, taking a more sober view of tourism's economic potential. Perhaps most important is for travellers to understand how their behaviour can exhaust the allure of a destination faster than it can be replenished – and alter their conduct permanently.

Q.1

According to the passage some section of society has converted Nature into:

1 **an object which requires to be presented on social media platforms.**

2 **a commodity which can be used with little afterthought.**

3 **a shallow object for the jet-setters to fulfil their need for glamour.**

4 **an ecologically viable model of breaking the tyranny of a nine-to-five existence.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Tourism Management
Word Count# 306
This is a very easy fact based question if we just eliminate the distorted option.
The author gives three problems in the first paragraph. The first problem is referred to in the line "First is how society now views nature itself as merely one more good to be consumed". This is with reference to nature or ecology. So, option 2 is the answer.
Option 1 – This is related to the shallowness of the modern existence that wants to pretend a glamorous picture of their otherwise mundane 9-5 existence. So, this is not with reference to Nature. Hence, it is incorrect.
Option 3 – This is the third problem mentioned by the author. It refers to the need of the rich to locate their favourite TV locales. So, this is incorrect in the context of the question.
Option 4 – This is called an error or juxtaposition. The option takes "an ecologically viable model" from the second paragraph and "breaking the tyranny of a nine-to-five existence" from the second problem mentioned in the first paragraph. Then the two parts are joined to give an illogical or out of context 'cause-effect' relationship. Hence, this is a distorted option.

FeedBack

Directions for questions (1 to 3): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

Last week Cornwall became the latest beauty spot on the planet to admit it was the victim of its own success in attracting tourists. Such is the swell in numbers that there's barely enough space to place a beach towel on the sands of Porthcurno beach and Kynance Cove. The local tourist board, tasked with getting people to come to the coast, has resorted to pleading with people to stay away. No doubt the long, hot summer sent people scuttling for the coast. But Cornwall's overtourism problem highlights a number of familiar trends. First is how society now views nature itself as merely one more good to be consumed; second, the shallow, modern need to present a life free from the tyranny of a nine-to-five office job in the tight frame of Instagram; last, the influx of "set-jetters", who seek out the locations of their favourite television dramas or films.

Cities across Europe now regularly see locals take to the streets to protest about everything from noise and litter to Airbnb out-of-towners warping house prices. Deregulation of taxi laws has seen a spike in ride-hailing services like Uber clog streets. This is unsustainable: the desire for the authentic is coming at the expense of the locals who are supposed to provide it. Barcelona's mayor responded by making it harder for visitors to stay. Others say tourist profits ought to be offset by a bill for damage caused. The answer to such questions rest with whether there is an ecologically and socially viable model of seeing the world. They also lie with governments, in the rich and poor world, taking a more sober view of tourism's economic potential. Perhaps most important is for travellers to understand how their behaviour can exhaust the allure of a destination faster than it can be replenished – and alter their conduct permanently.

Q.2

All of the following are false, except:

1 **A section of the modern society hankers for something more genuine than their daily lives.**

2 **The local people of tourist spots are primarily agitated by the fact that they are unable to enjoy profits from tourists due to companies like Uber.**

3 **Governments across the globe have started adopting a nuanced view on tourism.**

4 **Protests against tourists littering a place or affecting housing prices are unsustainable.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
Genre: Tourism Management
Word Count# 306
The question asks us to find an option which is true according to the passage. So, we need to evaluate each option individually.
Option 1 – This is the reiteration of the second problem as mentioned in the first paragraph. Refer to the line, "second, the shallow, modern need to present a life free from the tyranny of a nine-to-five office job in the tight frame of Instagram." So, this option is correct according to the passage.
Option 2 – This is incorrect. The passage clearly states that the locals are fed up with the gamut of problems (housing prices, noise, littering, Uber clogging the streets etc) associated with over-tourism. There is no data to define the problem related to Uber as the PRIMARY problem. So, this is not correct according to the passage.
Option 3 – It is incorrect as the passage argues that the governments must start taking a more practical view on sustainable tourism. The passage doesn't state that 'Governments across the globe HAVE STARTED' doing this. So, this is incorrect.
Option 4 – This is clearly distorted. The author states that over-tourism at the expense of the peaceful existence of the locals is unsustainable. It doesn't mean that the protests by the locals are unsustainable.

FeedBack

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Q.3

The author in the passage mainly tries to:

1 **show why over-tourism is being protested by the locals.**

2 **argue in favour of governments curtailing tourism for economic reasons.**

3 **advocate the need for adopting a more fulfilling life in order to spare Nature.**

4 **highlight the perils of converting geographical places into goods.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
Genre: Tourism Management
Word Count# 306
In the first paragraph, the author shows why over-tourism is a problem and cites three reasons for the same. In the second paragraph, s/he focuses on practical problems over-tourism causes for the locals. In just one sentence, s/he talks about solving the problem. But s/he offers no concrete solution. So, mainly the author is trying to highlight the problem associated with over-tourism. This makes option 4 the correct answer.
Option 1 is too narrow.
Option 2 is distorted and narrow. The author talks about curtailing 'over-tourism' and not tourism in general.
Option 3 is irrelevant. The author does mention the shallowness of modern existence. But that is not the focus and 'fulfilling' life has not been defined in the paragraph.

FeedBack

Directions for questions (4 to 9): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

In 1899, the economist Thorstein Veblen observed that silver spoons and corsets were markers of elite social position. In Veblen's now famous treatise The Theory of the Leisure Class, he coined the phrase 'conspicuous consumption' to denote the way that material objects were paraded as indicators of social position and status. More than 100 years later, conspicuous consumption is still part of the contemporary capitalist landscape, and yet today, luxury goods are significantly more accessible than in Veblen's time. This deluge of accessible luxury is a function of the mass-production economy of the 20th century, the outsourcing of production to China, and the cultivation of emerging markets where labour and materials are cheap. At the same time, we've seen the arrival of a middle-class consumer market that demands more material goods at cheaper price points.

However, the democratisation of consumer goods has made them far less useful as a means of displaying status. Given that everyone can now buy designer handbags and new cars, the rich have taken to using much more tacit signifiers of their social position. Yes, oligarchs and the super rich still show off their wealth with yachts and Bentleys and gated mansions. But the dramatic changes in elite spending are driven by a well-to-do, educated elite, or what I call the 'aspirational class'. This new elite cements its status through prizing knowledge and building cultural capital, not to mention the spending habits that go with it – preferring to spend on services, education and human-capital investments over purely material goods. These new status behaviours are what I call 'inconspicuous consumption'.

The rise of the aspirational class and its consumer habits is perhaps most salient in the United States. The US Consumer Expenditure Survey data reveals that, since 2007, the country's top 1 per cent (people earning upwards of $300,000 per year) are spending significantly less on material goods, while middle-income groups (earning approximately

$70,000 per year) are spending the same, and their trend is upward. Eschewing an overt materialism, the rich are investing significantly more in education, retirement and health – which are immaterial, yet cost many times more than any handbag a middle-income consumer might buy. The top 1 per cent now devote the greatest share of their expenditures to inconspicuous consumption, with education forming a significant portion of this spend (accounting for almost 6 per cent of top 1 per cent household expenditures, compared with just over 1 per cent of middle-income spending). In fact, top 1 per cent spending on education has increased 3.5 times since 1996, while middle-income spending on education has remained flat over the same time period.

The vast chasm between middle-income and top 1 per cent spending on education in the US is particularly concerning because, unlike material goods, education has become more and more expensive in recent decades. Thus, there is a greater need to devote financial resources to education to be able to afford it at all. According to Consumer Expenditure Survey data from 2003-2013, the price of college tuition increased 80 per cent, while the cost of women's apparel increased by just 6 per cent over the same period. Middle-class lack of investment in education doesn't suggest a lack of prioritising as much as it reveals that, for those in the 40th-60th quintiles, education is so cost-prohibitive it's almost not worth trying to save for.

Q.4

According to the passage, which of the following statements is not definitely true?

1 **In the modern days, even the Middle income groups are associated with conspicuous consumption.**

2 **Because of the difference in preferences, the gap between the rich and the middle class is widening.**

3 **More and more middle class people have started consuming goods that were once meant only for the rich.**

4 **With time, the ways of showing off wealth have changed.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Economics / Finance / Consumer Behaviour Study
Word Count# 557
Genre: Economics / Finance / Consumer Behaviour Study
Word Count# 557
The clue in the question stem is 'not definitely true'. It means the correct option may be factually incorrect or not logically sure. Then, we need to eliminate the options.
Option 1 – Refer to the lines, "More than 100 years later, conspicuous consumption is still part of the contemporary capitalist landscape, and yet today, luxury goods are significantly more accessible than in Veblen's time." So, this is surely true.
Option 2 – As per the passage, the gap between the two classes as per as 'conspicuous consumption' has narrowed. The gap in the spending on education has widened. So, we can't say that in general the gap has 'widened'. This may or may not be true. Factually, the passage doesn't support the statement. Hence, this is the correct answer.
Option 3 – Refer to the line, "However, the democratisation of consumer goods has made them far less useful as a means of displaying status." So, this is true as per the passage.
Option 4 – This is true according to the first paragraph. So, this is true too.

FeedBack

Directions for questions (4 to 9): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Q.5

Which of the following is not cited as a reason for increasing consumption of the goods meant for the rich by the middle class?

1 **Increasing demand for such goods at cheaper prices by a middle class market**

2 **Development of markets where labour and raw material are cheap**

3 **Outsourcing of production to developing economies**

4 **Production of large quantities of standardised goods**

Solution:
Correct Answer : 3
Genre: Economics / Finance / Consumer Behaviour Study
Word Count# 557
The correct answer is 3. 1, 2, and 4 are mentioned at the end of the first paragraph. But only the example of China is given in the passage. Developing economies is out of scope.

Bookmark

Answer key/Solution

FeedBack

Directions for questions (4 to 9): The passage below is accompanied by a set of six

questions. Choose the best answer to each question.

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The vast chasm between middle-income and top 1 per cent spending on education in the US is particularly concerning because, unlike material goods, education has become more and more expensive in recent decades. Thus, there is a greater need to devote financial resources to education to be able to afford it at all. According to Consumer Expenditure Survey data from 2003-2013, the price of college tuition increased 80 per cent, while the cost of women's apparel increased by just 6 per cent over the same period. Middle-class lack of investment in education doesn't suggest a lack of prioritising as much as it reveals that, for those in the 40th-60th quintiles, education is so cost-prohibitive it's almost not worth trying to save for.

Q.6

Which of the following does the passage aim to bring out?

1 **The abandoning of overt materialism by the aspirational class to invest in social causes like education**

2 **The rise of inconspicuous consumption with a particular reference to the education spending in the US**

3 **The difference in the spending habits of the middle class and the aspirational class and the rise of conspicuous consumption in the latter**

4 **The elites' rising preference to invest in tacit status signifiers because of increased accessibility of luxury goods**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
Genre: Economics / Finance / Consumer Behaviour Study
Word Count# 557
The passage talks about how material goods have become accessible even to the middle class and consequently, the elite now prefer to invest in tacit status signifiers like knowledge, cultural capital etc. It then shows this trend in the education spending in the US. 4 captures the idea most appropriately. However, we need to eliminate the other options to be sure.
1 is eliminated because of 'social causes'.
2 is eliminated as it does not state that this rise is as a status signifier among the elite.
3 is too broad and also factually incorrect. The passage doesn't talk about all the spending habits of the middle and the elite class. And the passage states that, inconspicuous consumption (not conspicuous consumption) has increased among the elites.

FeedBack

Directions for questions (4 to 9): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Q.7

Which of the following can be inferred from the passage?

1 **Democratisation of a product makes make it lose some of its usefulness.**

2 **Everyone can now buy designer handbags and new cars.**

3 **Education spending becoming a status signifier has its share of advantages and disadvantages.**

4 **For the elite class, investment in immaterial goods like education goes beyond the realm of the personal to the realm of the ulterior.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
Genre: Economics / Finance / Consumer Behaviour Study
Word Count# 557
Refer to the first line of the second paragraph. 1 can be inferred from that.
2 is a line stated in the passage. Contextually, it means that these goods have become commonplace as both the middle class and elite can buy them. It doesn't 'literally' mean 'everyone'.
3 can't be inferred because while the disadvantage of lack of affordability is mentioned in the context of US, no advantage is mentioned in the passage.
4 is alien to the passage. There is no mention of 'realm of the ulterior'. So, it is a vague option.

FeedBack

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materialism, the rich are investing significantly more in education, retirement and health – which are immaterial, yet cost many times more than any handbag a middle-income consumer might buy. The top 1 per cent now devote the greatest share of their expenditures to inconspicuous consumption, with education forming a significant portion of this spend (accounting for almost 6 per cent of top 1 per cent household expenditures, compared with just over 1 per cent of middle-income spending). In fact, top 1 per cent spending on education has increased 3.5 times since 1996, while middle-income spending on education has remained flat over the same time period.

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Q.8

Using 'inconspicuous' consumption as a status signifier appears paradoxical. Which of the following best resolves this paradox?

1 **Inconspicuous consumption discards short-term show-off and focuses on the progressive value of things.**

2 **Inconspicuous consumption, though tacit and not obvious, betters the chances of the coming generations.**

3 **Inconspicuous consumption is conspicuous in that it is reflected in the personality and not in the temporary possessions of the individual.**

4 **Inconspicuous consumption, though not inherently obvious or ostensibly material, is exclusionary in nature.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
Genre: Economics / Finance / Consumer Behaviour Study
Word Count# 557
The paradox is that something invisible is being used for show-off of status. It is possible if this invisible thing is accessible only by a few people, i.e. it excludes many people. So 4 is the answer.
1 draws a long-term vs short-term comparison between immaterial and material things, something which hasn't been drawn in the passage.
Things that better the chances of future generations are not necessarily status goods. So 2 is rejected.
3 talks about inconspicuous consumption being deeper or more permanent in nature. This again hasn't been discussed in the passage.

FeedBack

Directions for questions (4 to 9): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

In 1899, the economist Thorstein Veblen observed that silver spoons and corsets were markers of elite social position. In Veblen's now famous treatise The Theory of the Leisure Class, he coined the phrase 'conspicuous consumption' to denote the way that material objects were paraded as indicators of social position and status. More than 100 years later, conspicuous consumption is still part of the contemporary capitalist landscape, and yet today, luxury goods are significantly more accessible than in Veblen's time. This deluge of accessible luxury is a function of the mass-production economy of the 20th century, the outsourcing of production to China, and the cultivation of emerging markets where labour and materials are cheap. At the same time, we've seen the arrival of a middle-class consumer market that demands more material goods at cheaper price points.

However, the democratisation of consumer goods has made them far less useful as a means of displaying status. Given that everyone can now buy designer handbags and new cars, the rich have taken to using much more tacit signifiers of their social position. Yes, oligarchs and the super rich still show off their wealth with yachts and Bentleys and gated mansions. But the dramatic changes in elite spending are driven by a well-to-do, educated elite, or what I call the 'aspirational class'. This new elite cements its status through prizing knowledge and building cultural capital, not to mention the spending habits that go with it – preferring to spend on services, education and human-capital investments over purely material goods. These new status behaviours are what I call 'inconspicuous consumption'.

The rise of the aspirational class and its consumer habits is perhaps most salient in the United States. The US Consumer Expenditure Survey data reveals that, since 2007, the country's top 1 per cent (people earning upwards of $300,000 per year) are spending significantly less on material goods, while middle-income groups (earning approximately $70,000 per year) are spending the same, and their trend is upward. Eschewing an overt

materialism, the rich are investing significantly more in education, retirement and health – which are immaterial, yet cost many times more than any handbag a middle-income consumer might buy. The top 1 per cent now devote the greatest share of their expenditures to inconspicuous consumption, with education forming a significant portion of this spend (accounting for almost 6 per cent of top 1 per cent household expenditures, compared with just over 1 per cent of middle-income spending). In fact, top 1 per cent spending on education has increased 3.5 times since 1996, while middle-income spending on education has remained flat over the same time period.

The vast chasm between middle-income and top 1 per cent spending on education in the US is particularly concerning because, unlike material goods, education has become more and more expensive in recent decades. Thus, there is a greater need to devote financial resources to education to be able to afford it at all. According to Consumer Expenditure Survey data from 2003-2013, the price of college tuition increased 80 per cent, while the cost of women's apparel increased by just 6 per cent over the same period. Middle-class lack of investment in education doesn't suggest a lack of prioritising as much as it reveals that, for those in the 40th-60th quintiles, education is so cost-prohibitive it's almost not worth trying to save for.

Q.9

From the data presented in the last paragraph, it can be inferred that:

1 **due to increased investment in education by the elite (6% of the top 1% household expenditure), they are now gaining higher levels of education than earlier.**

2 **the 3.5 times increase in the spending in education by the top 1% could be purely a result of the increased cost of education.**

3 **due to increased investment in education by the elite (6% of the top 1% household expenditure), more elite are now getting education than earlier.**

4 **the flat middle class spending on education since 1996 indicates that they have been getting the same amount of education since 1996.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Economics / Finance / Consumer Behaviour Study
Word Count# 557
1 can't be inferred from the data. It is possible that they are not getting a higher 'level' of education, they are paying more for the same level due to increased cost or better quality of the same level.
2 can be inferred. Spending= price * quantity. So it is possible that the increased spending is purely due to the increased price of education.
3 can't be inferred. We can't say anything about the number of elites living. It could be that the same number is attaining higher levels of education. It could also be that there has been a general decline in the population, thus leading to a decline in even the top 1%.
For 4, again, see the Spending= price* quantity relationship. Constant spending does not necessarily mean the same 'quantity' of education. It could be a decreased quantity with an increased price.

FeedBack

Directions for question 10: The passage given below is followed by four summaries. Choose the option that best captures the author's position.

Q.10

Twitter should not force its users to view messages from a political party they oppose. Instead, it should create an alert system that makes people aware when they are being exposed predominantly to one point of view. The most pernicious effect of social media echo chambers may be that most people are unaware of how much their political views are influenced by selective exposure to information. Also, if Twitter is resolved to expose users to opposing political views, it should focus on doing so with specific issues. Republican and Democratic Twitter users appear unready to have broad conversations about politics. But breaking up the echo chambers that prevent cross-party discussion about market-based solutions to climate change, for example, might be more successful.

1 **Twitter's plan to force its users to view messages from opposing political parties may backfire.**

2 **Twitter should explore alternatives to the consideration of mandatorily exposing users to messages from opposing parties.**

3 **Selective-exposure alerts and focused exposure to Twitter users should be preferred over mandatory exposure to opposing political views.**

4 **Twitter should prefer the approach of selective exposure and focused discussions over forcing its users to view opposing political views.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
1 is incomplete as it doesn't suggest any alternatives.
2 talks only about alternatives and not a diluted version of the same plan. The paragraph talks about both.
3 captures both.
4 misses the word 'alerts' after selective exposure thus meaning the opposite of what it should have.

FeedBack

Q.11

Directions for question 11: 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. Those who whip up hatred for their own cynical ends may not be directly responsible for what happens.
2. Bad people can be emboldened in ways speakers never intended.
3. But it's a reminder that politics is not a game; words have consequences.
4. What thinking person would not resolve to do better, be more careful in future?
5. This feeling that you can't start a fire without people getting burned only hardened last week, when a Brexit campaign demonising immigrants was followed by a flood of racist attacks.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 51324
There are two pairs in the paragraph.
1 and 3 is a mandatory pair. 'But' in 3 refers to 5 and 1.
3 and 2 is a mandatory pair. 2 takes the idea mentioned in 3 forward.
4 is the best closing sentence as it acts like a rhetoric question.
So, we need to find a place for 5. But in 1, 'their own cynical ends may not be directly responsible for what happens' actually refers to the definition given in 5.
Hence, 51324 is the right sequence.

FeedBack

Q.12

Directions for question 12: 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. The association was especially strong for teenagers, researchers found.
2. Eating at restaurants and fast food chains may increase exposure to potentially harmful hormone-disrupting chemicals used to increase the flexibility and durability of plastic, a study has found.
3. A total of 10,253 people were asked to recall what they ate and where their food came from over the previous 24 hours.
4. Certain foods, including burgers and sandwiches, were linked to higher phthalate levels in the study, but only if purchased at a fast-food outlet, restaurant or café.
5. The scientists analysed data from the US National Health and Nutrition Examination Survey (NHANES) collected between 2005 and 2014.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 24153
This is a comparative easy question.
5 and 3 is a direct pair. Both talk about the study NHANES. 3 gives the number of people participating in the study.
1 has 'the association'. This actually refers to 4. 'Especially stronger' adds to the idea mentioned in 4.
2 is the best opening sentence.
Hence, 24153 is the correct sequence.

FeedBack

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

You might think that losing over ten percentage points off your vote was a calamity. But the drubbing meted out by the voters of Bavaria to Germany's Christian Social Union (CSU) on October 14th, which saw it lose its majority after ruling Germany's largest state single-handedly for all but five of the past 52 years, turns out to have been only the second-nastiest beating administered that day. The Social Democrats (SPD) were battered into fifth place, lost half their support and now seem to have entered terminal decline. That is a consequence, most analysts agree, of deciding in March to enter into a second "grand coalition" (GroKo, in its German nickname), with Angela Merkel's Christian Democrats (CDU). There is a chance that the collapse of Mrs Merkel's government is only weeks away, with gloomy consequences for a continent grappling with Brexit, an incipient Italian-driven new euro crisis and an ever more cantankerous Russia.

