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Directions of Test

Test Name	2016 Bull CAT 14	Total Questions	100	Total Time	180 Mins

Section Name	No. of Questions	Time limit	Marks per Question	Negative Marking
Verbal Ability	34	1:0(h:m)	3	1/3
DI & Reasoning	32	1:0(h:m)	3	1/3
Quantitative Ability	34	1:0(h:m)	3	1/3

Section : Verbal Ability

DIRECTIONS for the question : *Read the passage and answer the question based on it.*

Question No. : 1

Crisis is an interesting word. We have been talking about a serials pricing crisis now for at least 30 years; how long can a crisis last? We also keep hearing, often from publishers, about the unsustainability of library business models, which is deeply ironic. But there is no doubt that funding is flat or on the decline for libraries, while publishers, with their own unsustainable business models, keep raising prices at a rate two or three times higher than the rate of growth for even those libraries whose collection budgets are growing. Cancellations happen every year, and monograph purchases (print and electronic) continue to decline. We also have to defend each staffing request against the question of why we need more librarians, or even as many as we used to have, now that "everything is on the Internet."

But I want to suggest three ways in which librarians can, and already do, employ the other basic reflex, fighting back against the threats, or the crisis if you will, that trouble our profession. I want to suggest what may be obvious—that the best way to respond to threats that are rooted in disruptive changes is not to (just) cling to old practices but to look for newer, more democratic, and technologically enabled ways to continue to advance the fundamental mission we have always embraced.

First, we have the option of cancellations, which is a blunt instrument against the problems we face but can be effective. So far, cancellations have not seemed to get through to publishers—I was told by one publishing executive that his goal was to have his package be the last one we cancel, which is a very shortsighted approach—but cancellations are a teaching opportunity with our faculty and students.

Second, we need to advocate for better, more sustainable ways to disseminate scholarship. This is why we treat cancellations as teaching opportunities—so that our authors will understand the self-inflicted harm that occurs every time they sign a copyright transfer agreement without reading, questioning, and negotiating it. Rights in the hands of commercial publishers represent opportunities lost, and as opportunities to make scholarship more widely known and more impactful increase, these agreements look more and more like handcuffs.

Of course, funding agencies, especially governmental funding agencies, are also pushing researchers toward greater access. The language adopted in January as part of the Omnibus Appropriations Bill, which extends an open access policy to all research funded by agencies under the Health, Human Services, and Education umbrellas, is a huge step—the latest in a long line—toward free public access to the products of taxpayer-funded research. It is likely to look like one more compliance mandate to our researchers and authors, but it is also an opportunity for librarians to be the solution to a perceived "problem" on campus. That, too, is a way to fight back.

Finally, we need to articulate the value proposition for libraries more frequently and in greater detail. There is a tendency to evaluate library services only in terms of "efficiency," but many of us balked at the apparent suggestion that we should advocate for inefficiency in our libraries. The solution is to define better the word efficiency. An activity is efficient, I suggest, if it produces

the maximum amount of value for the least investment. So the real question is, what do we value? As I said above, broader access is a value; dollars spent on supporting open access materials are better spent—they get a higher return on investment from the point of view of the educational mission of academic libraries and their parent institutions—than the same money spent on toll-access subscriptions.

Excerpted from an article by Kevin Smith in Library Journal's Academic 'Newswire newsletter' dated Feb 2014.

It has been mentioned that the threat to libraries from neoliberal thinking in higher education (the rise of internet makes libraries redundant and cost centric) is pervasive in academia and monolithic. In the context of the passage the writer is likely to view the comment as –

A) Irrelevant   B) Exaggerated   C) A calumny   D) Appropriate

Question No. : 2

As per the passage the librarians can employ all the following as strategies to take their fight forward except

A) Using the collection dollars in new ways that improve access and return on investment, properly defined
B) Advocating for better treatment of authors as rights holders and as scholars than they receive in the current system
C) Leading a conversation about what we really mean by efficiency in higher education—offer ways that librarians can fight back against a sense of crisis.
D) Accepting the inevitable rise of the internet and converting themselves into a digital format that is only available as an online service

Question No. : 3

"It is likely to look like one more compliance mandate to our researchers and authors, but it is also an opportunity for librarians to be the solution to a perceived "problem" on campus". The problem in discussion is –

A) Curb the rise of internet and make libraries retain their traditional role
B) Ensure the business model of publishing is reformed to push for easier information access to everyone particularly of research that is sponsored by the Government
C) Ensure that information access doesn't remain elitist but is communicated in a simpler form so that everyone understands it
D) Ensure libraries promote better reading habits and encourage more people to participate actively in research related projects

Question No. : 4

"Cancellations happen every year, and monograph purchases (print and electronic) continue to decline. We also have to defend each staffing request against the question of why we need more librarians, or even as many as we used to have, now that "everything is on the Internet." In this context what can we infer about the future of libraries.