The result in Bavaria was not all terrible news. The Greens, who have become an economically and politically sensible centre-left alternative to the SPD, with a much younger and more enthusiastic base of support, got a huge boost. The hard-right Alternative for Germany (AFD) did less well than many had feared, taking around 10% of the vote compared with the 16% or so they score in national opinion polls. But Bavaria's election is further confirmation that all three of the GroKo parties are in deep trouble.

Nationally, Mrs Merkel's CDU, like its Bavarian sister-party, the CSU, has lost a big chunk of its support to the AFD. This is a reaction to the chancellor's decision in 2015 to admit more than 1m asylum-seekers into Germany. Though it is also because of her willingness to use frugal Germans' cash to bail out prodigal southern members of the euro. For its part, the SPD is being deserted by its supporters in droves because once again it is propping up a chancellor they see as unacceptably conservative. The SPD now faces a bleak choice: to stay in a floundering, bickering alliance with a party its voters hate, or to leave—probably triggering an election in which it might do even worse than last time.

Nothing will happen before the end of the month. But the SPD might well jump if Hesse, a large state that votes on October 28th, delivers a similar verdict. That will lead to a new election, or possibly an attempt by Mrs Merkel to govern as a minority administration with the Greens. Little of note has been heard from her government on the national, European or global stage since it took office seven months ago and the drift is likely to continue. Even if the GroKo staggers on, the chancellor's days at the top seem numbered. Senior members of her party openly discuss the likelihood that she will be obliged to stand down as party leader (though not, yet, as chancellor) at the CDU congress in December. The idea, presumably, is to allow her probable successor, the CDU's general secretary, Annegret Kramp-Karrenbauer, a chance to raise her profile before taking over as chancellor in good time for the next election. But it seems unlikely to make much difference to the CDU's fortunes. Modern Germans have an understandable aversion to charismatic leaders, but Ms Kramp-Karrenbauer will test even them.

Q.13

The passage suggests that SPD may not have suffered a major loss in Bavaria if:

1 they did not have an alliance with CDU.

2 they had entered a coalition with CSU.

3 the election results were in accordance with the opinion polls.

4 various events across Europe did not have a negative impact.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
Genre: Politics
Word Count# 552
The question asks what is implied by the author. In paragraph [1], the author states that the SPD's loss is the consequence of SPD's decision to enter into a coalition with CDU. *[That is a consequence, most analysts agree, of deciding in March to enter into a second "grand coalition" (GroKo, in its German nickname), with Angela Merkel's Christian Democrats (CDU).].* In paragraph [3], the author explains that the supporters of SPD deserted the party because of the alliance with CDU. The author is therefore implying that the if SPD hadn't entered into a collation with CDU, they may not have suffered the loss. Hence (1) is the correct answer.

INCORRECT ANSWERS
Option 2 – CSU is the party that won the election in Bavara. However, the author does not discuss the consequence of an alliance with CSU.
Option 3 – The opinion polls mentioned in paragraph [2] only gives information about AFD and nothing about SPD.
Option 4 – The CDU's defeat to some extent was impacted by certain events in Europe. The impact it had on SPD is not mentioned in the passage.

FeedBack

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

You might think that losing over ten percentage points off your vote was a calamity. But the drubbing meted out by the voters of Bavaria to Germany's Christian Social Union (CSU) on October 14th, which saw it lose its majority after ruling Germany's largest state single-handedly for all but five of the past 52 years, turns out to have been only the second-nastiest beating administered that day. The Social Democrats (SPD) were battered into fifth place, lost half their support and now seem to have entered terminal decline. That is a consequence, most analysts agree, of deciding in March to enter into a second "grand coalition" (GroKo, in its German nickname), with Angela Merkel's Christian Democrats (CDU). There is a chance that the collapse of Mrs Merkel's government is only weeks away, with gloomy consequences for a continent grappling with Brexit, an incipient Italian-driven new euro crisis and an ever more cantankerous Russia.

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Q.14

The author apparently takes the view that CDU losing the election:

1 will be detrimental to Europe.

2 is inconsequential to the future of Europe.

3 will revitalise Europe.

4 will result in a no-deal Brexit.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
Genre: Politics
Word Count# 552
This is an inference-based question. CDU is the party of Angela Merkel. To understand the view of the author, refer to the last sentence of paragraph [1] :
"There is a chance that the collapse of Mrs Merkel's government is only weeks away, with gloomy consequences for a continent grappling with Brexit, an incipient Italian-driven new euro crisis and an ever more cantankerous Russia."

The author clearly states that the consequences is gloomy. From this one can infer that the author takes the view that CDU losing the election will be detrimental to Europe. Hence (1) is the correct answer.

INCORRECT ANSWERS
Option 2 – The author clearly states that the consequences are gloomy. Hence it is inaccurate to say that CDU's loss will not have any consequence.
Option 3 – This is opposite to what the author is stating.
Option 4 – The impact of the deal with Brexit is not mentioned by the author. S/he merely states that Europe is dealing with Brexit currently. The timing of the loss will have an impact. What specific impact it will have on the Brexit deal is not discussed by the author.

FeedBack

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You might think that losing over ten percentage points off your vote was a calamity. But the drubbing meted out by the voters of Bavaria to Germany's Christian Social Union (CSU) on October 14th, which saw it lose its majority after ruling Germany's largest state single-handedly for all but five of the past 52 years, turns out to have been only the second-nastiest beating administered that day. The Social Democrats (SPD) were battered into fifth place, lost half their support and now seem to have entered terminal decline. That is a consequence, most analysts agree, of deciding in March to enter into a second "grand coalition" (GroKo, in its German nickname), with Angela Merkel's Christian Democrats (CDU). There is a chance that the collapse of Mrs Merkel's government is only weeks away, with gloomy consequences for a continent grappling with Brexit, an incipient Italian-driven new euro crisis and an ever more cantankerous Russia.

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Q.15

Modern Germans are the least likely to vote for candidates:

1 who are highly rational and deliberate in their style.

2 who uses their authority to demand high performance.

3 who takes a more participative role in the decision-making process.

4 who rely on charm and persuasiveness.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
Genre: Politics
Word Count# 552
In the last sentence, the author states : *"Modern Germans have an understandable aversion to charismatic leader,…".* Modern Germans do not like charismatic leaders. To answer this question, one needs to know who a charismatic leader is. "Charismatic" means "exercising a compelling charm which inspires devotion in others.". Answer choice (4) comes closest to the meaning of charismatic leader.

INCORRECT ANSWERS:
Option 1 – This would be opposite to a charismatic leader. Charismatic leaders are those who use their personality more than rational decision style.
Option 2 – This would be an authoritarian leader who uses her/his authority.
Option 3 – This would be a democratic leadership style instead of a charismatic leadership style.

FeedBack

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

You might think that losing over ten percentage points off your vote was a calamity. But the drubbing meted out by the voters of Bavaria to Germany's Christian Social Union (CSU) on October 14th, which saw it lose its majority after ruling Germany's largest state single-handedly for all but five of the past 52 years, turns out to have been only the second-nastiest beating administered that day. The Social Democrats (SPD) were battered into fifth place, lost half their support and now seem to have entered terminal decline. That is a consequence, most analysts agree, of deciding in March to enter into a second "grand coalition" (GroKo, in its German nickname), with Angela Merkel's Christian Democrats (CDU). There is a chance that the collapse of Mrs Merkel's government is only weeks away, with gloomy consequences for a continent grappling with Brexit, an incipient Italian-driven new euro crisis and an ever more cantankerous Russia.

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Q.16

From the tone of the passage, the author would be:

1 less likely to endorse CDU.

2 more likely to endorse the Greens.

3 more likely to endorse AFD.

4 less likely to endorse SPD.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Politics
Word Count# 552
To answer this question, one need to understand the attitude the author has towards the political parties from what is written in the passage.

Refer to: *"The result in Bavaria was not all terrible news. The Greens, who have become an economically and politically sensible centre-left alternative to the SPD…"*

The author states that the result is not all terrible news – that is a statement of opinion as against a statement of fact. The author goes on to say that the Greens is a 'sensible' alternative. So, the author is likely to endorse the Greens. Hence 2 is correct.

INCORRECT OPTIONS
Option 1 – CDU is Angela Merkel's party. The author talks about the gloomy consequence if there is a loss suffered by CDU. Hence s/he is more likely to endorse CDU.
Option 2 – In paragraph [2], the author states that there was some positive news. One: The Greens becoming a sensible alternative to SPD and two: AFD not gaining as much as the poll said it would. From the tone, author is less likely to endorse AFD.
Option 3 – From the passage it can be inferred that the loss suffered by SPD is a 'terrible' news. So, the author is more likely to endorse SPD.

FeedBack

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

You might think that losing over ten percentage points off your vote was a calamity. But the drubbing meted out by the voters of Bavaria to Germany's Christian Social Union (CSU) on October 14th, which saw it lose its majority after ruling Germany's largest state single-handedly for all but five of the past 52 years, turns out to have been only the second-nastiest beating administered that day. The Social Democrats (SPD) were battered into fifth place, lost half their support and now seem to have entered terminal decline. That is a consequence, most analysts agree, of deciding in March to enter into a second "grand coalition" (GroKo, in its German nickname), with Angela Merkel's Christian Democrats (CDU). There is a chance that the collapse of Mrs Merkel's government is only weeks away, with gloomy consequences for a continent grappling with Brexit, an incipient Italian-driven new euro crisis and an ever more cantankerous Russia.

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Q.17

Each of the following is a reason for CDU losing its supporters to AFD EXCEPT:

1 the Chancellor's decision to admit asylum seekers.

2 the Chancellor's decision to bail out southern members of the Euro.

3 The Chancellor's popularity had a significant decline among German voters.

4 all of the above are reasons for CDU losing its supporters to AFD.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
Genre: Politics
Word Count# 552
This is fact-based questions. (1) and (2) and (3) can be found in paragraph [3] : ***"Nationally, Mrs Merkel's CDU, like its Bavarian sister-party, the CSU, has lost a big chunk of its support to the AFD. This is a reaction to the chancellor's decision in 2015 to admit more than 1m asylum-seekers into Germany. Though it is also because of her willingness to use frugal Germans' cash to bail out prodigal southern members of the euro."***

However, the decline in the popularity of the Chancellor is specific to SPD supporters. The popularity of Chancellors across all German voters is unknown. Hence 3 is the correct answer.

INCORRECT ANSWERS:
Options 1 and 2 – as explained above
Option 4 – since 3 is correct

FeedBack

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The result in Bavaria was not all terrible news. The Greens, who have become an economically and politically sensible centre-left alternative to the SPD, with a much younger and more enthusiastic base of support, got a huge boost. The hard-right Alternative for Germany (AFD) did less well than many had feared, taking around 10% of the vote compared with the 16% or so they score in national opinion polls. But Bavaria's election is further confirmation that all three of the GroKo parties are in deep trouble.

Nationally, Mrs Merkel's CDU, like its Bavarian sister-party, the CSU, has lost a big chunk of its support to the AFD. This is a reaction to the chancellor's decision in 2015 to admit more than 1m asylum-seekers into Germany. Though it is also because of her willingness to use frugal Germans' cash to bail out prodigal southern members of the euro. For its part, the SPD is being deserted by its supporters in droves because once again it is propping up a chancellor they see as unacceptably conservative. The SPD now faces a bleak choice: to stay in a floundering, bickering alliance with a party its voters hate, or to leave—probably triggering an election in which it might do even worse than last time.

Nothing will happen before the end of the month. But the SPD might well jump if Hesse, a large state that votes on October 28th, delivers a similar verdict. That will lead to a new election, or possibly an attempt by Mrs Merkel to govern as a minority administration with the Greens. Little of note has been heard from her government on the national, European or global stage since it took office seven months ago and the drift is likely to continue. Even if the GroKo staggers on, the chancellor's days at the top seem numbered. Senior members of her party openly discuss the likelihood that she will be obliged to stand down as party leader (though not, yet, as chancellor) at the CDU congress in December. The idea, presumably, is to allow her probable successor, the CDU's general secretary, Annegret Kramp-Karrenbauer, a chance to raise her profile before taking over as chancellor in good time for the next election. But it seems unlikely to make much difference to the CDU's fortunes. Modern Germans have an understandable aversion to charismatic leaders, but Ms Kramp-Karrenbauer will test even them.

Q.18

The overall tone of the passage is:

1 unbiased analysis.

2 polite cynicism.

3 subtle pessimism.

4 excessive denial.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
Genre: Politics
Word Count# 552
If you read through the passage you could find many 'statement of opinion' of the author.

• Paragraph [1] : ***"There is a chance that the collapse of Mrs Merkel's government is only weeks away, with gloomy consequences…"***
• Paragraph [2] : ***"The result in Bavaria was not all terrible news."***
The author therefore is not merely doing an analysis of the situation but also making her/her opinion about the election results. And throughout the passage it paints a dark picture about the future. However, the author does not explicitly state that future is bad. Therefore, the best answer is subtle pessimism.

INCORRECT ANSWERS:
Option 1 – This is not an unbiased analysis. The author clearly opines on the election result.
Option 2 – Cynicism is ***"an inclination to believe that people are motivated purely by self-interest"*****. The overall tone of the passage is not one of cynicism.**
Option 4 – Denial is ***"the action of denying something."*** **The author is not denying anything. S/he is discussing the consequence of an election result.**

FeedBack

Q.19

Directions for question 19: 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. And these are related to each other rather as the year is related to a pocket diary – the latter a meaner, tidier, simpler version of the former.
2. Comedy is the angle at which most of us see the world, the way that our very light is filtered.
3. There is comedy, and then there is something called the Comic Novel.
4. The novel is, by and large, a secular, comic form: one can be suspicious of any serious novelist who seems entirely immune to the comic.
5. The late Philip Roth was rightly praised for his humour – David Baddiel said he was funny in the way a standup was funny – but none of the obituaries called him a "comic novelist".

Bookmark

Answer key/Solution

Solution:
Correct Answer : 5
The correct sequence is 3124. But we don't have to arrange the sentences in order to find the odd sentence. Sentences 1, 2, 3, and 4 talk about 'comic novels' and all the four sentences talk about what defines a comic novel. The discussion is far from over. Sentence 5 talks about the problem in calling someone a 'comic novelist'. This is irrelevant to the current paragraph. It might come later in the essay. So, this is the odd one out.

FeedBack

Q.20

Directions for question 20: 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. John Locke, a generation later, developed an entirely different notion of the basic nature of humankind, which he saw as innately good.
2. He fled to the Netherlands, where he met Prince William and Princess Mary of Orange.
3. Locke had witnessed the uprising, and became convinced that people could never live amicably.
4. John Locke ultimately enjoyed a favored position at court after the two were invited to invade England and assume the throne in 1688.
5. While attending Oxford in 1666, he became friends with the first Earl of Shaftesbury, and in 1679, when the Earl was implicated in plots against King Charles II, Locke was also suspected.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
The correct sequence is 1524. The paragraph is about Locke, his escape to Netherlands, and his stay at the court of William and Mary. 1 opens the paragraph as it introduces Locke's notion of mankind. 5 follows 1 as 'he' in 5 refers to John Locke, named in 1. 5 and 2 form a mandatory pair because suspected and fled are related. 4 follows 2 as 'the two' used in 4 refers to William and Mary referred to in 2. 3 is ruled out because of the different use of tense (past perfect), while in others past tense is used. Moreover, 3 does not form pair with any of the other sentences. 1 and 3 will not form a pair because in 1 it is written that Locke initially saw mankind as good but the notion had changed a generation later. 3 states that he already believed "that people could never live amicably" due to the uprising.

FeedBack

Directions for questions (21 to 23): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

Extreme heat has gripped the northern hemisphere in recent months, and the year 2018 is on track to be among the hottest ever recorded. Higher global temperatures are expected to have detrimental effects on our natural environments and our physical health, but what will they do to our mental health?

New research from an international team of scientists suggests that one of the most tangible impacts may be an increase in suicide rates.

Suicide is already among the leading causes of death worldwide. For people aged 15-55 years, it is among the top five causes of death. Worldwide nearly one million people die by suicide each year — more than all deaths from war and murder combined.

Using historical temperature records from the United States and Mexico, the researchers showed that suicide rates increased by 0.7 per cent in the U.S. and by 2.1 per cent in Mexico when the average monthly temperatures rose by 1 degree C.

The researchers calculated that if global temperatures continue to rise at these rates, between now and 2050 there could be 9,000 to 40,000 additional suicides in the U.S. and Mexico alone. This is roughly equivalent to the number of additional suicides that follow an economic recession.

It has been known for a long time that suicide rates spike during heat waves. Hotter weather has been linked with higher rates of hospital admissions for self-harm, suicide and violent suicides, as well as increases in population-level psychological distress, particularly in combination with high humidity.

Another recent study, which combined the results of previous research on heat and suicide, concluded there is "a significant and positive association between temperature rises and incidence of suicide."

Why this is remains unclear.

Q.21

The main idea of the passage is:

1 **to analyse the impact that global warming may have on the global suicide rates.**

2 **to analyse the impact of higher global temperatures on our natural environments and physical and mental health.**

3 **to analyse the impact of change in global temperatures on our mental health.**

4 **to analyse the impact that climate change may have on suicide rates in US and Mexico.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
Genre: Psychology
Word Count# 283
The focus of the passage is the interrelationship between increasing global temperatures and suicide rates worldwide. US and Mexico have been presented as examples. Hence, 1 is the correct answer.
3 is broad and 2 is broader.
4 talks about 'climate change' and about US and Mexico suicides only.

FeedBack

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Why this is remains unclear.

Q.22

Which of the following can be definitely inferred from the fourth paragraph?

1 **Global warming has impacted Mexico more as compared to the US.**

2 **An uptick in the average monthly temperatures has accompanied a rise in the suicide rates in the US and Mexico.**

3 **The number of suicides in the US and Mexico rose during the period under analysis.**

4 **A one-degree increase in the average monthly temperatures resulted in a higher increase in the suicide rate in Mexico as compared to that of the US.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Psychology
Word Count# 283
From the fourth paragraph, we can only conclude a direct correlation between suicide rates and the average monthly temperature at the two places; we cannot conclude a causation. This eliminates 1 and 4. Also, 1 talks about global warming whereas the period has considered the temperatures of US and Mexico.
3 may or may not be true. There is an increase in the suicide rates.
If however, the population of any of these two places has suffered a decline in this period, there may not be an increase in the number of suicides. 2 can be definitely inferred.

FeedBack

Directions for questions (21 to 23): The passage below is accompanied by a set of three questions. Choose the best answer to each question.

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Another recent study, which combined the results of previous research on heat and suicide, concluded there is "a significant and positive association between temperature rises and incidence of suicide."

Why this is remains unclear.

Q.23

According to the passage, which of the following is true?

1 **Hot weather, along with high humidity, results in an increase in population-level psychological distress.**

2 **Predicted increase in suicides between now and 2050 is higher for Mexico as compared to the US.**

3 **People of Mexico are more aggressive as compared to the people of the US as seen from a higher increase in their suicide rates and higher number of predicted suicides.**

4 **The predicted additional suicides in Mexico between now and 2050 are more than those in the US.**

Solution:
Correct Answer : 4
Genre: Psychology
Word Count# 283
1 implies causation whereas the passage refrains from it in the last line.
3 is incorrect as the number or rates of suicides can't be a conclusive proof of the aggression of the people of a nation.
2 is incorrect because it talks about the 'overall' predicted increase which will include an increase due to several reasons. The paragraph on the other hand just predicts the 'additional' suicides that will happen if the global temperatures continue to rise at the same rate.

Bookmark

Answer key/Solution

FeedBack

Q.24

Directions for question 24: 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. Our modern equivalent, the BBC Sports Personality of the Year award, has never been under less pressure to justify its existence.
2. Just spend a moment enjoying it all for what it was, an experience unlikely to be repeated in the lifetime of anyone old enough to have taken it in properly.
3. From the Etihad Stadium to the Allianz Arena, from the Champs Elysées to the Olympic Park, from Flushing Meadows to Twickenham, from the Medinah Country Club to the Wankhede Stadium, the story of the year ran and ran.
4. Just for a moment, let's set aside the question of how all this may play out for future generations. Not everything has to be about legacy.
5. In the middle ages they would have commemorated such a saga by setting the weavers to work on something that would have made the Bayeux Tapestry look like a pamphlet.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 35142
There are two strong pairs in this paragraph.
5 and 1 – 'In the middle ages' should be followed by 'Our modern equivalent'.
4 and 2 – 'Just for a moment' is followed by a suggestion that how we should savour the moment.
The trick is to place 3 and then find an order for 51 and 42.
3 has to be the opening sentence. It talks about 'the story of the year'. So, it talks about some kind of a great sporting achievement.
3 is followed by 5 – 'Story of the year' – 'such a saga'. So, 351 become a mandatory pair.
If we keep 4 and 2 at the beginning, there will be thematic problem with the flow of ideas. 4 and 2 already ask us to savour the moment. So, there won't be any necessity for 3 or 5.
Furthermore, 2 can't be followed by 3. It makes no thematic sense. However, 4 can follow 1 as it gives the author's take on the saga under discussion.
So, 35142 is the correct sequence.

FeedBack

Q.25

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

'Cool' does not only refer to a respected aspect of masculine display, it's also a symptom of *anomie,* confusion, anxiety, self-gratification and escapism, since being cool can push individuals towards passivity more than towards an active fulfillment of life's potential. Often "it is more important to be 'cool and down' with the peer group than to demonstrate academic achievement," write White & Cones (p.87). On the one hand, the message produced by a cool pose fascinates the world because of its inherent mysteriousness. The stylized way of offering resistance that insists more on appearance than on substance can turn cool people into untouchable objects of desire. On the other hand, to be cool can be seen as a decadent attitude leading to individual passivity and social decay.

1 **The notion of being cool is full of contradictions.**

2 **Being cool can have positive manifestations in an individual and thus is perceived both positively and negatively.**

3 **Being cool fascinates because of its mystery and repels because of its effects of individual passivity and social decay.**

4 **Being cool can push an individual towards passivity and thus is viewed as not just as something fascinating but also as a decadent attitude.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 4
The attitude of the author towards 'cool' is largely negative, thus the focus is more on its negative aspects. 2 on the other hand talks about positive manifestations and is thus rejected. 3 is incomplete as it just captures the 'perception' towards cool and not its actual effects. 1 is too broad to be the summary. 4 captures both its effects and its perception.

FeedBack

Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

Much is made these days of the fact we live in a post-truth society, and that, despite our instant access to more information than ever before, we still seek out the stories that reinforce our existing beliefs and biases. What role should educators play in assisting digital natives to navigate this murky online realm? 'Post-truth' was the Oxford Dictionary Word of the Year for 2016, defined as 'relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief'. This phenomenon is not new: there have always been tricksters, scammers, and cheats. Yet social media have the tendency to amplify: both constructive and destructive voices have become more urgent and sensationalised than ever previously. Students require the skills that enable them to critically sift through the vast amount of information on the net, yet they also need to engage compassionately with diverse ideas. So we need to educate them to engage with these media in a critical as well as compassionate manner. How can we encourage students to be not only critically engaged with all they see and hear, but also compassionately engaged with others whose beliefs and ideas differ from their own? Specifically, how might we teach young people to challenge fake news, be wary of alternative facts, and be kind to others they chat with in cyberspace?

Teaching children to be critically-engaged democratic citizens, to be ethical and compassionate, are values parents and educators alike hope to cultivate. But first we might well ask, exactly whose job is it to teach ethics? Good thinking skills, reasonableness, tolerance, and discernment with respect to what and who to trust are obvious skills the education system should aim to nurture. But what about caring or kindness? Should teachers have a role to play in teaching children to be compassionate? Or is that a role that ought to be confined to the domestic space? Moreover, if teachers do have a role to play in educating compassion, how should they go about it? Should they be role-models, employing compassion themselves? And if so, what happens when a student disobeys a rule? Should the teacher be caring and kind and not worry about enforcing an appropriate punishment because to do so may be deemed a denial of compassion in classroom proceedings?

Sometimes being forgiving, kind, and compassionate is in tension with following the rules and upholding certain standards.

This potential tension between compassion and rules is familiar to moral philosophers. The restraints of rule-bound or duty-bound ethical action often leave very little room for sympathy or sentiment. Consider Immanuel Kant's categorical imperative for moral action: 'Do what you would will to become a universal law'. No exceptions. However, David Hume, who, Kant said, woke him from his dogmatic slumbers, held the opposite position. For Hume, whether we like it or not, it is sentiment, including compassion, that guides our moral decision-making. "Reason always is, and only ever ought to be the slave to the passions," he famously intoned in A Treatise of Human Nature (1738).

These two sides of this debate – Kant's objective moral rules on one side, and Hume's subjective notion of 'fellow feeling' on the other – seem a little extreme. Perhaps we can find some middle ground by returning to an Aristotelian sense of virtue to support ethical decision making, and, in particular, to the concept of care. So although rules need to be in place to ensure fairness, surely there is also an important role for intelligent emotions such as compassion or care?

Q.26

Why does the author mention Aristotle in the passage?

1 **To denounce current trends in education**

2 **To substantiate his arguments in favour of teaching ethics in class**

3 **To argue for nuance between rigidity and unabashed sentimentality**

4 **To counter proliferations of fake news**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
Genre: Educational Philosophy
Word Count# 593
1 is incorrect since the author never denounces the roles and activities of educators.
2 is incorrect since the author is looking for an answer as to what kind of morality a student must be taught.
4 goes beyond the scope of the passage.
In the passage it is mentioned that, 'These two sides of this debate – Kant's objective moral rules on one side, and Hume's subjective notion of 'fellow feeling' on the other – seem a little extreme. Perhaps we can find some middle ground by returning to an Aristotelian sense of virtue to support ethical decision making, and, in particular, to the concept of care.' making 3 the correct choice.

FeedBack

Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

Much is made these days of the fact we live in a post-truth society, and that, despite our instant access to more information than ever before, we still seek out the stories that reinforce our existing beliefs and biases. What role should educators play in assisting digital natives to navigate this murky online realm? 'Post-truth' was the Oxford Dictionary Word of the Year for 2016, defined as 'relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief'. This phenomenon is not new: there have always been tricksters, scammers, and cheats. Yet social media have the tendency to amplify: both constructive and destructive voices have become more urgent and sensationalised than ever previously. Students require the skills that enable them to critically sift through the vast amount of information on the net, yet they also need to engage compassionately with diverse ideas. So we need to educate them to engage with these media in a critical as well as compassionate manner. How can we encourage students to be not only critically engaged with all they see and hear, but also compassionately engaged with others whose beliefs and ideas differ from their own? Specifically, how might we teach young people to challenge fake news, be wary of alternative facts, and be kind to others they chat with in cyberspace?

Teaching children to be critically-engaged democratic citizens, to be ethical and compassionate, are values parents and educators alike hope to cultivate. But first we might well ask, exactly whose job is it to teach ethics? Good thinking skills, reasonableness, tolerance, and discernment with respect to what and who to trust are obvious skills the education system should aim to nurture. But what about caring or kindness? Should teachers have a role to play in teaching children to be compassionate? Or is that a role that ought to be confined to the domestic space? Moreover, if teachers do have a role to play in educating compassion, how should they go about it? Should they be role-models, employing compassion themselves? And if so, what happens when a student disobeys a rule? Should the teacher be caring and kind and not worry about enforcing an appropriate punishment because to do so may be deemed a denial of compassion in classroom proceedings?

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Q.27

The primary purpose of the passage is to:

1 **investigate the value of teaching philosophy to school children in order to inculcate a balanced democratic thinking from young age.**

2 **rethink the role of an educator and role of different branches of knowledge keeping recent developments in mind.**

3 **argue in favour of a Grecian model of education so as to uphold ancient democratic values and ideals of freedom.**

4 **choose a side between the age old debate of objectivity and subjectivity.**

Solution:
Correct Answer : 2
Genre: Educational Philosophy
Word Count# 593
The entire passage and its arguments are based on, 'What role should educators play in assisting digital natives to navigate this murky online realm'. The other options go beyond the scope of the given passage.

Bookmark

Answer key/Solution

FeedBack

Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Q.28

According to the passage all of the following are false, except:

1 **educators and teachers must refrain from focusing too much on a student's emotions.**

2 **contemporary society seems to sway more by passion and emotion than reason.**

3 **David Hume is one of the predecessors of post-truth philosophy.**

4 **information on the net should be analyzed by educators first before they reach students.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
Genre: Educational Philosophy
Word Count# 593
1 is false as the author wonders about the new role of the educator but does not force a conclusion.
3 is false as it cannot be verified from the given passage.
4 is false as the author states that the students require the skill to analyze properly what come across in the net.
2 is the correct answer since in the passage it is mentioned that we live in a post-truth society and that the term is defined as, 'circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief'.

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Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

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Q.29

Based on this passage, the author would support which one of the following conclusions?

1 **Educators must synthesize their roles into that of a moral philosopher.**

2 **The current predicament of our society becoming a post-truth society is down to the fact that students lack ability to analyze knowledge rationally.**

3 **A middle path between objectivity and subjectivity can help society battle the amplification of post-truth phenomenon.**

4 **Historically human society has been a breeding ground for post-truth activities.**

Solution:
Correct Answer : 3
Genre: Educational Philosophy
Word Count# 593
1 is incorrect since the author thinks what should be the role of educators in contemporary society and does not prescribe one.
2 is incorrect since the passage states that, 'Teaching children to be critically-engaged democratic citizens, to be ethical and compassionate, are values parents and educators alike hope to cultivate' and does not state what students lack.
4 goes beyond the scope of the passage.
3 is the correct answer since it is the primary reason behind the mentioning of Aristotle in the passage.

Bookmark

Answer key/Solution

FeedBack

Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

Much is made these days of the fact we live in a post-truth society, and that, despite our instant access to more information than ever before, we still seek out the stories that reinforce our existing beliefs and biases. What role should educators play in assisting digital natives to navigate this murky online realm? 'Post-truth' was the Oxford Dictionary Word of the Year for 2016, defined as 'relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief'. This phenomenon is not new: there have always been tricksters, scammers, and cheats. Yet social media have the tendency to amplify: both constructive and destructive voices have become more urgent and sensationalised than ever previously. Students require the skills that enable them to critically sift through the vast amount of information on the net, yet they also need to engage compassionately with diverse ideas. So we need to educate them to engage with these media in a critical as well as compassionate manner. How can we encourage students to be not only critically engaged with all they see and hear, but also compassionately engaged with others whose beliefs and ideas differ from their own? Specifically, how might we teach young people to challenge fake news, be wary of alternative facts, and be kind to others they chat with in cyberspace?

Teaching children to be critically-engaged democratic citizens, to be ethical and compassionate, are values parents and educators alike hope to cultivate. But first we might well ask, exactly whose job is it to teach ethics? Good thinking skills, reasonableness, tolerance, and discernment with respect to what and who to trust are obvious skills the education system should aim to nurture. But what about caring or kindness? Should teachers have a role to play in teaching children to be compassionate? Or is that a role that ought to be confined to the domestic space? Moreover, if teachers do have a role to play in educating compassion, how should they go about it? Should they be role-models, employing compassion themselves? And if so, what happens when a student disobeys a rule? Should the teacher be caring and kind and not worry about enforcing an appropriate punishment because to do so may be deemed a denial of compassion in classroom proceedings?

Sometimes being forgiving, kind, and compassionate is in tension with following the rules and upholding certain standards.

This potential tension between compassion and rules is familiar to moral philosophers. The restraints of rule-bound or duty-bound ethical action often leave very little room for sympathy or sentiment. Consider Immanuel Kant's categorical imperative for moral action: 'Do what you would will to become a universal law'. No exceptions. However, David Hume, who, Kant said, woke him from his dogmatic slumbers, held the opposite position. For Hume, whether we like it or not, it is sentiment, including compassion, that guides our moral decision-making. "Reason always is, and only ever ought to be the slave to the passions," he famously intoned in A Treatise of Human Nature (1738).

These two sides of this debate – Kant's objective moral rules on one side, and Hume's subjective notion of 'fellow feeling' on the other – seem a little extreme. Perhaps we can find

some middle ground by returning to an Aristotelian sense of virtue to support ethical decision making, and, in particular, to the concept of care. So although rules need to be in place to ensure fairness, surely there is also an important role for intelligent emotions such as compassion or care?

Q.30

According to the passage all of the following are true, except:

1 **being sentimental is detrimental to being a law abiding human being.**

2 **the domestic space is one where a child can learn kindness and compassion.**

3 **social media has become a kind of magnifier of myriad voices.**

4 **some emotions are more intelligent than others.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 1
Genre: Educational Philosophy
Word Count# 593
2 is incorrect since the author wonders if the domestic space should be the only space for teaching kindness and compassion.
3 is incorrect since it is mentioned hat, 'Yet social media have the tendency to amplify: both constructive and destructive voices have become more urgent and sensationalised than ever previously.'
4 is incorrect since the passage states, 'surely there is also an important role for intelligent emotions such as compassion or care?'
1 is the correct choice as the author mentions that there is some tension between emotions and rules but they are not detrimental to each other.

FeedBack

Directions for questions (26 to 31): The passage below is accompanied by a set of six questions. Choose the best answer to each question.

Much is made these days of the fact we live in a post-truth society, and that, despite our instant access to more information than ever before, we still seek out the stories that reinforce our existing beliefs and biases. What role should educators play in assisting digital natives to navigate this murky online realm? 'Post-truth' was the Oxford Dictionary Word of the Year for 2016, defined as 'relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief'. This phenomenon is not new: there have always been tricksters, scammers, and cheats. Yet social media have the tendency to amplify: both constructive and destructive voices have become more urgent and sensationalised than ever previously. Students require the skills that enable them to critically sift through the vast amount of information on the net, yet they also need to engage compassionately with diverse ideas. So we need to educate them to engage with these media in a critical as well as compassionate manner. How can we

encourage students to be not only critically engaged with all they see and hear, but also compassionately engaged with others whose beliefs and ideas differ from their own? Specifically, how might we teach young people to challenge fake news, be wary of alternative facts, and be kind to others they chat with in cyberspace?

Teaching children to be critically-engaged democratic citizens, to be ethical and compassionate, are values parents and educators alike hope to cultivate. But first we might well ask, exactly whose job is it to teach ethics? Good thinking skills, reasonableness, tolerance, and discernment with respect to what and who to trust are obvious skills the education system should aim to nurture. But what about caring or kindness? Should teachers have a role to play in teaching children to be compassionate? Or is that a role that ought to be confined to the domestic space? Moreover, if teachers do have a role to play in educating compassion, how should they go about it? Should they be role-models, employing compassion themselves? And if so, what happens when a student disobeys a rule? Should the teacher be caring and kind and not worry about enforcing an appropriate punishment because to do so may be deemed a denial of compassion in classroom proceedings?

Sometimes being forgiving, kind, and compassionate is in tension with following the rules and upholding certain standards.

This potential tension between compassion and rules is familiar to moral philosophers. The restraints of rule-bound or duty-bound ethical action often leave very little room for sympathy or sentiment. Consider Immanuel Kant's categorical imperative for moral action: 'Do what you would will to become a universal law'. No exceptions. However, David Hume, who, Kant said, woke him from his dogmatic slumbers, held the opposite position. For Hume, whether we like it or not, it is sentiment, including compassion, that guides our moral decision-making. "Reason always is, and only ever ought to be the slave to the passions," he famously intoned in A Treatise of Human Nature (1738).

These two sides of this debate – Kant's objective moral rules on one side, and Hume's subjective notion of 'fellow feeling' on the other – seem a little extreme. Perhaps we can find some middle ground by returning to an Aristotelian sense of virtue to support ethical decision making, and, in particular, to the concept of care. So although rules need to be in place to ensure fairness, surely there is also an important role for intelligent emotions such as compassion or care?

Q.31

What does the author mean by the term 'digital natives'?

1 **People who learn through the internet**

2 **Virtual people**

3 **People familiar with the net**

4 **People vouching for the omnipotence of the net**

Solution:
Correct Answer : 3
Genre: Educational Philosophy
Word Count# 593
A 'native' is a person associated with a certain place. This makes 3 the correct choice. The other options are factually incorrect.

FeedBack

Bookmark

Answer key/Solution

Q.32

Directions for question 32: The passage given below is followed by four summaries. Choose the option that best captures the author's position.

In history, those members of the aristocracy and the church owned the means of production, and the peasants worked for the aristocracy. With the onset of the Industrial Revolution, Marx thought that he would see more of the working poor rise financially and socially. However, this did not materialize. In the industrial society, the aristocracy was replaced by the capitalists (also known as the bourgeoisie). These were the people who owned businesses with the goal of earning a profit, and the working class was replaced by the proletariat, the people who labored for wages. Marx believed that this system was inherently unfair.Under capitalism, Marx believed that the workers would become poorer and poorer and experience alienation.

1 **Marx believed in the concept of aristocracy and vehemently opposed its transformation into capitalism.**

2 **Marx feared that the gap between the ruling class and the working class would be bridged with the advent of capitalism.**

3 **Marx's assumption that the industrial society would be beneficial for the working class proved to be false because of capitalist ideology.**

4 **Marx failed to acknowledge the strength of the bourgeoisie in the industrial society.**

Bookmark

Answer key/Solution

Solution:
Correct Answer : 3
Option 3 is the correct answer as it summarizes the fallacy in Marx's understanding about the working of industrial society under the capitalist ideology

Option 1 is incorrect as Mark did not believed in the concept of aristocracy therefore the statement is contrary to the information provided in the passage

Option 2 is incorrect as Mark was a supporter of social equality as stated in the passage whereas this option states that he fears the bridging of gap between the ruling class and the working class

Option 4 is incorrect as the passage is silent about Mark's acknowledgement of the strength of the bourgeoisie.

FeedBack

Q.33

Directions for question 33: 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. The study on flies showed that motor neurons form vesicles with Arc inside, which traveled to muscle cells.
2. But flies lacking the Arc gene formed fewer connections between motor neurons and muscle cells.
3. These observations indicate that vesicles containing Arc have a role in forming connections in the nervous system.
4. Two studies, one on mice and another on flies, focused on structures called extracellular vesicles, which form as the cell membrane pinches off from the cell.
5. The study on mice too showed that neurons that received vesicles produced the Arc protein when they were stimulated to fire.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 41253
The paragraph revolves around two studies.
So, sentence 4 is the opening sentence as it talks about the two studies i.e. one on mice, and the other on flies.
1 and 2 clearly make a pair as 1 talks about the study on flies and 2 presents a contradiction to the same statement with 'but'.
We need to place sentence 5 as it talks about the study on mice. Notice the connecting word 'too'. It clarifies that sentence 5 will follow 1 and 2.
Sentence 3 gives a conclusion with 'these observations' which refers to the observations made in sentences 1, 2, and 5.
Hence, 41253 is the correct sequence.

FeedBack

Q.34

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.

1. The findings, if true, would provide the first direct observational evidence for cosmic inflation, a theory that posits that the universe expanded exponentially during the first fractions of a second of its existence.
2. Some or all of the signals originally attributed to gravity were due to effects of local dust.
3. Earlier this year the BICEP2 team reported that they had detected gravitational waves from the Big Bang.
4. The BICEP2 evidence was based on the way that microwave radiation from the edge of the universe is polarized.
5. But now other cosmologists say the much-heralded claim may have been premature.

Bookmark

Answer key/Solution

Solution:
Correct Answer : 2
The correct order is 3514. Sentence 3 opens the paragraph by talking about the findings of the BICEP2 team. Sentence 5 contradicts it mildly by stating how the other cosmologists are now challenging 'the much-heralded claim'. 1 follows next with 'the findings' which refers to both 3 and 5. Sentence 4 comes next with further explanation of the BICEP2 findings. 2 looks like a sentence that belongs to the paragraph. However it talks about 'Gravity' in general and the other sentences talk about gravitational waves. Secondly, the tone of the sentence is very certain whereas all the other sentences maintain a cautious tone. Thirdly, it talks about 'the signals' which is alien to the paragraph. It might come later in the passage but we need a 'transition' sentence in between.

FeedBack

Sec 2

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

Ten friends – A, B, C, D, E, F, G, H, I and J - decided to attend the state fair at ABC stadium. After attending the cultural programs in fair, they all decided to play some game. So they went to a shop from where each one of them purchased a ticket from the tickets numbered from 1 to 10. Somehow all of them managed to get the ticket having its number equivalent to the number of their initials i.e, A had ticket number 1, B had ticket number 2, C had ticket number 3 and so on.
Now, for the game, all of them kept their tickets on a table in such a way that ticket numbers were not visible and the tickets were shuffled. Then each one of them picked one ticket randomly from the table. When they all showed their ticket numbers it was found that the ticket number of the ticket picked by each friend from the table was maximum 1 away from his initially purchased ticket number, for example - C could have picked a ticket, numbered as 2, 3 or 4 only.

Q.35
If D got to pick his initial ticket again from the table i.e, ticket number 4, then maximum how many friends could not be having the same ticket as their initially purchased ticket?

Solution:
Correct Answer : 8

Bookmark

Answer key/Solution

If a person is having his initial ticket then let's call it 1 and if two people exchange then let's call it 2. The total should always be 10. E.g. 1211122 means A is having his initial ticket, B and C have exchanged their tickets, D, E and F are having their initial tickets, G and H exchanged their tickets and I and J exchanged their tickets.

If D is having his initial ticket then before him out of the three students either all 3 are having their initial tickets or 2 interchanged their tickets and 1 is having his initial ticket. Also after D there are 6 students out of whom maximum 3 pairs of students can exchange their tickets and hence at least 1 will be having his initial ticket.