A) Libraries are in a perpetual state of decline and would become redundant.
B) Libraries are facing multiple challenges due to the rise of the internet but they need to reposition themselves and retain their relevance
C) Internet is the true replacement of libraries and can perform all its functions
D) Government needs to intervene and subsidize libraries to ensure popular culture gets the required sustenance and is not snuffed out altogether

DIRECTIONS for the question: *Complete the sentence by filling in the appropriate blank/blanks from the options provided.*

Question No. : 5

A cyclone is a tropical storm with winds that _____ a constant speed of 74 miles per hour or more.

A) won't reach   B) could reach   C) cought to reach   D) can't reach

DIRECTIONS for the question: *Complete the sentence by filling in the appropriate blank/blanks from the options provided.*

Question No. : 6

Lager _____ about 150 years ago and it is now the most popular style of beer.

A) has developed   B) Was developed   C) Were developed   D) Has been developed

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DIRECTIONS for the question : *Read the passage and answer the question based on it.*

Question No. : 7

All too often, we hear that the reason life expectancy has been increased is thanks to the marvellous developments in modern medicine. This is a message that is repeated many times and promoted by the medical industry – with little or no evidence. In fact, the opposite may be the truth. A combination of not understanding the concept of life expectancy, ignoring scientific facts, plus a willingness to take credit when it is not due has seen the medical industry promote itself as the reason we live longer. Behind the scenes, this is little more than a marketing strategy for the big pharmaceutical companies.

The overemphasis of modern medicine on the pharmaceutical model and "silver bullet" approach has led to a disempowerment of individuals over their own health during the past few decades, during which we have seen a huge rise in chronic illness. The more specialists and the bigger the medical budget, the poorer the health of the public. Let's take an example: the US uses 50% of the world's pharmaceuticals and spends more per person on medicine than any other nation, yet has one of the poorest health outcomes in the developed world.

Modern medicine tends to focus on prescriptive treatment of disease, rather than health promotion, prevention and management. It is likely that everyday medical care provides little contribution to increased life expectancy of a population.

Gains in life expectancy worldwide have been greater during last century than at any other time in recorded history. Statistical analyses show that since the early 1800s life expectancy at birth has seen a linear rate of increase. Within this time, it has been human advances in sanitation, increased food supply, improved access to water, and basic preventative medicine that have helped drive these steady increases in the developed world – not pharmaceuticals. The majority of life expectancy gains were made before pharmaceuticals to treat heart attack, stroke and other forms of chronic illness were even developed.

However, it is important to understand the concept of life expectancy. It is the average number of years of life remaining at a given age for a selected population. Life expectancy at birth is commonly used as the main indicator of human health and well-being. It is said to give an indication of the overall mortality of a population. However, it is a poor indicator of population health.

Life expectancy is poorly understood. Most people think it is increasing the age to which they can live; for example, people at 50 think that they are going to live longer because of an increase in life expectancy. This is not the case. Life expectancy is a statistical anomaly, which takes the average of the age of a person's death. It includes everyone: infants, children, teenagers right through to those in their old age. This means that if the rates of infant mortality are reduced, the average life expectancy is dramatically increased overall.

There is no evidence to link increased medical spending and health outcomes, with many lower-spending nations such as Cuba tending to have better outcomes than higher-spending nations such as America.

Modern medicine cannot be given credit for increasing life expectancy at birth. Theory suggests that with increasing doctor supply, a population becomes increasingly dependent on their services to maintain health and ultimately neglects the more important lifestyle factors that contribute to longer, healthier life.

With obesity and heart disease emerging as leading causes of mortality in the developed world, we must ask where life expectancy is headed in the future and give more political weight to preventative care. Theories of a time lag effect suggest a possible regression of life expectancy in the future, even with better health outcomes during infancy, which may very well be a result of contemporary approaches to healthcare.

Life Expectancy is an ill-understood concept. The following statement best indicates the fallacious nature of using it as health indicator.

A) The benefits from improvements in mortality rates of younger generations provide a false impression of the benefits to older generations.
B) Life expectancy at birth does not provide adequate information as to the health or morbidity of a population prior to death
C) Our reliance on doctors and prescription medicine to ensure population longevity appears to be very narrow in light of its

historical contribution to health.
D) Life expectancy is significantly impacted by cultural factors, exercising and avoiding other risk factors such as smoking, drinking, drug abuse, risky sexual behavior, fatty diets etc.

Question No. : 8

Modern medicine and pharmaceutical industry have claimed credit for improving average life expectancy. However the writer is critical and skeptical about their claims. Which of the following statements best support his argument that 'they' have not significantly contributed to the improvement of average life expectancy?