	A	B	C	D	E	F	G	H	I	J
Initial Ticket Numbers	1	2	3	4	5	6	7	8	9	10
Case I:	2	1	3	4	6	5	8	7	10	9
Case II:	1	3	2	4	6	5	8	7	10	9

Therefore, in both cases, maximum 8 friends did not have the initial tickets again.

FeedBack

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

Ten friends – A, B, C, D, E, F, G, H, I and J - decided to attend the state fair at ABC stadium. After attending the cultural programs in fair, they all decided to play some game. So they went to a shop from where each one of them purchased a ticket from the tickets numbered from 1 to 10. Somehow all of them managed to get the ticket having its number equivalent to the number of their initials i.e, A had ticket number 1, B had ticket number 2, C had ticket number 3 and so on.
Now, for the game, all of them kept their tickets on a table in such a way that ticket numbers were not visible and the tickets were shuffled. Then each one of them picked one ticket randomly from the table. When they all showed their ticket numbers it was found that the ticket number of the ticket picked by each friend from the table was maximum 1 away from his initially purchased ticket number, for example - C could have picked a ticket, numbered as 2, 3 or 4 only.

Q.36
In how many ways can they take their tickets, such that exactly 4 students were not having the same ticket as their initially purchased ticket?

Solution:
Correct Answer : 28

Bookmark

Answer key/Solution

If a person is having his initial ticket then let's call it 1 and if two people exchange then let's call it 2. The total should always be 10. E.g. 1211122 means A is having his initial ticket, B and C have exchanged their tickets, D, E and F are having their initial tickets, G and H exchanged their tickets and I and J exchanged their tickets.

If exactly 4 students are not having their initial tickets then there must be two 2's and six 1's.
These two 2's and 6 1's can be arranged in ${}^{8}C_{2}$ i.e. 28 ways.

FeedBack

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

Ten friends – A, B, C, D, E, F, G, H, I and J - decided to attend the state fair at ABC stadium. After attending the cultural programs in fair, they all decided to play some game. So they went to a shop from where each one of them purchased a ticket from the tickets numbered from 1 to 10. Somehow all of them managed to get the ticket having its number equivalent to the number of their initials i.e, A had ticket number 1, B had ticket number 2, C had ticket number 3 and so on.
Now, for the game, all of them kept their tickets on a table in such a way that ticket numbers were not visible and the tickets were shuffled. Then each one of them picked one ticket randomly from the table. When they all showed their ticket numbers it was found that the ticket number of the ticket picked by each friend from the table was maximum 1 away from his initially purchased ticket number, for example - C could have picked a ticket, numbered as 2, 3 or 4 only.

Q.37
If the number of ways in which exactly 'n' students not having their initial tickets is maximum possible, then what is the value of n?

1 **4**

2 **6**

3 **8**

4 **2**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

If a person is having his initial ticket then let's call it 1 and if two people exchange then let's call it 2. The total should always be 10. E.g. 1211122 means A is having his initial ticket, B and C have exchanged their tickets, D, E and F are having their initial tickets, G and H exchanged their tickets and I and J exchanged their tickets.

If 1 pair exchanged the tickets then number of ways is ${}^{9}C_{1}$ or 9 i.e. eight 1's and one 2.
Similarly, if 2 pairs exchanged the number of ways is ${}^{8}C_{2}$ i.e. 28.
If 3 pairs exchanged then number of ways is ${}^{7}C_{3}$ i.e. 35.
If 4 pairs exchanged then number of ways is ${}^{6}C_{4}$ i.e. 15.
If all 5 pairs exchanged then it is possible in only one way.
Also, if all are having their initial ticket then number of ways is 1.
Hence maximum number of ways is there when 3 pairs exchanged i.e. 6 people not having their initial tickets.

FeedBack

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

Ten friends – A, B, C, D, E, F, G, H, I and J - decided to attend the state fair at ABC stadium. After attending the cultural programs in fair, they all decided to play some game. So they went to a shop from where each one of them purchased a ticket from the tickets numbered from 1 to 10. Somehow all of them managed to get the ticket having its number equivalent to the number of their initials i.e, A had ticket number 1, B had ticket number 2, C had ticket number 3 and so on.
Now, for the game, all of them kept their tickets on a table in such a way that ticket numbers were not visible and the tickets were shuffled. Then each one of them picked one ticket randomly from the table. When they all showed their ticket numbers it was found that the ticket number of the ticket picked by each friend from the table was maximum 1 away from his initially purchased ticket number, for example - C could have picked a ticket, numbered as 2, 3 or 4 only.

Q.38
What is the total number of ways such that at least one of the students is not having his initial ticket again?

1 **86**

2 **89**

3 **88**

4 **90**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

If a person is having his initial ticket then let's call it 1 and if two people exchange then let's call it 2. The total should always be 10. E.g. 1211122 means A is having his initial ticket, B and C have exchanged their tickets, D, E and F are having their initial tickets, G and H exchanged their tickets and I and J exchanged their tickets.

As discussed in previous solution, total number of ways is 9 + 28 + 35 + 15 + 1 = 88.

FeedBack

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

In a city, there are 3 types of buses – ordinary, metro and luxury - available for local transportation. The price of the ticket for each bus is fixed up to the distance of 4 km, and that fixed price is Rs. 20, Rs. 30 and Rs. 60 for ordinary, metro and luxury bus respectively. If a passenger needs to travel for a distance more than 4 km, an additional fare will be charged as Rs.20/km, Rs. 10/km and Rs. 8/km for luxury, metro and ordinary buses respectively. Distance (in km) travelled by any passenger need not be an integral value but the additional fare will be charged for the entire kilometer even if the passenger travelled additionally for less than 1 km after travelling 4 km.
Further, there is a facility of monthly bus pass, available for each of the 3 types of the buses, enabling unlimited travel in a month. Prices for the bus pass of ordinary, metro and luxury buses are Rs. 1000, Rs. 2200 and Rs. 6300 respectively. Every passenger tries to minimize the total amount that he/she has to spend in each month on bus travel i.e. on tickets or bus pass, based on the distance travelled during the month and its cost.

Q.39
Ritika always travels only by luxury bus. She used to travel 3 km from home to office, 2 km from office to the gym and 'x' km from gym to his home every day. If Ritika bought the monthly pass in every month of the year 2017 to minimize her expense on travelling, then which of the following must be true about 'x'?

1 **x > 5**

2 **x > 5.5**

3 **x > 6.25**

4 **x > 6**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Ticket cost from home to office = Rs. 60 and from office to gym = Rs. 60. If $x < 4$, she will spend Rs. 60, to travel from gym to home.
Hence, Rs 180/day is the every day travel expense which will be lowest in February (28 days).
Total cost in Feb = 180 × 28 = Rs. 5040/month. She will not buy a monthly pass in this case. Hence, $x > 4$.
Total cost for travelling from gym to home = $60 + 20(x - 4)$
Total cost for Feb 2015 = $(120 + (60 + 20(x - 4))) \times 28$
This cost should be greater than Rs. 6300, for her to buy a monthly pass on each month of 2015.
$\therefore \{120 + 60 + 20(x - 4)\} \times 28 > 6300$
$\therefore x > 6.25$
But since the fare charged for any value between 6 and 7 is same, the value of $x > 6$ km.

FeedBack

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

In a city, there are 3 types of buses – ordinary, metro and luxury - available for local transportation. The price of the ticket for each bus is fixed up to the distance of 4 km, and that fixed price is Rs. 20, Rs. 30 and Rs. 60 for ordinary, metro and luxury bus respectively. If a passenger needs to travel for a distance more than 4 km, an additional fare will be charged as Rs.20/km, Rs. 10/km and Rs. 8/km for luxury, metro and ordinary buses respectively. Distance (in km) travelled by any passenger need not be an integral value but the additional fare will be charged for the entire kilometer even if the passenger travelled additionally for less than 1 km after travelling 4 km.
Further, there is a facility of monthly bus pass, available for each of the 3 types of the buses, enabling unlimited travel in a month. Prices for the bus pass of ordinary, metro and luxury buses are Rs. 1000, Rs. 2200 and Rs. 6300 respectively. Every passenger tries to minimize the total amount that he/she has to spend in each month on bus travel i.e. on tickets or bus pass, based on the distance travelled during the month and its cost.

Q.40
On each day of the month of June 2018, Reyaansh travelled 'x' km from home to office by a metro bus and '3x/2' km from office to home, via different route, in a luxury bus. If Reyaansh purchased a monthly pass for only luxury bus and not for metro bus, then how many integral values can 'x' take?

1 **1**

2 **2**

3 **3**

4 **0**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Since, he did not purchase a pass for Metro bus, it is possible that $x < 4$ km. But if $x < 4$ km, distance travelled by luxury bus, at max. can be 6 km.
The total cost for tickets in luxury bus is Rs. 3000 (at max.).
But since he purchased a pass for luxury bus, $x > 4$.
∴ For luxury bus

$$\left\{60 + 20\left(\frac{3x}{2} - 4\right)\right\} \times 30 > 6300$$

$\therefore x > 7.67$ and

For metro bus, $\{30 + 10(x - 4)\} \times 30 < 2200$

$\therefore x < 8.33$

Since, the fare does not change for any part of an additional km, the only integral value x can take is '8'.

FeedBack

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

In a city, there are 3 types of buses – ordinary, metro and luxury - available for local transportation. The price of the ticket for each bus is fixed up to the distance of 4 km, and that fixed price is Rs. 20, Rs. 30 and Rs. 60 for ordinary, metro and luxury bus respectively. If a passenger needs to travel for a distance more than 4 km, an additional fare will be charged as Rs.20/km, Rs. 10/km and Rs. 8/km for luxury, metro and ordinary buses respectively. Distance (in km) travelled by any passenger need not be an integral value but the additional fare will be charged for the entire kilometer even if the passenger travelled additionally for less than 1 km after travelling 4 km.
Further, there is a facility of monthly bus pass, available for each of the 3 types of the buses, enabling unlimited travel in a month. Prices for the bus pass of ordinary, metro and luxury buses are Rs. 1000, Rs. 2200 and Rs. 6300 respectively. Every passenger tries to minimize the total amount that he/she has to spend in each month on bus travel i.e. on tickets or bus pass, based on the distance travelled during the month and its cost.

Q.41
If Jai always travels by the same type of bus and he travels 'n' km from home to office and 'n' km back from office to home every day, then how many of the following statements are definitely true?

I. If n < 4.93 and he always travels by metro bus, then he will not buy a monthly pass for the month of February 2019.
II. If n < 4.26 and he always travels by ordinary bus, then he will not buy a monthly pass for May 2019.
III. If n < 6.43 and he always travels by luxury bus, then he will not buy a monthly pass for February 2020.

1 **0**

2 **1**

3 **2**

4 **3**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Statement I: If $x < 4$, he will spend Rs. 60 everyday and he will not buy a monthly pass in February 2019, therefore $x > 4$.
For February 2019:
$\{60 + 10 (2x - 8)\} \times 28 < 2200$
$\therefore x < 4.93$
For any 'x' between 4 or 5, he will be charged for entire km. So he is better off by buying a metro pass.
$\therefore$ Statement I is not definitely true.

Statement II: For May 2019, even if he travels for less than 4 km, he will spend $20 \times 2 \times 31 = 1240$. Hence he will buy a monthly pass for ordinary bus. Statement II is not definitely true.
Statement III: If $x < 4$, he will spends Rs. 120 everyday and he will not buy a monthly pass in February 2020, Therefore, $x > 4$.
$\{120 + 20(2x - 8)\} \times 29 > 6300$
$\therefore x > 6.43$
Again the amount charged is same between 6 and 7 i.e., he will be charged for 7 km. He is better off buying a luxury pass. Statement III is also not true.

FeedBack

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

In a city, there are 3 types of buses – ordinary, metro and luxury - available for local transportation. The price of the ticket for each bus is fixed up to the distance of 4 km, and that fixed price is Rs. 20, Rs. 30 and Rs. 60 for ordinary, metro and luxury bus respectively. If a passenger needs to travel for a distance more than 4 km, an additional fare will be charged as Rs.20/km, Rs. 10/km and Rs. 8/km for luxury, metro and ordinary buses respectively. Distance (in km) travelled by any passenger need not be an integral value but the additional fare will be charged for the entire kilometer even if the passenger travelled additionally for less than 1 km after travelling 4 km.
Further, there is a facility of monthly bus pass, available for each of the 3 types of the buses, enabling unlimited travel in a month. Prices for the bus pass of ordinary, metro and luxury buses are Rs. 1000, Rs. 2200 and Rs. 6300 respectively. Every passenger tries to minimize the total amount that he/she has to spend in each month on bus travel i.e. on tickets or bus pass, based on the distance travelled during the month and its cost.

Q.42
Three friends - Ravi, Jai and Govind - travel every day for once by ordinary bus, metro bus and luxury bus respectively. None of them bought a monthly pass for May 2015. If r, j and g represents the maximum distance that could have travelled by each of them in a day, then which of the following is true?

1 **r < g < j**

2 **r < j < g**

3 **j < g < r**

4 **j < r < g**

Solution:
Correct Answer : 2

For Ravi,
$\{20 + 8(r - 4)\} \times 31 < 1000$
$\therefore\ r < 5.53$
$r < 6$ (fare is same for any part of additional km)
For Jai,
$\{30 + 10(j - 4)\} \times 31 < 2200$
$\therefore\ j < 8.1$
$\therefore\ j \leq 8$
For Govind,
$\{60 + 20(g - 4)\} \times 31 < 6300$
$\therefore\ g < 11.16$
$\therefore\ g \leq 11$
Clearly $r < j < g$ where r, j and g is the maximum possible distance travelled.

FeedBack

Bookmark

Answer key/Solution

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

The principal of Loreto Convent School provided one ticket to each student of Class 12th. Each ticket had a 3 × 3 grid such that the 3 columns were named as A, B and C from left to right whereas the 3 rows were named as a, b and c from top to bottom. Each student had to fill the grid with digits from 1 to 9 such that each cell contains a distinct number. Each student filled their ticket's grid and later it was found that no two tickets had the same three digits in any row or column as compared to any other student. For example, if a row contained 1, 2 and 3 in one of the student's ticket, then no other student's ticket had all of 1, 2 and 3 together in a row or column. Also, cell in row a and column A is denoted as aA, that in row a and column B is denoted as aB and so on. A maximum possible number of students filled the grid. One of the students, Sanjeev, filled the grid in his ticket as shown below.

	A	B	C
a	1	2	3
b	4	5	6
c	7	8	9

Q.43
In how many ways can a student fill the grid such that both the diagonals of his ticket have the same digits and in the same cells as in Sanjeev's ticket?

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

The required grid is like the one shown below. Now 2, 4, 6 and 8 cannot be in the block where they were initially.

	A	B	C
a	1		3
b		5	
c	6		9

So, 2, 4, 6 and 8 are to be put into 4 boxes with the restrictions mentioned above. It can be done in only 4 ways shown below.

	A	B	C
a	1	6	3
b	8	5	4
c	7	2	9

	A	B	C
a	1	8	3
b	2	5	4
c	7	6	9

	A	B	C
a	1	8	3
b	6	5	2
c	7	4	9

	A	B	C
a	1	4	3
b	6	5	8
c	7	2	9

Answer = 4 ways.

FeedBack

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

The principal of Loreto Convent School provided one ticket to each student of Class 12th. Each ticket had a 3 × 3 grid such that the 3 columns were named as A, B and C from left to right whereas the 3 rows were named as a, b and c from top to bottom. Each student had to fill the grid with digits from 1 to 9 such that each cell contains a distinct number. Each student filled their ticket's grid and later it was found that no two tickets had the same three digits in any row or column as compared to any other student. For example, if a row contained 1, 2 and 3 in one of the student's ticket, then no other student's ticket had all of 1, 2 and 3 together in a row or column. Also, cell in row a and column A is denoted as aA, that in row a and column B is denoted as aB and so on. A maximum possible number of students filled the grid. One of the students, Sanjeev, filled the grid in his ticket as shown below.

	A	B	C
a	1	2	3
b	4	5	6
c	7	8	9

Q.44

If digits 4 and 6 are in column A and digit 4 is in row c, then in how many ways can a student fill his ticket's grid such that the digits 1, 5 and 9 are exactly in the same cell and in the same order as in Sanjeev's grid?

Solution:
Correct Answer : 13

Bookmark

Answer key/Solution

The required grid is like the one shown below.

	A	B	C
a	1		
b	6	5	
c	4		9

Now 2 and 3 both cannot be in a, 7 and 8 both cannot be in c and 2 & 8 cannot be there in B. If we put 8 in different blocks, following cases are possible:

Case 1: 8 is in c and B. Now 2 cannot be in a and C. If we put 2 in a and C then 3 must be in b and C. Also, if 2 is in b and C then 3 and 7 can be in the remaining 2 blocks in any order. So total 3 ways.

	A	B	C
a	1	3	7
b	6	5	2
c	4	8	9

	A	B	C
a	1	7	2
b	6	5	3
c	4	8	9

	A	B	C
a	1	7	3
b	6	5	2
c	4	8	9

Case 2: 8 is in b and C. Now 7 cannot be in a and C. Also 7 cannot be in c and B as in that case a will have 1, 2 and 3. So 7 is to be put in a and B and 2, 3 can be put in the remaining 2 blocks in 2 ways. So total 2 ways.

	A	B	C
a	1	7	2
b	6	5	8
c	4	3	9

	A	B	C
a	1	7	3
b	6	5	8
c	4	2	9

Case 3: 8 is in a and C. Now 7 cannot be in b and C. 7 can be put at any of the remaining 2 blocks and 2 and 3 can be put anywhere so total 4 ways.

	A	B	C
a	1	2	8
b	6	5	3
c	4	7	9

	A	B	C
a	1	3	8
b	6	5	2
c	4	7	9

	A	B	C
a	1	7	8
b	6	5	2
c	4	3	9

	A	B	C
a	1	7	8
b	6	5	3
c	4	2	9

Case 4: 8 is in a and B. Now 2 cannot be in c and B. So a total of 4 ways.

	A	B	C
a	1	8	2
b	6	5	7
c	4	3	9

	A	B	C
a	1	8	2
b	6	5	3
c	4	7	9

	A	B	C
a	1	8	3
b	6	5	2
c	4	7	9

	A	B	C
a	1	8	3
b	6	5	2
c	4	7	9

Hence in total there are 13 ways.

FeedBack

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

The principal of Loreto Convent School provided one ticket to each student of Class 12th. Each ticket had a 3 × 3 grid such that the 3 columns were named as A, B and C from left to right whereas the 3 rows were named as a, b and c from top to bottom. Each student had to fill the grid with digits from 1 to 9 such that each cell contains a distinct number. Each student filled their ticket's grid and later it was found that no two tickets had the same three digits in any row or column as compared to any other student. For example, if a row contained 1, 2 and 3 in one of the student's ticket, then no other student's ticket had all of 1, 2 and 3 together in a row or column. Also, cell in row a and column A is denoted as aA, that in row a and column B is denoted as aB and so on. A maximum possible number of students filled the grid. One of the students, Sanjeev, filled the grid in his ticket as shown below.

	A	B	C
a	1	2	3
b	4	5	6
c	7	8	9

Q.45

In how many ways can a student fill his ticket's grid having its diagonal filled with digits 3, 5 and 7 in the same cells as in Sanjeev's grid and each of the other three digits less than 5 interchanged places with each other whereas the other three digits more than 5 interchanged places with each other?(Arrangement has been done in such a way that no digit except 3, 5 and 7 was at the same place as of Sanjeev's grid.)

1 **1**

2 **2**

3 **3**

4 **None of these**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

The required grid will look like this:

	A	B	C
a	1/2/4	2/1/4	3
b	4/2/1	5	6/8/9
c	7	8/6/9	9/6/8

Now a cannot have both 1 and 2 and A cannot have both 1 and 4. So, these 3 digits can be arranged in following ways:

	A	B	C
a	1	4	3
b	2	5	
c	7		

	A	B	C
a	2	4	3
b	1	5	
c	7		

	A	B	C
a	4	1	3
b	2	5	
c	7		

In the first table 6, 8 and 9 cannot be put. In the other two tables they can be put in 1 way.

	A	B	C
a	2	4	3
b	1	5	8
c	7	9	6

	A	B	C
a	4	1	3
b	2	5	9
c	7	6	8

FeedBack

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

The principal of Loreto Convent School provided one ticket to each student of Class 12th. Each ticket had a 3 × 3 grid such that the 3 columns were named as A, B and C from left to right whereas the 3 rows were named as a, b and c from top to bottom. Each student had to fill the grid with digits from 1 to 9 such that each cell contains a distinct number. Each student filled their ticket's grid and later it was found that no two tickets had the same three digits in any row or column as compared to any other student. For example, if a row contained 1, 2 and 3 in one of the student's ticket, then no other student's ticket had all of 1, 2 and 3 together in a row or column. Also, cell in row a and column A is denoted as aA, that in row a and column B is denoted as aB and so on. A maximum possible number of students filled the grid. One of the students, Sanjeev, filled the grid in his ticket as shown below.

	A	B	C
a	1	2	3
b	4	5	6
c	7	8	9

Q.46

What can be the maximum possible number of cells, in the grid of some other student's ticket, having the same digits as in Sanjeev's grid?

Solution:
Correct Answer : 6

Bookmark

Answer key/Solution

In each row there must be at least 1 block with a digit not same as in Sanjeev's grid. 6 of the blocks can be put right along with the given constraints as shown below.

	A	B	C
a	9	2	3
b	4	1	6
c	7	8	5

FeedBack

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

A billionaire, Babami, inspired from the love of Shah Jahan towards his wife, started the construction of a palace for his wife on Saturday, 1st January 1983. Babami wanted to gift that palace to his wife on her 74th birthday, so he stopped the construction only for 10 days every year, except in the last year of construction in which the construction work went on without disruption.
It took 250 laborers to complete the construction of the palace in 3099 working days. The total costing of the palace to the billionaire was 50 million dollars, which includes laborers cost and material cost. An enthusiastic Babami, on the completion of construction, announced a house-warming cum surprise birthday party on the coming Monday because it was his wife's 74th birthday. But his family astrologer was against the selection of that date for the party. Despite his warning, Babami started the party on that day only at 7 PM and the palace collapsed after half an hour i.e, at 7:30 PM in which his wife died, unfortunately.

Q.47

On which day of the week did the construction completed?

1 **Thursday**

2 **Saturday**

3 **Sunday**

4 **None of these**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

The start date of the construction of the palace = 1st January 1983.
Total number of days taken to complete the construction = 3099
In every leap year, total 356 days and in every non-leap year, total 355 days will be taken (∵ He stopped the construction only for 10 days every year except the last year)
∴ From 1st January, 1983 till 1st January 1990, in these eight years, total 2842 days will be covered. Remaining (3099 – 2842 = 257 days are still left to complete the work, which will be the 9th year i.e. 1991.
∴ If 1st January 1983 was Saturday, then 1st January 1984 would be Sunday, then 1st January 1985 would be Tuesday and so on.
Hence, 1st January 1991 would be Tuesday.
⇒ 31st December 1990 would be Monday.
If we divide the remaining days i.e. 257 by 7, the remainder would be 5.
∴ The day on which the construction was completed was = Monday + 5 more days i.e. Saturday.

FeedBack

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

A billionaire, Babami, inspired from the love of Shah Jahan towards his wife, started the construction of a palace for his wife on Saturday, 1st January 1983. Babami wanted to gift that palace to his wife on her 74th birthday, so he stopped the construction only for 10 days every year, except in the last year of construction in which the construction work went on without disruption.
It took 250 laborers to complete the construction of the palace in 3099 working days. The total costing of the palace to the billionaire was 50 million dollars, which includes laborers cost and material cost. An enthusiastic Babami, on the completion of construction, announced a house-warming cum surprise birthday party on the coming Monday because it was his wife's 74th birthday. But his family astrologer was against the selection of that date for the party. Despite his warning, Babami started the party on that day only at 7 PM and the palace collapsed after half an hour i.e, at 7:30 PM in which his wife died, unfortunately.

Q.48
Billionaire's wife was born on

1 **16 September 1915**

2 **14 October 1916**

3 **16 September 1917**

4 **Cannot be determined**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

In the previous solution, we found that in the last year i.e. in 1991, total 257 days were taken to complete the whole construction.
∴ 257th day of the year means 14th September and 14 September 1991 was Saturday. His wife's 74th birthday was on the coming Monday, this implies that she was born on 16 September 1917.

FeedBack

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

A billionaire, Babami, inspired from the love of Shah Jahan towards his wife, started the construction of a palace for his wife on Saturday, 1st January 1983. Babami wanted to gift that palace to his wife on her 74th birthday, so he stopped the construction only for 10 days every year, except in the last year of construction in which the construction work went on without disruption.
It took 250 laborers to complete the construction of the palace in 3099 working days. The total costing of the palace to the billionaire was 50 million dollars, which includes laborers cost and material cost. An enthusiastic Babami, on the completion of construction, announced a house-warming cum surprise birthday party on the coming Monday because it was his wife's 74th birthday. But his family astrologer was against the selection of that date for the party. Despite his warning, Babami started the party on that day only at 7 PM and the palace collapsed after half an hour i.e, at 7:30 PM in which his wife died, unfortunately.

Q.49
If the number of laborers available for the construction work was 750, then the construction of palace would have been completed on or before which birthday of Babami's wife?

1 **69th**

2 **68th**

3 **65th**

4 **67th**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

If the number of laborers available for the construction work was 750 then
$250 \times 3099 = 750 \times d$ (where d is the new time taken to complete the whole work)
$\Rightarrow d = 1033$
Now, the construction would be completed in 1033 days.
In 1st year, 1983, total 355 days would be taken.
Similarly, in 2nd year, 1984, total 356 days would be taken.
And in 3rd year, 1985, only 322 days would be taken.
$\Rightarrow$ The construction was completed in the year 1985.
As his wife was born on 16th September 1917 (from previous solution), so, on 16th September 1985, she would be 68 years old and that day was 259th day of that year which clearly means that the construction of palace would have been completed before her 69th birthday.

FeedBack

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

A billionaire, Babami, inspired from the love of Shah Jahan towards his wife, started the construction of a palace for his wife on Saturday, 1st January 1983. Babami wanted to gift that palace to his wife on her 74th birthday, so he stopped the construction only for 10 days every year, except in the last year of construction in which the construction work went on without disruption.
It took 250 laborers to complete the construction of the palace in 3099 working days. The total costing of the palace to the billionaire was 50 million dollars, which includes laborers cost and material cost. An enthusiastic Babami, on the completion of construction, announced a house-warming cum surprise birthday party on the coming Monday because it was his wife's 74th birthday. But his family astrologer was against the selection of that date for the party. Despite his warning, Babami started the party on that day only at 7 PM and the palace collapsed after half an hour i.e, at 7:30 PM in which his wife died, unfortunately.

Q.50
For any year, the per day wage of a laborer was 60 dollars except for the last year in which it was 30 dollars per day. Find the material cost (in hundred dollars) of the palace.

1 **54425**

2 **50231**

3 **63214**

4 **65732**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

In the solution of first question of this set, we have calculated that before the last year, total 2842 days were taken by the laborers and in the last year, they worked for 257 days.
∴ Laborers = (2842 × 60 + 257 × 30) 250 = 44557500 dollars.
As total cost = 50 million dollars,
∴ Material cost = 50000000 – 44557500 = 5442500 dollars = 54425 hundred dollars.

FeedBack

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

In a class, there are 600 students. They play 5 different sports among Cricket, Football, Tennis, Hockey and Rugby. Further, each student plays at least one of the 5 sports. Any student who plays Cricket, also plays Football and any student who plays Tennis also play Hockey. Any student who plays Rugby also plays Cricket and no student who plays Hockey, play Cricket.
Further, it is known that:
(a) the number of students who play Rugby is thrice the number of students who play only Hockey.
(b) the number of students who play only Football is 40 less than the number of students who play exactly 1 sport.
(c) the number of students who play Cricket is 6 less than the number of students who play Tennis.
(d) the number of students who play at most 2 sports is 310.
(e) the number of students who play only Hockey is 180 less than the number of students who play Cricket.
(f) the number of students who play Football is 200 more than the number of students who play Hockey.

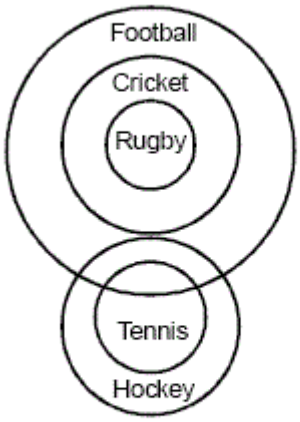
Q.51
How many students are there in the class who play at most 4 sports?

Solution:
Correct Answer : 600

Bookmark

Answer key/Solution

As per the ocnditions given in the question, the following venn-diagram can be drawn:



- No student play exactly 4 sports and exactly 5 sports.
- Number of students playing at most 3 sports = 600

So,

Now Exactly 1 + Exactly 2 + Exactly 3 = 600

Exactly 1	Exactly 2	Exactly 3
Football = F Hockey = H	(Cricket + Football) = CF (Tennis + Hockey) = TH (Football + Hockey) = FH	(Rugby + Cricket + Football) = RCF (Tennis + Hockey + Football) = THF

- Using (a) and (b), H = 40, RCF = 120.
- Using (d), exactly 3 = 600 – 310 = 290
  ∴ THF = 290 – 120 = 170
- Using (e), H = CF + RCF – 180
  ⇒ 40 = CF + 120 – 180
  ⇒ CF = 100
- Using (c), CF + RCF = TH + THF – 6
  226 = TH + THF
  ⇒ TH = 226 – 170 = 56
- Using (f), F + CF + FH + RCF + THF = 200 + H + TH + FH + THF
  F + 100 + 120 = 200 + 40 + 56
  ⇒ F = 76
- Adding all, 76 + 40 + 100 + 56 + FH = 310
  ⇒ FH = 38

600
No student plays more than 3 sports.

FeedBack

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

In a class, there are 600 students. They play 5 different sports among Cricket, Football, Tennis, Hockey and Rugby. Further, each student plays at least one of the 5 sports. Any student who plays Cricket, also plays Football and any student who plays Tennis also play Hockey. Any student who plays Rugby also plays Cricket and no student who plays Hockey, play Cricket.
Further, it is known that:
(a) the number of students who play Rugby is thrice the number of students who play only Hockey.
(b) the number of students who play only Football is 40 less than the number of students who play exactly 1 sport.
(c) the number of students who play Cricket is 6 less than the number of students who play Tennis.
(d) the number of students who play at most 2 sports is 310.
(e) the number of students who play only Hockey is 180 less than the number of students who play Cricket.
(f) the number of students who play Football is 200 more than the number of students who play Hockey.

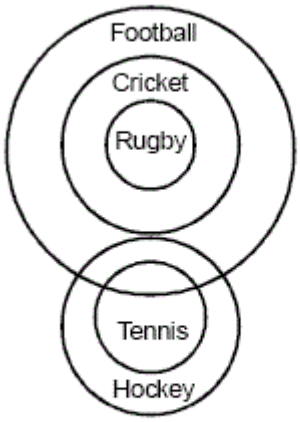
Q.52
How many students are there in the class who play exactly 1 sport?

Solution:
Correct Answer : 116

Bookmark

Answer key/Solution

As per the ocnditions given in the question, the following venn-diagram can be drawn:



- No student play exactly 4 sports and exactly 5 sports.
- Number of students playing at most 3 sports = 600

So,

Now Exactly 1 + Exactly 2 + Exactly 3 = 600

Exactly 1	Exactly 2	Exactly 3
Football = F Hockey = H	(Cricket + Football) = CF (Tennis + Hockey) = TH (Football + Hockey) = FH	(Rugby + Cricket + Football) = RCF (Tennis + Hockey + Football) = THF

- Using (a) and (b), H = 40, RCF = 120.
- Using (d), exactly 3 = 600 – 310 = 290
  ∴ THF = 290 – 120 = 170
- Using (e), H = CF + RCF – 180
  ⇒ 40 = CF + 120 – 180
  ⇒ CF = 100
- Using (c), CF + RCF = TH + THF – 6
  226 = TH + THF
  ⇒ TH = 226 – 170 = 56
- Using (f), F + CF + FH + RCF + THF = 200 + H + TH + FH + THF
  F + 100 + 120 = 200 + 40 + 56
  ⇒ F = 76
- Adding all, 76 + 40 + 100 + 56 + FH = 310
  ⇒ FH = 38

116

Required number = F + H = 76 + 40 = 116.

FeedBack

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

In a class, there are 600 students. They play 5 different sports among Cricket, Football, Tennis, Hockey and Rugby. Further, each student plays at least one of the 5 sports. Any student who plays Cricket, also plays Football and any student who plays Tennis also play Hockey. Any student who plays Rugby also plays Cricket and no student who plays Hockey, play Cricket.
Further, it is known that:
(a) the number of students who play Rugby is thrice the number of students who play only Hockey.
(b) the number of students who play only Football is 40 less than the number of students who play exactly 1 sport.
(c) the number of students who play Cricket is 6 less than the number of students who play Tennis.
(d) the number of students who play at most 2 sports is 310.
(e) the number of students who play only Hockey is 180 less than the number of students who play Cricket.
(f) the number of students who play Football is 200 more than the number of students who play Hockey.

Q.53
How many students are there who play both Cricket and Football?

1 **194**

2 **220**

3 **234**

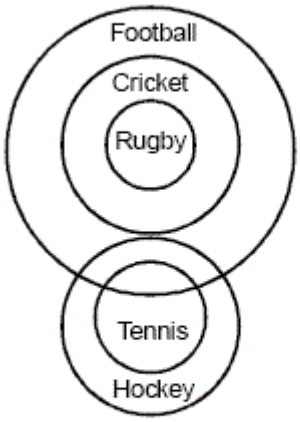
4 **344**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

As per the ocnditions given in the question, the following venn-diagram can be drawn:



- No student play exactly 4 sports and exactly 5 sports.
- Number of students playing at most 3 sports = 600

So,

Now Exactly 1 + Exactly 2 + Exactly 3 = 600

Exactly 1	Exactly 2	Exactly 3
Football = F Hockey = H	(Cricket + Football) = CF (Tennis + Hockey) = TH (Football + Hockey) = FH	(Rugby + Cricket + Football) = RCF (Tennis + Hockey + Football) = THF

- Using (a) and (b), H = 40, RCF = 120.
- Using (d), exactly 3 = 600 – 310 = 290
  ∴ THF = 290 – 120 = 170
- Using (e), H = CF + RCF – 180
  ⇒ 40 = CF + 120 – 180
  ⇒ CF = 100
- Using (c), CF + RCF = TH + THF – 6
  226 = TH + THF
  ⇒ TH = 226 – 170 = 56
- Using (f), F + CF + FH + RCF + THF = 200 + H + TH + FH + THF
  F + 100 + 120 = 200 + 40 + 56
  ⇒ F = 76
- Adding all, 76 + 40 + 100 + 56 + FH = 310
  ⇒ FH = 38

CF + RCF = 120 + 100 = 220.

FeedBack

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

In a class, there are 600 students. They play 5 different sports among Cricket, Football, Tennis, Hockey and Rugby. Further, each student plays at least one of the 5 sports. Any student who plays Cricket, also plays Football and any student who plays Tennis also play Hockey. Any student who plays Rugby also plays Cricket and no student who plays Hockey, play Cricket.
Further, it is known that:
(a) the number of students who play Rugby is thrice the number of students who play only Hockey.
(b) the number of students who play only Football is 40 less than the number of students who play exactly 1 sport.
(c) the number of students who play Cricket is 6 less than the number of students who play Tennis.
(d) the number of students who play at most 2 sports is 310.
(e) the number of students who play only Hockey is 180 less than the number of students who play Cricket.
(f) the number of students who play Football is 200 more than the number of students who play Hockey.

Q.54
How many students are there who play Hockey?

1 **344**

2 **304**

3 **220**

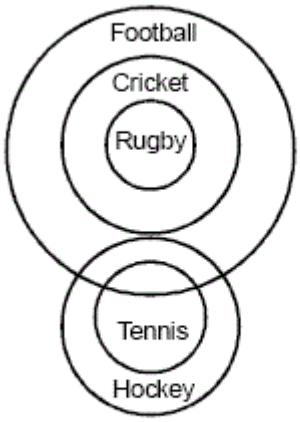
4 **234**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

As per the ocnditions given in the question, the following venn-diagram can be drawn:



- No student play exactly 4 sports and exactly 5 sports.
- Number of students playing at most 3 sports = 600

So,

Now Exactly 1 + Exactly 2 + Exactly 3 = 600

Exactly 1	Exactly 2	Exactly 3
Football = F Hockey = H	(Cricket + Football) = CF (Tennis + Hockey) = TH (Football + Hockey) = FH	(Rugby + Cricket + Football) = RCF (Tennis + Hockey + Football) = THF

- Using (a) and (b), H = 40, RCF = 120.
- Using (d), exactly 3 = 600 – 310 = 290
  ∴ THF = 290 – 120 = 170
- Using (e), H = CF + RCF – 180
  ⇒ 40 = CF + 120 – 180
  ⇒ CF = 100
- Using (c), CF + RCF = TH + THF – 6
  226 = TH + THF
  ⇒ TH = 226 – 170 = 56
- Using (f), F + CF + FH + RCF + THF = 200 + H + TH + FH + THF
  F + 100 + 120 = 200 + 40 + 56
  ⇒ F = 76
- Adding all, 76 + 40 + 100 + 56 + FH = 310
  ⇒ FH = 38

H + TH + FH + THF = 40 + 56 + 38 + 170 = 304.

FeedBack

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

Eight Players – A, B, C, D, P, Q, R and S - participated in a chess tournament. They are divided into two teams namely Pool I and Pool II, each consisting of four players. Players in pool I are A, B, C and D, and players in Pool II are P, Q, R, S.
In each team, each player plays exactly one match against every other player. From each team, the player who wins the maximum number of matches reaches the finale. If two players have the same maximum number of winning matches, then the player who won the match played between these two will play in finale. All the matches in the two pools are named (say coded) as 001, 002, 003,..., 011, 012, not necessarily in any order. And the finale is coded as 013.
A reporter, who wants to cover the tournament got late and hence doesn't have the complete data about the winners and losers of these matches. But while discussing it with another reporter, he got some partial data about the tournament which he tabulated as shown below. So, the following table provides the data about some number of matches won/lost by that player, with that match code. The match codes shown of the matches played by each player are not necessarily in the order they played.

Table - I

Player	Won	Lost	Match code
A	1		001
B	1	1	001, 005
C	2	1	002, 005, 011
D	2	1	006, 010, 011

Table - II

Player	Won	Lost	Match code
P	1	1	003, 008
Q	1	2	007, 009, 003
R	1	1	007, 012
S		1	012

For example, it is confirmed from the table that A has won one match for sure having code 001, also the match lost by C has any code among 002, 005 and 011.
It is also known that no match ended in a draw in any team.

Q.55
If R wins the match coded as '004', then which two players play the finale match coded as '013'?

1 **C and R**

2 **C and S**

3 **D and R**

4 ○ **Cannot be determined**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Table-I
Since, A won match coded '001', therefore, B lost match coded '001' and B won match coded '005'
Similarly, other details of pool 1 can be found.
Clearly, 6 matches are played in pool A coded as 001, 002, 005, 006, 010, 011.

Match Code	Players	Winner
001	A – B	A
002	C – A	C
005	B – C	B
006	D – A/B	D
010	D – B/A	D
011	D – C	C

C and D, both have won maximum number of matches but C won against D.
Therefore, C qualifies for the finals.

Table-II
Since, A lost match coded '012' therefore, R won match coded '012' and R lost match coded '007'.
So the table thus formed:-

Match Code	Players	Winner
003	P – Q	P
004	P – S/R	P/S/R
007	Q – R	Q
008	P – R/S	R/S
009	Q – S	S
012	S – R	R

R wins '004'
$\Rightarrow$ S wins '008'
then R $\rightarrow$ 2 wins
S $\rightarrow$ 2 wins
since, R beats S.
R qualifies (from Pool B)
C qualifies (from Pool A)

FeedBack

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

Eight Players – A, B, C, D, P, Q, R and S - participated in a chess tournament. They are divided into two teams namely Pool I and Pool II, each consisting of four players. Players in pool I are A, B, C and D, and players in Pool II are P, Q, R, S.
In each team, each player plays exactly one match against every other player. From each team, the player who wins the maximum number of matches reaches the finale. If two players have the same maximum number of winning matches, then the player who won the match played between these two will play in finale. All the matches in the two pools are named (say coded) as 001, 002, 003,..., 011, 012, not necessarily in any order. And the finale is coded as 013.
A reporter, who wants to cover the tournament got late and hence doesn't have the complete data about the winners and losers of these matches. But while discussing it with another reporter, he got some partial data about the tournament which he tabulated as shown below. So, the following table provides the data about some number of matches won/lost by that player, with that match code. The match codes shown of the matches played by each player are not necessarily in the order they played.

Table - I

Player	Won	Lost	Match code
A	1		001
B	1	1	001, 005
C	2	1	002, 005, 011
D	2	1	006, 010, 011

Table - II

Player	Won	Lost	Match code
P	1	1	003, 008
Q	1	2	007, 009, 003
R	1	1	007, 012
S		1	012

For example, it is confirmed from the table that A has won one match for sure having code 001, also the match lost by C has any code among 002, 005 and 011.
It is also known that no match ended in a draw in any team.

Q.56
Which of the following statements cannot be true?

1 **S won the match coded as '009'**

2 **C and S play the finale.**

3 **P lost the match coded as '003'**

4 **P plays the match coded as '004'**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Table-I
Since, A won match coded '001', therefore, B lost match coded '001' and B won match coded '005'
Similarly, other details of pool 1 can be found.
Clearly, 6 matches are played in pool A coded as 001, 002, 005, 006, 010, 011.

Match Code	Players	Winner
001	A – B	A
002	C – A	C
005	B – C	B
006	D – A/B	D
010	D – B/A	D
011	D – C	C

C and D, both have won maximum number of matches but C won against D.
Therefore, C qualifies for the finals.

Table-II
Since, A lost match coded '012' therefore, R won match coded '012' and R lost match coded '007'.
So the table thus formed:-

Match Code	Players	Winner
003	P – Q	P
004	P – S/R	P/S/R
007	Q – R	Q
008	P – R/S	R/S
009	Q – S	S
012	S – R	R

Choice (1) : This must be true.
Choice (2) : If S wins '008' and beats R, then

P $\rightarrow$ 2 wins

S $\rightarrow$ 2 wins

$\therefore$ S beats P, S qualifies for finals.
Choice (2), can be true.
Choice (3), P has won '003'. Therefore, (3) cannot be true.

FeedBack

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

Eight Players – A, B, C, D, P, Q, R and S - participated in a chess tournament. They are divided into two teams namely Pool I and Pool II, each consisting of four players. Players in pool I are A, B, C and D, and players in Pool II are P, Q, R, S.
In each team, each player plays exactly one match against every other player. From each team, the player who wins the maximum number of matches reaches the finale. If two players have the same maximum number of winning matches, then the player who won the match played between these two will play in finale. All the matches in the two pools are named (say coded) as 001, 002, 003,..., 011, 012, not necessarily in any order. And the finale is coded as 013.
A reporter, who wants to cover the tournament got late and hence doesn't have the complete data about the winners and losers of these matches. But while discussing it with another reporter, he got some partial data about the tournament which he tabulated as shown below. So, the following table provides the data about some number of matches won/lost by that player, with that match code. The match codes shown of the matches played by each player are not necessarily in the order they played.

Table - I

Player	Won	Lost	Match code
A	1		001
B	1	1	001, 005
C	2	1	002, 005, 011
D	2	1	006, 010, 011

Table - II

Player	Won	Lost	Match code
P	1	1	003, 008
Q	1	2	007, 009, 003
R	1	1	007, 012
S		1	012

For example, it is confirmed from the table that A has won one match for sure having code 001, also the match lost by C has any code among 002, 005 and 011.
It is also known that no match ended in a draw in any team.

Q.57
How many matches did A lose?

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Table-I
Since, A won match coded '001', therefore, B lost match coded '001' and B won match coded '005'
Similarly, other details of pool 1 can be found.
Clearly, 6 matches are played in pool A coded as 001, 002, 005, 006, 010, 011.

Match Code	Players	Winner
001	A – B	A
002	C – A	C
005	B – C	B
006	D – A/B	D
010	D – B/A	D
011	D – C	C

C and D, both have won maximum number of matches but C won against D.
Therefore, C qualifies for the finals.

Table-II
Since, A lost match coded '012' therefore, R won match coded '012' and R lost match coded '007'.
So the table thus formed:-

Match Code	Players	Winner
003	P – Q	P
004	P – S/R	P/S/R
007	Q – R	Q
008	P – R/S	R/S
009	Q – S	S
012	S – R	R

'A' lost 2 matches.

FeedBack

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

Eight Players – A, B, C, D, P, Q, R and S - participated in a chess tournament. They are divided into two teams namely Pool I and Pool II, each consisting of four players. Players in pool I are A, B, C and D, and players in Pool II are P, Q, R, S.
In each team, each player plays exactly one match against every other player. From each team, the player who wins the maximum number of matches reaches the finale. If two players have the same maximum number of winning matches, then the player who won the match played between these two will play in finale. All the matches in the two pools are named (say coded) as 001, 002, 003,..., 011, 012, not necessarily in any order. And the finale is coded as 013.
A reporter, who wants to cover the tournament got late and hence doesn't have the complete data about the winners and losers of these matches. But while discussing it with another reporter, he got some partial data about the tournament which he tabulated as shown below. So, the following table provides the data about some number of matches won/lost by that player, with that match code. The match codes shown of the matches played by each player are not necessarily in the order they played.

Table - I

Player	Won	Lost	Match code
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Table - II

Player	Won	Lost	Match code
P	1	1	003, 008
Q	1	2	007, 009, 003
R	1	1	007, 012
S		1	012

For example, it is confirmed from the table that A has won one match for sure having code 001, also the match lost by C has any code among 002, 005 and 011.
It is also known that no match ended in a draw in any team.

Q.58
Which of the following statements can be true?

1 **A plays '010'**

2 **R wins '008'**

3 **B plays '006'**

4 **More than one of the above**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Table-I
Since, A won match coded '001', therefore, B lost match coded '001' and B won match coded '005'
Similarly, other details of pool 1 can be found.
Clearly, 6 matches are played in pool A coded as 001, 002, 005, 006, 010, 011.

Match Code	Players	Winner
001	A – B	A
002	C – A	C
005	B – C	B
006	D – A/B	D
010	D – B/A	D
011	D – C	C

C and D, both have won maximum number of matches but C won against D.
Therefore, C qualifies for the finals.

Table-II
Since, A lost match coded '012' therefore, R won match coded '012' and R lost match coded '007'.
So the table thus formed:-

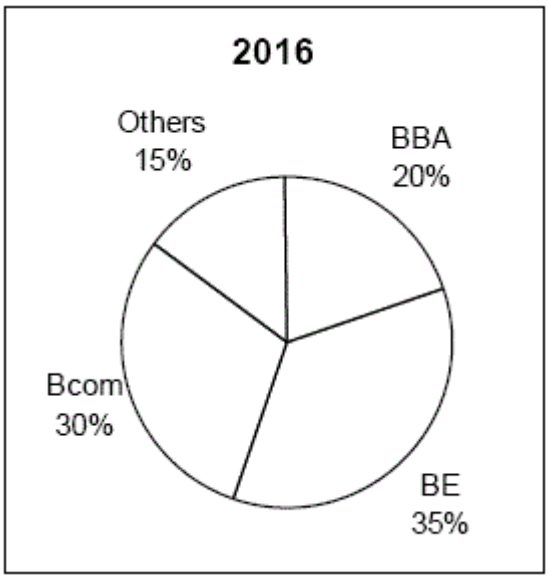
Match Code	Players	Winner
003	P – Q	P
004	P – S/R	P/S/R
007	Q – R	Q
008	P – R/S	R/S
009	Q – S	S
012	S – R	R

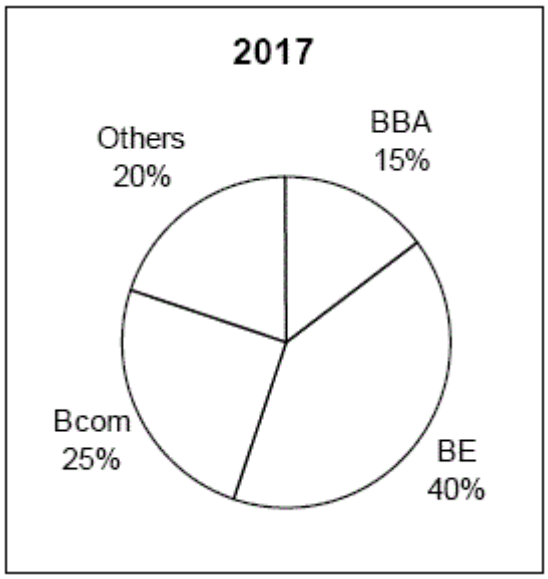
Any of the four choices can be true.

FeedBack

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

In a survey, conducted by World Education Panel 'WEP', one university from Delhi got selected for further verifications to mark its place in the top 100 rankings given by WEP. Following pie charts show the break-up of the students (stream-wise), of that university, who appeared in an entrance exam in the years 2016 and 2017. It is known that the exam is conducted only once in a year.





Q.59

From among the BE students who appeared in the exam in 2016 five percent students re-appeared in the same exam in 2017 as well. If they had not re-appeared in the exam then the percentage of BE students in total number of students who appeared in the exam in 2017 would have been 39. What is the ratio of the total number of students who appeared in the exam in 2016 to that in 2017?

1 **100 : 107**

2 **400 : 427**

3 **40 : 47**

4 **40 : 70**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Suppose,
Total number of students appeared in the exam in 2016 = 100x
Total number of students appeared in the exam in 2017 = 100y.
Number of BE students in 2016 = 35x
Number of BE students re-appeared in the exam in 2017 = 5% of 35x = 1.75x
Number of BE students in 2017 = 40y.

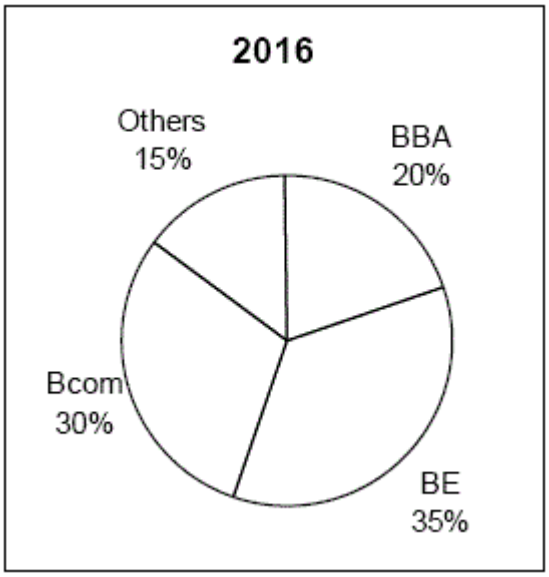
If 1.75x students had not re-appeared in the exam in 2017 then $\frac{40y - 1.75x}{100y - 1.75x} \times 100 = 39$

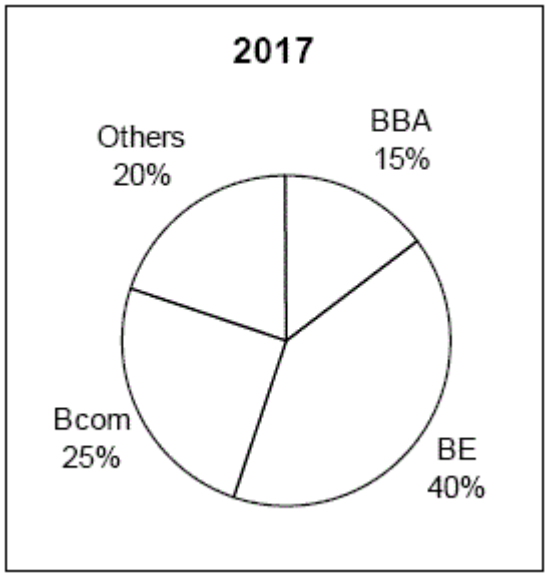
Or, 4000y – 175x = 3900y – 68.25x
Or, 100y = 106.75x
Or, x:y = 400:427.

FeedBack

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

In a survey, conducted by World Education Panel 'WEP', one university from Delhi got selected for further verifications to mark its place in the top 100 rankings given by WEP. Following pie charts show the break-up of the students (stream-wise), of that university, who appeared in an entrance exam in the years 2016 and 2017. It is known that the exam is conducted only once in a year.





Q.60

If from BBA stream five percent students, out of those who appeared in the exam in 2016, re-appeared in that exam again in 2017 and the total numbers of students who appeared in the exam in 2016 and 2017 were 1900 and 2000 respectively, then out of those BBA students who appeared in the exam in 2017 what percentage of students were appearing in the exam for the first time in 2017?

1 $93\frac{2}{3}\%$

2 $93\frac{1}{3}\%$

3 $92\frac{2}{3}\%$

4 $92\frac{1}{3}\%$

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

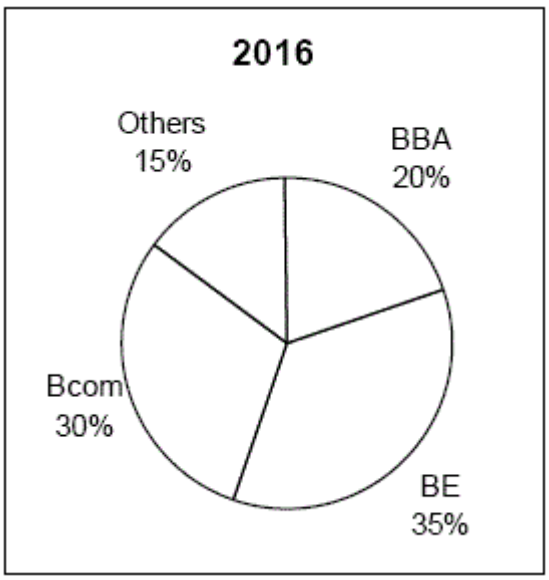
Total number of BBA students appeared in the exam in 2016 = 20% of 1900 = 380.
Total number of BBA students who appeared in the exam in 2017 = 15% of 2000 = 300.
Out of 380 the number of BBA students re-appeared in 2017 = 5% of 380 = 19.
Number of BBA students appeared for the first time in 2017 = 300 – 19 = 281.

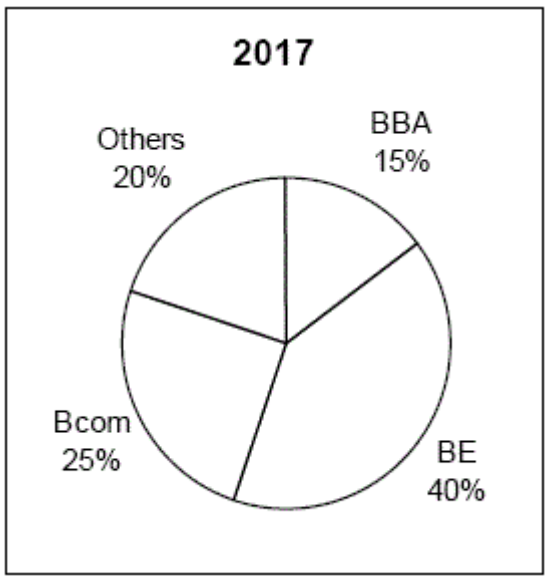
Answer = $\frac{281}{300} \times 100 = 93\frac{2}{3}\%$.

FeedBack

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

In a survey, conducted by World Education Panel 'WEP', one university from Delhi got selected for further verifications to mark its place in the top 100 rankings given by WEP. Following pie charts show the break-up of the students (stream-wise), of that university, who appeared in an entrance exam in the years 2016 and 2017. It is known that the exam is conducted only once in a year.





Q.61

If from each stream n% students, out of those who appeared in the exam in 2016, re-appeared in the exam again in 2017 and 70% of the total number of students who appeared in the exam in 2017 appeared in the exam for the first time in 2017, then at most what percent of BE students who appeared in the exam in 2017 appeared in the exam for the first time in 2017?

1 **26.25%**

2 **29.5%**

3 **73.75%**

4 **Cannot be determined**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

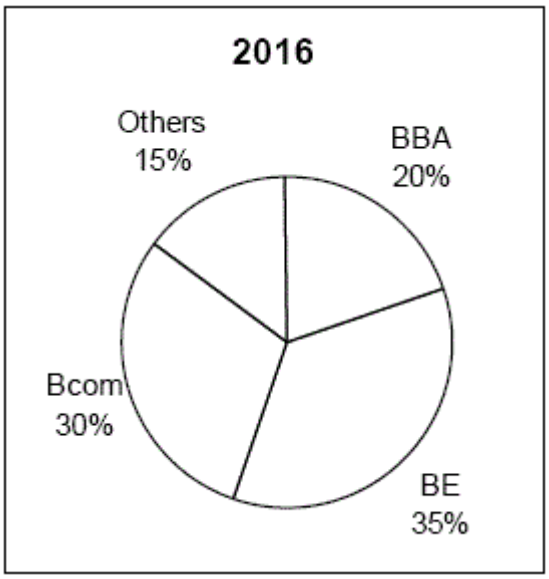
Suppose '100x' students re-appeared in the exam in 2017 then because from each stream n% students have re-appeared in 2017 so the break-up of these 100x students over the different streams has to be in the ratio as shown in pie-chart for 2016. So, the number of BE students who re-appeared in 2017 has to be equal to 35% of 100x or '35x'. Now, suppose a total of '100y' students appeared in 2017 then 70y appeared in 2017 for the first time or 100x = 30y or x:y = 3:10.
Number of BE students who appeared in 2017 = 40y
Number of BE students who appeared in 2017 for the first time = 40y – 35x.

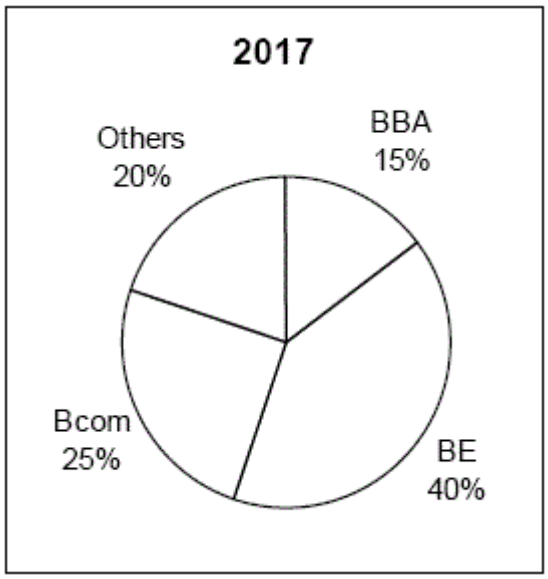
Required answer = $\frac{40y-35x}{40y}\times 100=\left(1-\frac{7x}{8y}\right)\times 100=\left(1-\frac{7\times 3}{8\times 10}\right)\times 100=73.75\%.$

FeedBack

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

In a survey, conducted by World Education Panel 'WEP', one university from Delhi got selected for further verifications to mark its place in the top 100 rankings given by WEP. Following pie charts show the break-up of the students (stream-wise), of that university, who appeared in an entrance exam in the years 2016 and 2017. It is known that the exam is conducted only once in a year.





Q.62

If all the students who appeared in the exam in 2016 re-appeared in the same exam again in 2017, then which of the following is a possible ratio between the total numbers of students who appeared in the exam in 2016 and 2017?

1 **1 : 2**

2 **2 : 1**

3 **4 : 5**

4 **5 : 6**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

See the following table carefully

	Total	BBA	BE	BCom	Others
2016	20a	4a	7a	6a	3a
2017	20b	3b	8b	5b	4b

We have to find the ratio of 20a with 20b keeping in mind that 3b, 8b, 5b and 4b should be greater than 4a, 7a, 6a and 3a respectively. Therefore, from the given options only a : b = 1 : 2 satisfies the condition.

FeedBack

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

Six friends - Amit, Jyoti, Supriya, Chitra, Nikhil and Firoz - each had a certain amount of money, which is distinct for all six of them. Amount (in Rs.) with each of them is an integral multiple of 100, with minimum possible amount be Rs. 1000 and maximum possible amount be Rs. 3900.
Some information about the amount that each of them initially had is as follows:
1. Amount (in Rs.) with all six of them was an odd integral multiple of 100.
2. Jyoti had Rs. 400 more than that of Chitra. The amount with Jyoti was a prime number multiple of 100 and that with Chitra was a multiple of both 3 and 100.
3. Amit had Rs. 600 less than that of Firoz and both of them had the amount which is multiple of 3.
4. Among all six friends, Supriya had the largest amount and Chitra had the smallest amount.
5. Nikhil had Rs. 400 less than Supriya but Rs. 600 more than Firoz.

Among the six friends, some of them had to pay some amount to other. So, some exchange of amounts happened between them and after the exchange, the amount with each of them is as follows:
1. They all had an even integral multiple of 100.
2. Jyoti had Rs. 200 less than that of Chitra.
3. The difference between the amounts of Amit and Firoz became double as compared to the difference they had initially.
4. Supriya had Rs. 600 less than that of Nikhil, who now had the highest amount among six of them.
5. Jyoti had an increase of Rs. 100 and the highest increase was of Rs. 700, which is for Chitra, and Firoz had the highest decrease of Rs. 1300

Q.63
What amount did Supriya have after the exchange?

1 **3200**

2 **3400**

3 **3000**

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

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

By statement 1, amount with all six of them was an odd integral multiple of 100 i.e., 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37 and 39.
By statement 2, Jyoti had Rs. 400 more than that of chitra but since amount with Jyoti was a prime number and amount with Chitra was a multiple of 3, therefore, the only possible amounts for (Jyoti, Chitra) will be (19, 15), (31, 27), (37, 33).
By statement 3, Amit had Rs 600 less than that of Firoz and since both of them had the amount which is multiple of 3, therefore the only possible choices for (Amit, Firoz) are (15, 21), (21, 27), (27, 33) or (33, 39). But (33, 39) is not possible due to statement 4.
By statement 5, if Firoz have 3300 Rs then Nikhil will have 3900, which is not possible and similarly if Firoz have 2700 Rs then Nikhil will have 3300 Rs and Supriya will have 3700 Rs.

Again if Firoz have 2100 Rs then Nikhil will have 2700 Rs and Supriya will have 3100 Rs but this will contradict all the possible amounts for Jyoti and Chitra. Therefore, before exchange we will get the following table:

Before exchange (in Rs. 100)	
Amit	21
Jyoti	19
Supriya	37
Chitra	15
Nikhil	33
Firoz	27

After exchange:
By Statement 1, Jyoti's amount became 22 (in 100), Firoz's amount became 14 (in 100), and Chitra's amount became 22 (in 100).
By Statement 3, Firoz and Amit's amount became 14 and 26 (in 100) respectively.
Now, we have the after exchange amounts of everyone except Supriya and Nikhil.
But since the amounts were only exchanged, therefore that must be equal the amount before exchange. Before exchange, the total amount with all of them was 152 (in 100)
∴ Amount with Supriya and Nikhil is 32 and 38 respectively.

After exchange (in Rs. 100)	
Amit	26
Jyoti	20
Supriya	32
Chitra	22
Nikhil	38
Firoz	14

Supriya had 3200 Rs.

FeedBack

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

Six friends - Amit, Jyoti, Supriya, Chitra, Nikhil and Firoz - each had a certain amount of money, which is distinct for all six of them. Amount (in Rs.) with each of them is an integral multiple of 100, with minimum possible amount be Rs. 1000 and maximum possible amount be Rs. 3900.
Some information about the amount that each of them initially had is as follows:
1. Amount (in Rs.) with all six of them was an odd integral multiple of 100.
2. Jyoti had Rs. 400 more than that of Chitra. The amount with Jyoti was a prime number multiple of 100 and that with Chitra was a multiple of both 3 and 100.
3. Amit had Rs. 600 less than that of Firoz and both of them had the amount which is multiple of 3.
4. Among all six friends, Supriya had the largest amount and Chitra had the smallest amount.
5. Nikhil had Rs. 400 less than Supriya but Rs. 600 more than Firoz.

Among the six friends, some of them had to pay some amount to other. So, some exchange of amounts happened between them and after the exchange, the amount with each of them is as follows:
1. They all had an even integral multiple of 100.
2. Jyoti had Rs. 200 less than that of Chitra.
3. The difference between the amounts of Amit and Firoz became double as compared to the difference they had initially.
4. Supriya had Rs. 600 less than that of Nikhil, who now had the highest amount among six of them.
5. Jyoti had an increase of Rs. 100 and the highest increase was of Rs. 700, which is for Chitra, and Firoz had the highest decrease of Rs. 1300

Q.64
What was the total amount they had initially?

1 **15000**

2 **14200**

3 **15600**

4 **15200**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

By statement 1, amount with all six of them was an odd integral multiple of 100 i.e., 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37 and 39.
By statement 2, Jyoti had Rs. 400 more than that of chitra but since amount with Jyoti was a prime number and amount with Chitra was a multiple of 3, therefore, the only possible amounts for (Jyoti, Chitra) will be (19, 15), (31, 27), (37, 33).
By statement 3, Amit had Rs 600 less than that of Firoz and since both of them had the amount which is multiple of 3, therefore the only possible choices for (Amit, Firoz) are (15, 21), (21, 27), (27, 33) or (33, 39). But (33, 39) is not possible due to statement 4.
By statement 5, if Firoz have 3300 Rs then Nikhil will have 3900, which is not possible and similarly if Firoz have 2700 Rs then Nikhil will have 3300 Rs and Supriya will have 3700 Rs.

Again if Firoz have 2100 Rs then Nikhil will have 2700 Rs and Supriya will have 3100 Rs but this will contradict all the possible amounts for Jyoti and Chitra. Therefore, before exchange we will get the following table:

Before exchange (in Rs. 100)	
Amit	21
Jyoti	19
Supriya	37
Chitra	15
Nikhil	33
Firoz	27

After exchange:
By Statement 1, Jyoti's amount became 22 (in 100), Firoz's amount became 14 (in 100), and Chitra's amount became 22 (in 100).
By Statement 3, Firoz and Amit's amount became 14 and 26 (in 100) respectively.
Now, we have the after exchange amounts of everyone except Supriya and Nikhil.
But since the amounts were only exchanged, therefore that must be equal the amount before exchange. Before exchange, the total amount with all of them was 152 (in 100)
$\therefore$ Amount with Supriya and Nikhil is 32 and 38 respectively.

After exchange (in Rs. 100)	
Amit	26
Jyoti	20
Supriya	32
Chitra	22
Nikhil	38
Firoz	14

The total amount they had initially was 15200 Rs.

FeedBack

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

Six friends - Amit, Jyoti, Supriya, Chitra, Nikhil and Firoz - each had a certain amount of money, which is distinct for all six of them. Amount (in Rs.) with each of them is an integral multiple of 100, with minimum possible amount be Rs. 1000 and maximum possible amount be Rs. 3900.
Some information about the amount that each of them initially had is as follows:
1. Amount (in Rs.) with all six of them was an odd integral multiple of 100.
2. Jyoti had Rs. 400 more than that of Chitra. The amount with Jyoti was a prime number multiple of 100 and that with Chitra was a multiple of both 3 and 100.
3. Amit had Rs. 600 less than that of Firoz and both of them had the amount which is multiple of 3.
4. Among all six friends, Supriya had the largest amount and Chitra had the smallest amount.
5. Nikhil had Rs. 400 less than Supriya but Rs. 600 more than Firoz.

Among the six friends, some of them had to pay some amount to other. So, some exchange of amounts happened between them and after the exchange, the amount with each of them is as follows:
1. They all had an even integral multiple of 100.
2. Jyoti had Rs. 200 less than that of Chitra.
3. The difference between the amounts of Amit and Firoz became double as compared to the difference they had initially.
4. Supriya had Rs. 600 less than that of Nikhil, who now had the highest amount among six of them.
5. Jyoti had an increase of Rs. 100 and the highest increase was of Rs. 700, which is for Chitra, and Firoz had the highest decrease of Rs. 1300

Q.65
If X is the absolute difference between the amounts that Amit and Nikhil had initially, and Y is the absolute difference between the amounts that Jyoti and Firoz had after the exchange, then find the value of |X – Y|?

1 **1200**

2 **700**

3 **600**

4 **None of these**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

By statement 1, amount with all six of them was an odd integral multiple of 100 i.e., 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37 and 39.
By statement 2, Jyoti had Rs. 400 more than that of chitra but since amount with Jyoti was a prime number and amount with Chitra was a multiple of 3, therefore, the only possible amounts for (Jyoti, Chitra) will be (19, 15), (31, 27), (37, 33).
By statement 3, Amit had Rs 600 less than that of Firoz and since both of them had the amount which is multiple of 3, therefore the only possible choices for (Amit, Firoz) are (15, 21), (21, 27), (27, 33) or (33, 39). But (33, 39) is not possible due to statement 4.
By statement 5, if Firoz have 3300 Rs then Nikhil will have 3900, which is not possible and similarly if Firoz have 2700 Rs then Nikhil will have 3300 Rs and Supriya will have 3700 Rs.

Again if Firoz have 2100 Rs then Nikhil will have 2700 Rs and Supriya will have 3100 Rs but this will contradict all the possible amounts for Jyoti and Chitra. Therefore, before exchange we will get the following table:

Before exchange (in Rs. 100)	
Amit	21
Jyoti	19
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After exchange:
By Statement 1, Jyoti's amount became 22 (in 100), Firoz's amount became 14 (in 100), and Chitra's amount became 22 (in 100).
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But since the amounts were only exchanged, therefore that must be equal the amount before exchange. Before exchange, the total amount with all of them was 152 (in 100)
$\therefore$ Amount with Supriya and Nikhil is 32 and 38 respectively.

After exchange (in Rs. 100)	
Amit	26
Jyoti	20
Supriya	32
Chitra	22
Nikhil	38
Firoz	14

$X = 1200$ and $Y = 600$
$|X - Y| = |1200 - 600| = 600$

FeedBack

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

Six friends - Amit, Jyoti, Supriya, Chitra, Nikhil and Firoz - each had a certain amount of money, which is distinct for all six of them. Amount (in Rs.) with each of them is an integral multiple of 100, with minimum possible amount be Rs. 1000 and maximum possible amount be Rs. 3900.
Some information about the amount that each of them initially had is as follows:
1. Amount (in Rs.) with all six of them was an odd integral multiple of 100.
2. Jyoti had Rs. 400 more than that of Chitra. The amount with Jyoti was a prime number multiple of 100 and that with Chitra was a multiple of both 3 and 100.
3. Amit had Rs. 600 less than that of Firoz and both of them had the amount which is multiple of 3.
4. Among all six friends, Supriya had the largest amount and Chitra had the smallest amount.
5. Nikhil had Rs. 400 less than Supriya but Rs. 600 more than Firoz.

Among the six friends, some of them had to pay some amount to other. So, some exchange of amounts happened between them and after the exchange, the amount with each of them is as follows:
1. They all had an even integral multiple of 100.
2. Jyoti had Rs. 200 less than that of Chitra.
3. The difference between the amounts of Amit and Firoz became double as compared to the difference they had initially.
4. Supriya had Rs. 600 less than that of Nikhil, who now had the highest amount among six of them.
5. Jyoti had an increase of Rs. 100 and the highest increase was of Rs. 700, which is for Chitra, and Firoz had the highest decrease of Rs. 1300

Q.66
Which of the following statements is false?

1 **Absolute difference between the absolute difference of the amounts that Supriya and Chitra had initially and absolute difference between the amount that Nikhil and Chitra had after the exchange is 600.**

2 **The absolute difference between the sum of the amounts that Chitra, Nikhil and Firoz had initially and the amounts that Amit, Jyoti and Surpiya had after the exchange is 2000.**

3 **The ratio of the amount that Amit had initially to the amount that Firoz had after exchange is 3 : 2.**

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

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

By statement 1, amount with all six of them was an odd integral multiple of 100 i.e., 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37 and 39.
By statement 2, Jyoti had Rs. 400 more than that of chitra but since amount with Jyoti was a prime number and amount with Chitra was a multiple of 3, therefore, the only possible amounts for (Jyoti, Chitra) will be (19, 15), (31, 27), (37, 33).
By statement 3, Amit had Rs 600 less than that of Firoz and since both of them had the amount which is multiple of 3, therefore the only possible choices for (Amit, Firoz) are (15, 21), (21, 27), (27, 33) or (33, 39). But (33, 39) is not possible due to statement 4.
By statement 5, if Firoz have 3300 Rs then Nikhil will have 3900, which is not possible and similarly if Firoz have 2700 Rs then Nikhil will have 3300 Rs and Supriya will have 3700 Rs.

Again if Firoz have 2100 Rs then Nikhil will have 2700 Rs and Supriya will have 3100 Rs but this will contradict all the possible amounts for Jyoti and Chitra. Therefore, before exchange we will get the following table:

Before exchange (in Rs. 100)	
Amit	21
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By Statement 1, Jyoti's amount became 22 (in 100), Firoz's amount became 14 (in 100), and Chitra's amount became 22 (in 100).
By Statement 3, Firoz and Amit's amount became 14 and 26 (in 100) respectively.
Now, we have the after exchange amounts of everyone except Supriya and Nikhil.
But since the amounts were only exchanged, therefore that must be equal the amount before exchange. Before exchange, the total amount with all of them was 152 (in 100)
∴ Amount with Supriya and Nikhil is 32 and 38 respectively.

After exchange (in Rs. 100)	
Amit	26
Jyoti	20
Supriya	32
Chitra	22
Nikhil	38
Firoz	14

The absolute difference is 3000 not 2000.

FeedBack

Sec 3

Q.67

PQ, RS, TU, VW, XY and ZA are 6 diameters of a circle and O is its center. How many polygons can be formed, using these points on the circle as vertices?

1 **4096**

2 **4095**

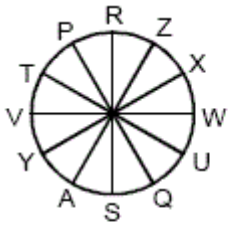
3 **4017**

4 **54**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution



As we have 12 distinct points on circle, we can form polygons of sides 3, 4, ... 12. So, total number of polygons that can be formed from these points as vertices = $({}^{12}C_3 + {}^{12}C_4 + {}^{12}C_5 + \ldots\ldots\ldots + {}^{12}C_{12})$
$= 2^{12} - ({}^{12}C_0 + {}^{12}C_1 + {}^{12}C_2) = 2^{12} - (1 + 12 + 66) = 4096 - 79 = 4017$
$[\because {}^{n}C_0 + {}^{n}C_1 + {}^{n}C_2, \ldots, {}^{n}C_n = 2^n]$

FeedBack

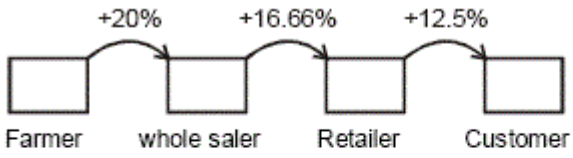
Q.68

A farmer sold a 40 kg rice bag to a wholesaler at 20% profit. The wholesaler further sold it to a retailer at 16.66% profit, and then the retailer finally sold it to a customer in Rs. 1890 at a profit of 12.5%. Find the cost price (in Rs.) per kg of the rice for the farmer.

Solution:
Correct Answer : 30

Bookmark

Answer key/Solution



Let CP for 40 kg to farmer = Rs. X

Then, $X \times \frac{6}{5} \times \frac{7}{6} \times \frac{9}{8} = 1890 \Rightarrow X \times \frac{63}{40} = 1890 \Rightarrow X = 40 \times 30 = 1200$

$\therefore$ Cost price per kg $= \frac{1200}{40} =$ Rs. 30.

FeedBack

Q.69

The average age of 6 members of a family is 37. A baby was born three years back and 2 old people expired 5 and 7 years back at the age of 58 and 63 respectively. What was the average age of the family 10 years back?

1 **57.12**

2 **47.26**

3 **40.28**

4 **50.71**

Solution:
Correct Answer : 3

Sum of ages is 37 x 6 = 222.
Sum of ages 3 yrs back = 222 – 18 = 204.
Sum of ages 5 years back = 204 – 10 + 58 = 252
Sum of ages 7 yrs back = 252 – 12 + 63 = 303
Sum of ages 10 yrs back = 303 – 21 = 282
and now there are 7 people.
∴ New Average = 282/7 = 40.28

FeedBack

Bookmark

Answer key/Solution

Q.70

The probability of a dart hitting the target is 0.2. If the dart is thrown for 5 times, then what is the probability that it will hit the target for at least 4 times?

1 **$5 \times (0.2)^4$**

2 **$5.2 \times (0.2)^4$**

3 **$4.2 \times (0.2)^4$**

4 **$(0.2)^4$**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Probability of hitting the target for exactly four times = ${}^5C_4 x(0.2)^4 x(0.8)^1$
Probability of hitting the target for exactly five times = ${}^5C_5 x(0.2)^5 x(0.8)^0$
Therefore, the required probability = ${}^5C_4 x(0.2)^4 x(0.8)^1 + {}^5C_5 x(0.2)^5 x(0.8)^0 = 4.2x(0.2)^4$

FeedBack

Q.71

ABC is a triangle in which a quadrilateral WXZY is drawn. W is a point on AB such that AW = WB = 5 units. X is a point on AC such that AX = 4 units and XC = 6 units, and Y and Z are points on BC such that BY = YZ = 3 units and ZC = 4 units. Find the area (in square units) of quadrilateral WXZY.

1 **41/10**

2 **25√3/10**

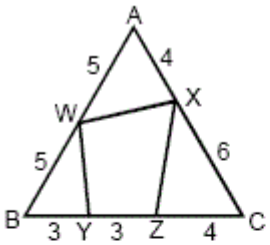
3 **5/2**

4 **41√3/4**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution



$\frac{Ar(\Delta AWX)}{Ar(\Delta ABC)} = \frac{5 \times 4}{10 \times 10} = \frac{20}{100}$ [$\because$ Area (ΔAWX) = $\frac{1}{2} \times 5 \times 4 \sin A$ and Area (ΔABC) = $\frac{1}{2} \times 10 \times 10 \sin A$]

Similarly,

$\frac{Ar(\Delta BWY)}{Ar(\Delta ABC)} = \frac{3 \times 5}{10 \times 10} = \frac{15}{100} \Rightarrow \frac{Ar(\Delta CXY)}{Ar(\Delta ABC)} = \frac{24}{100}$

If area of ΔABC is 100 square units, then area of quadrilateral WXZY = 100 – (20 + 15 + 24) = 41 square units.

Actual area of ΔABC which is an equilateral triangle (as all sides are equal) = $\frac{\sqrt{3}}{4} \times 10 \times 10 = 25\sqrt{3}$ sq. units.

So, $100 \equiv 25\sqrt{3}$

(Area of quadrilateral $41 \equiv \frac{25\sqrt{3}}{100} \times 41 = \frac{41\sqrt{3}}{4}$ sq. units WXZY)

FeedBack

Q.72

If $(0.4)^n = (6.25)^3$, then find n.

Solution:
Correct Answer : -6

Bookmark

Answer key/Solution

$(0.4)^n = (6.25)^3$

$\left(\frac{4}{10}\right)^n = \left(\frac{625}{100}\right)^3$

$\left(\frac{2}{5}\right)^n = \left(\frac{25}{4}\right)^3$

$\left(\frac{2}{5}\right)^n = \left(\frac{5^2}{2^2}\right)^3 \Rightarrow 2^{6+n} = 5^{6+n}$

$\left(\frac{2}{5}\right)^{6+n} = 1$

$\left(\frac{2}{5}\right)^{6+n} = \left(\frac{2}{5}\right)^0 \Rightarrow n = -6.$

FeedBack

Q.73
abc is a 3-digit number, where a, b and c are distinct and forms a Geometric Progression. If the number has exactly four factors, then which of the following can be the Geometric Mean of the 3 digits?

1 **4**

2 **6**

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

4 **None of these**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

All possible three digit numbers, having its digits in GP are 124, 139, 248, 469, 842, 931, 421 and 964.
But only 469 and 842 have exactly four factors. So GM of 4, 6 and 9 is 6 and GM of 8, 4 and 2 is 4

FeedBack

Q.74
If the sum of the 7^{th} and the 24^{th} term of an AP is same as its 15^{th} term, then find the sum of the first 31 terms of the same AP.

Solution:

Correct Answer : 0

a + 6d + a + 23d = a + 14d
a + 15d = 0

Sum of first 31 terms of the same AP = $\frac{31}{2}(2a+30d)$ = 31(a + 15d) = 0.

FeedBack

Bookmark

Answer key/Solution

Q.75

Ram bought some articles at Rs. 60 each. He decided to sell the 1st article at Re. 1, 2nd article at Rs. 3, 3rd at Rs. 5 and so on. If Ram wants to make an overall profit of 30%, then how many articles should he be selling?

1 **24**

2 **90**

3 **78**

4 **120**

Solution:

Correct Answer : 3

Let the number of articles bought by Ram be n.
Total cost = 60n
As profit earned = 30%, so selling price = 60n (1.3) = 78n
So, 1 + 3 + 5 + 7 ⋯ n = 78n
$n^2 = 78\ n$
n = 78

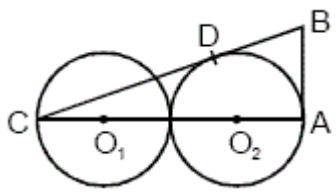
FeedBack

Bookmark

Answer key/Solution

Q.76

Two circles, each of radius 9 cm, touch each other as shown in the figure given below. O_1 and O_2 are the centers of the two circles. If AB is a tangent to one of the circles and D is a point on that circle, then find the length (in cm) of AB.



1 **$9\sqrt{2}$**

2 **27**

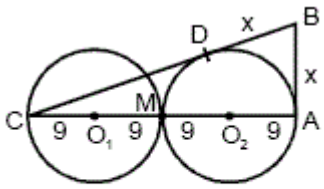
3 **12**

4 **Data insufficient**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution



$CD^2 = CM \times CA$
$CD^2 = 18 \times 36$
$= 6 \times 3 \times 6 \times 6$
$CD^2 = 3 \times 2 \times 3 \times 3 \times 2 \times 3 \times 2$
$CD = 3 \times 3 \times 2\sqrt{2} = 18\sqrt{2}$
In ΔABC,

$$(18\sqrt{2} + x)^2 = x^2 + (36)^2$$

$$648 + x^2 + 36\sqrt{2}x = x^2 + 1296$$

$$36\sqrt{2}x = 648$$

$$x = \frac{18}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = 9\sqrt{2}\ \text{cm}$$

FeedBack

Q.77

40% population of a village are women and the rest are men. 60% of the women and 45% of the men are above 30 years old. If the total population of the village is 20000, then what can be the maximum number of people in the village who are 30 years old?

Solution:
Correct Answer : 9800

Bookmark

Answer key/Solution

Total population = 20000
So, men and women in the village = 12000, 8000
Women above 30 years = 4800
Men above 30 years = 5400
Number of person below or equal to 30 years = 20000 – (4800 + 5400) = 9800
∴ Required maximum possible number = 9800.

FeedBack

Q.78

Total surface area of a right circular cylinder is 11088 m^2. If the ratio of its curved surface area to that of the area of its two circular bases is 3 : 1, then find the volume (in m^3) of the cylinder.

1 **85218**

2 **87318**

3 **78008**

4 **44708**

Solution:

Correct Answer : 2

Total surface area of a right circular cylinder
$= 2\pi r(r + h) = 11088$
$\pi r(r + h) = 5544$ ...(i)

Now, $\frac{\text{CSA}}{\text{Area of two circular faces}} = \frac{2\pi rh}{2\pi r^2} = \frac{3}{1} \Rightarrow \frac{h}{r} = \frac{3}{1}$.

So, putting this in (i)
r = 21 m
h = 63 m

$\therefore$ Volume $= \frac{22}{7} \times 21 \times 21 \times 63 = 87318 m^3$.

FeedBack

Bookmark

Answer key/Solution

Q.79

If one of the roots of a quadratic equation $px^2 + qx + r = 0$ is $2+\sqrt{3}$, then find the value of $\frac{p^2+q^2+r^2}{pq+qr+rp}$, where p, q and r are rational numbers.

1 **22/7**

2 **18/7**

3 **-18/7**

4 **-22/7**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

As cofficient of the equation are rational numbers, surds as roots can occur in conjugate pair only.

Sum of roots = $2+\sqrt{3}+2-\sqrt{3}=\frac{-q}{p}=4 \Rightarrow q=-4p$

Also, product = $(2+\sqrt{3})(2-\sqrt{3})=\frac{r}{p}=1 \Rightarrow r=p$

So, $\frac{p^2+q^2+r^2}{pq+qr+rp}=\frac{p^2+16p^2+p^2}{-4p^2-4p^2+p^2}=\frac{18p^2}{-7p^2}=-\frac{18}{7}$

FeedBack

Q.80

If two adjacent vertices of a square are (1, 2) and (1, −2), then which of the following can be the other two vertices of the square?

1 **(−3, 2) and (−3, 4)**

2 **(−3, 4) and (−3, −2)**

3 **(3, 2) and (−3, −2)**

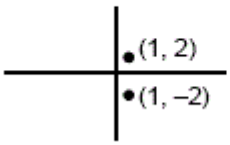
4 **(−3, 2) and (−3, −2)**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

If we put the given coordinates in the quadrants, then side of the square is 4 units.
Only option (4) has two coordinates having distance of 4 units between them.



FeedBack

Q.81

Dettol laboratories launched a new product which used chemicals α, β and γ for clearing with their volumes in ratio 1 : 2 : 3 such that the ratio of their density is 4 : 5 : 6. If it is known that $\text{Density} = \frac{\text{Mass}}{\text{Volume}}$, then the ratio of their mass is

1 **3 : 6 : 7**

2 **2 : 5 : 9**

3 **4 : 8 : 13**

4 **3 : 5 : 9**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

$$\text{Volume ratio} = \frac{1}{6} : \frac{2}{6} : \frac{3}{6}$$

$$\text{Density ratio} = \frac{4}{15} : \frac{5}{15} : \frac{6}{15}$$

$$\Rightarrow \text{Mass ratio} = \frac{1}{6} \times \frac{4}{15} : \frac{2}{6} \times \frac{5}{15} : \frac{3}{6} \times \frac{6}{15} = 2 : 5 : 9$$

FeedBack

Q.82

A meteorite has a property of travelling in space at the speed directly proportional to its weight. After every year, it gets hit by an asteroid which breaks it into two parts in the ratio 1 : 2 by weight. Find the ratio of the speed of present meteorite to the speed of the part with the lightest weight after 4 years.

1 **$3^4 : 1$**

2 **$3^8 : 2^2$**

3 **$3^8 : 1$**

4 **$2^2 : 3^7$**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

Let initially weight of the meteorite is $3^4 = 81$.
So, after every year it gets divided into 1 : 2 by weight.
So, after 1 year light part = 27

after 2 years = $\frac{1}{3} \times 27 = 9$

after 3 years = $\frac{1}{3} \times 9 = 3$

after 4 years = $\frac{1}{3} \times 3 = 1$

$\therefore$ required ratio = 3^4 : 1.

FeedBack

Q.83

Twenty percent of a solution of milk and water is replaced with the same quantity of water. This process is repeated for one more time. If the initial concentration of milk in the solution was 75%, then find the ratio of water to milk in the final solution.

1 **12 : 13**

2 **16 : 9**

3 **9 : 16**

4 **13 : 12**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Let total concentration of the initial solution be 100 litres.
∴ Milk : Water = 75 : 25 = 3 : 1
Now 20 litres of this solution is replaced with same quantity of water
∴ Removed quantity of milk and water are 15 litres and 5 litres respectively.
Milk = 75 – 15 = 60 litres
Water = 25 – 5 = 20 litres
After adding 20 litres, quantity of water becomes 40 litres.
Hence, ratio of milk and water = 3 : 2.
Again, 20 litres of this new mixture is replaced with the same quantity of water.

∴ Removed quantity of milk = $\frac{3}{5}\times 20$ = 12 litres and that of water = 8 litres.

Milk = 60 – 12 = 48 litres
Water = 40 – 8 = 32 litres
After adding 20 litres, quantity of water becomes 52 litres.
Hence, final ratio of water to milk = 52 : 48 = 13 : 12.
Alternative Solution:
Directly applying the formula, $y = x(1 - c)^n$, where y and x represents the final and the initially amount of milk in the solution, and c and n be the concentration and number of times the process is repeated

$$75\left[1-\frac{20}{100}\right]^2 = 75\times\frac{4}{5}\times\frac{4}{5} = 48$$

So, the quantity of water will be 100 – 48 = 52.
So, ratio of water to milk is 52 : 48 = 13 : 12

FeedBack

Q.84

Two aircraft – Delta1 and Delta2 – start flying from Delhi to Kolkata at the same time covering a distance of 270 km at 50 km/hr and 70 km/hr respectively. Delta 2 reaches Kolkata and immediately returns back towards Delhi meeting Delta1 at Durgapur in between. Find the distance (in km) between Delhi and Durgapur.

Solution:
Correct Answer : 225

Bookmark

Answer key/Solution

Let k be the distance between Durgapur and Kolkata.
Time taken by Delta1 to reach Durgapur = Time taken by Delta2 to reach Durgapur

$$\frac{270-k}{50} = \frac{270+k}{70} \Rightarrow k = 45.$$

∴ Required distance between Delhi and Durgapur = (270 – 45) km = 225 km.

FeedBack

Q.85

A function is defined as f(n) = 2(n – 1) + f(n – 1) for positive integral values of n. If f(0) = 1, then find the value of f(n) × f(m), where n × m = 9 and n ≠ m.

1 **73**

2 **49**

3 **273**

4 **Cannot be determined**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

As n × m = 9 and n ≠ m, only possibility is n and m is 1 and 9 is any order.
f(1) = 0 + 1 = 1
f(2) = 2 + 1 = 3
f(3) = 4 + 3 = 7
f(4) = 6 + 7 = 13
f(5) = 8 + 13 = 21
f(6) = 10 + 21 = 31
f(7) = 12 + 31 = 43
f(8) = 14 + 43 = 57
f(9) = 16 + 57 = 73
So, f(1) × f(9) = 1 × 73 = 73.

FeedBack

Q.86

A contract was to be completed in 60 days and for this 140 women were set to work, each working 6 hours a day. After 40 days, only 3/5th of the work was done and hence 20 additional women were employed at this moment to finish the work on time. How many hours a day each woman needs to work now to finish the work on time?

1 **6**

2 **7**

3 **7.5**

4 **8**

Solution:
Correct Answer : 2

Bookmark

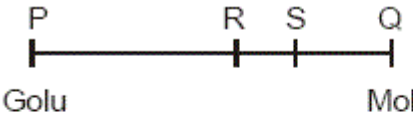
Answer key/Solution

Days	Women	Work	Hrs / day
40	140	$\frac{3}{5}$	6
20	160	$\frac{2}{5}$	?

So, $\frac{40 \times 140 \times 6}{\frac{3}{5}} = \frac{20 \times 160 \times x}{\frac{2}{5}} \Rightarrow x = 7$ hours/day.

FeedBack

Q.87



Golu and Molu start simultaneously towards each other from point P and Q respectively as shown above. The speed of Golu and Molu are 30 km/hr and 20 km/hr respectively. They meet every day at point R. One day Molu got late due to which they met 30 minutes late at point S. By how much time (in minutes) did Molu get late?

1 **60**

2 **75**

3 **80**

4 **None of these**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Golu will reach on normal time at point R. One day, they met 30 mins late at point S. Therefore, Golu must have taken 30 mins to cover distance RS.

$RS = 30 \times \frac{30}{60} = 15km$

Now, Molu will take $\frac{15}{20} \times 60 = 45$ mins more to reach at point R where they usually meet. Therefore Molu got late by 30 + 45 = 75 min

Alternative solution:
Both Golu and Molu start simultaneously and meet at point R.
⇒ Time taken by both are same.
∴ Ratio of their speed = Ratio of the distance covered by them till point R = 3 : 2

One day, they met 30 mintues late at point S.
Hence, Golu must have covered the distance between point R to point S in 30 minutes.

∴ $RS = 30 \times \frac{30}{60} = 15$ km.

Let p hours be the time by which Molu got late.
∴ Time taken by Golu to cover distance PS = p + Time taken by Molu to cover distance QS.

$\frac{3x+15}{30} = p + \frac{2x-15}{20}$

On solving, we get p = $\frac{5}{4}$ hours = 1 hour 15 minutes = 75 minutes.

FeedBack

Q.88
If $\log_2(\log_4(\log_2(x^2 + 4x + 4))) = 1$, then find the positive value of x.

1 $2^7 - 2$

2 $2(2^7 - 1)$

3 $2(2^7 + 1)$

4 $2^7 + 1$

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

$\log_2(\log_4(\log_2(x^2 + 4x + 4))) = 1$
$\Rightarrow \log_4(\log_2(x^2 + 4x + 4))) = 2$
$\Rightarrow \log_2(x^2 + 4x + 4) = 16$
$\Rightarrow x^2 + 4x + 4 = 2^{16}$
$\Rightarrow (x + 2)^2 = 2^{16}$
$\Rightarrow x + 2 = \pm 2^8$
As positive value of x is required,
$\Rightarrow x = 2^8 - 2 = 2(2^7 - 1)$

FeedBack

Q.89

N = 0.abcabcabc…, where N is a recurring decimal number. If at most two of a, b and c are '0', then which of the following numbers when multiplied by N results into an integer?

1 **1089**

2 **2997**

3 **3333**

4 **9999**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

N = 0.abcabc ...(1)
1000 N = abc.abc ...(2)
From (2) – (1), we get
999N = abc

multiply (1) by 1000

$\Rightarrow N = \frac{abc}{999}$

∴ Number has to be 999 or a multiple of 999 for getting the integral value for multiplication.
∴ From options only 2997 satisfies.

FeedBack

Q.90

The number of positive integral solutions of the equation xyz = 30 is

1 **24**

2 **25**

3 **26**

4 **27**

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

30 can be factorized as 2 × 3 × 5.
When the factors are 2, 3 and 5, we get 6 possible solutions for different value-combinations of x, y and z.
When the factors are 1, 5 and 6, we get 6 possible solutions for different value-combinations of x, y and z.
When the factors are 1, 1 and 30, we get 3 possible solutions for different value-combinations of x, y and z.
When the factors are 1, 2 and 15, we get 6 possible solutions for different value-combinations of x, y and z.
When the factors are 1, 3 and 10, we get 6 possible solutions for different value-combinations of x, y and z.
Hence, there are a total of 27 possible combinations of x, y and z.

FeedBack

Q.91
What is the remainder when $[(6!)^{7!}]^{13333}$ is divided by 13?

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

$6! = 720 = 12 \times 12 \times 5$
Thus we have $[12 \times 12 \times 5]^{(7! \times 13333)}$
$12^{(\text{even number})}$ when divided by 13 would give $(-1)^{(\text{even number})} = 1$.
Similarly, $5^{(7!*13333)} = 5^{(2\times3\times7\times5!\times13333)} = 5^{(2\times\text{even number})} = 25^{(\text{even number})}$
Now when this is divided by 13, we get $(-1)^{(\text{still an even number!})} = 1$.
Hence the final remainder will be $1 \times 1 \times 1 = 1$.

FeedBack

Q.92
If 'N' is a natural number, with at least 5 distinct prime factors and is less than 4000, then how many values can N take?

Solution:
Correct Answer : 4

Bookmark

Answer key/Solution

Smallest natural number (N) having 5 distinct prime factors is, N = 2 × 3 × 5 × 7 × 11 = 2310
Other possible values, for N being less than 4000, are
2 × 3 × 5 × 7 × 13 = 2730
2 × 3 × 5 × 7 × 17 = 3570
2 × 3 × 5 × 7 × 19 = 3990

FeedBack

Q.93

There are 100 questions in an examination paper, in which each correct attempt fetches one mark and each wrong attempt attracts a penalty of one-fourth of a mark. How many different integral scores are possible for a student who attempts exactly 85 questions in the paper? (No penalty for unattempted questions is there)

Solution:
Correct Answer : 22

Bookmark

Answer key/Solution

Let the student answered 'x' questions correctly.

Then his score would be $= x - \frac{1}{4}(85 - x) = \frac{4x - (85 - x)}{4} = \frac{5x - 85}{4} = x - 21 + \frac{x - 1}{4}$

$\frac{x-1}{4} \rightarrow$ multiple of 4

i.e. $x = \underbrace{1, 5, 9, 13, 17, \ldots, 85}_{22 \text{ values}}$

Alternative Solution:

Since penalty is $\frac{1}{4}$ and reward is 1 so number of wrong answers for integral score should be a multiple of 4 i.e. 0, 4, 8, 12, ..., 84 → Total of 22 possibilities.

FeedBack

Q.94

A factory makes 3 flavours of candies – eclairs, caramel and mint – and sells at Rs. 10, Rs. 2 and Re. 1 per candy respectively. Rakesh bought candies for Rs. 100 with at least one candy of each flavour, in which the number of mint candies was 4 times that of caramel candies. Find the maximum number of eclairs candies bought by him?

1 **6**

2 **7**

3 **8**

4 **5**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

$10e + 2c + m = 100 \quad \ldots(1)$
$m = 4c$
$10e + 6c = 100 \Rightarrow 5e + 3c = 50$
$5e = 50 - 3c$
For e to be maximum, c should be minimum $\Rightarrow c = 5$
$\therefore 5e + 3(5) = 50 \Rightarrow e = 7$

FeedBack

Q.95

Solve $\left|\frac{x-12}{x-15}\right| \geq 3$

1 $\left[\frac{57}{4}, 15\right) \cup \left(15, \frac{33}{2}\right]$

2 $\left[\frac{-57}{4}, \frac{33}{2}\right]$

3 $\left[\frac{57}{4}, \frac{33}{2}\right]$

4 **None of these**

Solution:
Correct Answer : 1

Bookmark

Answer key/Solution

$$\left|\frac{x-12}{x-15}\right| \geq 3 \Rightarrow \frac{x-12}{x-15} \leq -3 \text{ or } \frac{x-12}{x-15} - 3 \geq 0$$

$$\frac{x-12}{x-15} + 3 \leq 0$$

$$\Rightarrow \frac{57}{4} \leq x < 15 \quad \ldots(1)$$

or $\frac{x-12}{x-15} - 3 \geq 0$

$$\Rightarrow 15 < x \leq \frac{33}{2} \quad \ldots(2)$$

from (1) and (2)

$$x \in \left[\frac{57}{4}, 15\right) \cup \left(15, \frac{33}{2}\right]$$

FeedBack

Q.96

The ratio of angles of a triangle is 1 : 1 : 2. Find the ratio of the longest side of the triangle to the perimeter of the triangle.

1 $\left(2-\sqrt{3}\right):1$

2 $1:\left(2-\sqrt{3}\right)$

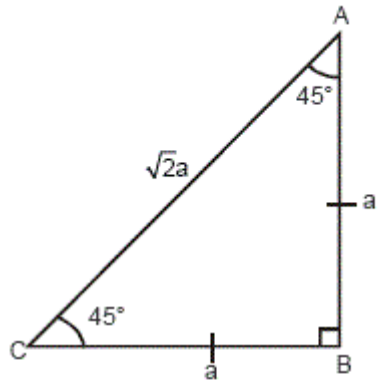
3 $\left(\sqrt{2}-1\right):1$

4 $1:\left(\sqrt{2}-1\right)$

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution



Ratio of angles is 1 : 1 : 2 i.e. 45° : 45° : 90°
⇒ Δ ABC is a right angled triangle with one angle of 90° and other two of 45° each.
⇒ AB = BC = a
Using Pythagoras Theorem,
AC = $\sqrt{2}a$

$\therefore \frac{\text{Longest side}}{\text{Perimeter}} = \frac{\sqrt{2}a}{\sqrt{2}a+2a} = \frac{1}{1+\sqrt{2}}$ or $\frac{\sqrt{2}-1}{1}$

FeedBack

Q.97

A man borrowed Rs. 30,000 from a bank at 10% p.a. compound interest. At the end of every year, he repaid Rs. 9,000. If at the end of 3rd year, he wanted to clear the loan, then how much should he pay (in Rs.) at that time to clear the loan?

1 **19000**

2 **19140**

3 **18180**

4 **18560**

Solution:
Correct Answer : 2

Bookmark

Answer key/Solution

Amount outstanding at end of 1st year
1.1(30,000) = Rs. 33,000
2nd year = 33000 – 9000 = Rs. 24,000
Outstanding 1.1(24000) = Rs. 26,400
3rd year = 26400 – 9000 = Rs. 17,400
Outstanding 1.1(17400) = Rs. 19,140.

FeedBack

Q.98

Shyam and Ram are two renowned magicians who presented a magic show in this years' Diwali festival. Shyam, using his trick, could double red hats in every 10 seconds while Ram could triple black hats in every 10 seconds. After 40 seconds, the total number of hats with them was 161. How many total number of hats were there at the beginning?

Solution:
Correct Answer : 6

Beginning	Number of Red hat	Number of Black hat
	r	b
10 sec	2r	3b
20 sec	4r	9b
30 sec	8r	27b
40 sec	16r	81b

16r + 81b = 161
If b = 1, r = 5
∴ Total number of hats at the beginning = 6.

FeedBack

Bookmark

Answer key/Solution

Q.99

Keshav alone takes 40% more time, to complete an order of producing 1400 balls, than the time taken by Keshav and Arun working together. Also, Arun alone takes 60% more time to complete the same order than the time taken by Arun and Nakul together. How long (in days) will it take for all three of them working together to complete an order of producing 4100 balls, if Keshav had completed alone the order of 1400 balls in 56 days?

1 **90**

2 **120**

3 **100**

4 **150**

Solution:
Correct Answer : 3

Bookmark

Answer key/Solution

Keshav alone had completed the order of 1400 balls in 56 days.
Keshav (K) alone takes 40% more time than the time taken by Keshav and Arun (K + A) together.

$\therefore K = \frac{140}{100}(K + A)$

$(K + A) = \frac{100}{140} \times 56 = 40$ days.

$\therefore$ Keshav alone takes 56 days and (Keshav + Arun) together takes 40 days.
So total work will be LCM (56, 40) = 280

$\therefore$ Time taken by Arun alone $= \frac{280}{2} = 140$ days.

Now, Arun (A) takes 60% more time than the time taken by Arun and Nakul (A + N) together.

$\therefore 140 = \frac{160}{100}(A + N)$

$\therefore (A + N) = \frac{175}{2}$ days

$\therefore$ Keshav takes 56 days to complete the work.
Keshav and Arun together take 40 days.

Arun and Nakul together take $\frac{175}{2}$ days.

$\therefore$ Total work done will be LCM $\left(56, 40, \frac{175}{2}\right) = 1400$

$\therefore$ Karan will do $\frac{1400}{56} = 25$ units in one day. Karan and Arun together will do 35 units in one day, which implies that Arun alone will do 10 units per day.
Arun and Nakul together do 16 units in one day so Nakul will do (16 – 10) = 6 units per day.

$\therefore$ Total time taken by all, working together to produce 1400 balls $= \frac{1400}{(25 + 10 + 6)} = \frac{1400}{41}$ days.

In order to produce 4100 balls, let they will take 'd' days working together.

$\Rightarrow \frac{(K + A + N) \times \frac{1400}{41}}{1400} = \frac{(K + A + N) \times d}{4100}$

On solving we get, d = 100
Hence, they will take 100 days.

FeedBack

Q.100

Find the sum of the integral values of x, for which the function $f(x) = 2^{x^2-3x+2} - 4^{x^2-2x+1}$ attains its maximum value.

Solution:

Correct Answer : 1

$$f(x) = 2^{x^2-3x+2} - 4^{x^2-2x+1}$$

$$= 2^{x^2-3x+2} - 2^{2x^2-4x+2}$$

$$= 2^{(x-1)(x-2)} - 2^{(2x-2)(x-1)}$$

Now f(x) will be maximum when $2^{(2x-2)(x-1)}$ is minimum, i.e. when x = 1, x = 0.
Required answer = 1.

FeedBack

Bookmark

Answer key/Solution