A) Modern medicine tends to focus on prescriptive treatment of disease rather than preventative avoidance and health management
B) A major Australian study found an association between increasing mortality and an increase in the doctor supply, which is attributed to increasing adversities or complications caused by or resulting from medical treatment within society.
C) Billions of dollars are spent inventing and testing new drugs that only marginally extend the benefits of those they replace, instead of using existing resources to better deliver effective services.
D) It has been human advances in sanitation, increased food supply, improved access to water, and basic preventative medicine that have helped drive the steady increases of average life expectancy in the developed world

Question No. : 9

It seems to be a paradox that modern method in terms of more resources, improved medicines and higher availability of doctors has not helped America improve healthcare for its citizens. The passage provides the following explanation for the trend –

A) Americans are genetically inclined as a population to have poor health indicators.
B) The data measurements are significantly advanced in America and this leads to disparity when we compare it with the healthcare statistics published by other nations
C) Infant Mortality Rate had significantly improved in America much ahead of the other countries. Its impact on the average life expectancy is already factored in historical trends and hence the incremental improvement in average life expectancy is minimal
D) Americans have adopted a reactive approach towards managing their healthcare – they tend to rely on usage of modern medicine and doctors to address ailments arising out of a poor life style.

Question No. : 10

The writer's critical analysis has been in favour of finding simpler and easily accessible solutions to improve average life expectancy and quality of life. In this regard the writer is likely to be supportive of the following statement –

A) It just so happens that *Hara*, which means to eat .Caloric restriction is the only consistently reproducible Okinawa culture embraces *Hachi* only until 80% full experimental means of extending mean and maximum lifespan. *Bu*
B) Government needs to make massive investments in healthcare – the primary focus should be on building hospitals, finding better quality drugs and evolving treatments for a wider range of health issues caused by the current lifestyles
C) Pharmaceutical companies are making a significant contribution in improving average life expectancy as they are constantly innovating and providing better medicines to improve the quality of our life
D) Cultural and genetic factors are the key to improved average life expectancy. There is little that can be done proactively to overcome these risk factors – the solution lies in providing affordable healthcare to all.

DIRECTIONS for the question : *Read the passage and answer the question based on it.*

Question No. : 11

Aristotle didn't have a high opinion of the octopus. "The octopus is a stupid creature," he wrote, "for it will approach a man's hand if it be lowered in the water." Twenty-four centuries later, this "stupid" creature is enjoying a much better reputation. YouTube is loaded with evidence of what some might call octopus intelligence. One does an uncanny impression of a flounder. Another mimics coral before darting away from a pushy camera. A third slips its arms around a jar, unscrews it, and dines on the crab inside.

So, is the octopus really all that smart? It depends on how you define intelligence. And if you've got a good definition, there are quite a few scientists who would love to hear it. Octopuses can learn, they can process complex information in their heads, and

they can behave in equally complex ways. But it would be a mistake to try to give octopuses an IQ score. They are not intelligent in the way we are—not because they're dumb but because their behaviour is the product of hundreds of millions of years of evolution under radically different conditions than the ones under which our own brains evolved.

Octopuses escape from predators not just by hiding quickly but by deceit. One of the most impressive examples of this deception is what marine biologist Roger Hanlon calls the moving-rock trick. An octopus morphs into the shape of a rock and then inches across an open space. Even though it's in plain view, predators don't attack it. They can't detect its motion because the octopus matches its speed to the motion of the light in the surrounding water.

For Hanlon, what makes this kind of behaviour remarkable is that it's a creative combination of lots of behaviours, used to address a new situation. Similarly, when an octopus escapes an attack, it may puff up its body and turn white to scare a predator, shoot off puffs of ink to distract it, zigzag through the water, and then suddenly switch its skin to match the surrounding coral.

There's not much point in trying to pin this sort of behaviour to some human-based scale of intelligence, because our behaviour emerged as apes adapted to life spent on two legs, in groups, and using our hands to make tools. We'd fail pretty badly at an octopus-based test of intelligence, but surely we wouldn't hold it against ourselves.

The writer discusses the theory that Octopus are intelligent. Yet he moderates his enthusiasm by quoting Aristotle and commenting on the human scale of intelligence. Based on the same we can conclude the following –

A) The writer is hedging his bets. While he is aware of the interest of the scientific community in the intelligence shown by Cephalopods in general and Octopus in particular, he is on the whole skeptical about their claims.
B) The writer is supportive of the theory that Octopuses are intelligent. He just suggests that we cannot apply our own yardsticks to measure the same.
C) The writer is of the view that Octopus' intelligence is an overdone theme and is on account of popular Octopus videos that are available on YouTube.
D) There is need to continue further research in the subject before we can find sufficient scientific evidence to back the claim.

Question No. : 12

Octopus behavior when it is attacked is cited as evidence of its intelligence. It employs various techniques to defend itself except the following –

A) Camouflage skin to match surrounding coral   B) Enlarge itself and change its appearance   C) Squirt ink
D) It recedes into a shell, sinks to the bottom of the ocean floor and takes on a 'rock-like' appearance

Question No. : 13

As per the 'Moving Rock' trick the Octopus morphs into the shape of a rock and then inches across an open space. Even though it's in plain view, predators don't attack it as they don't detect its motion. The rationale for the same is best explained by the following statement –

A) They assume the shape of a rock and move in plain sight across the sea floor. But they move no faster than the ripples of light around them, so they never seem to move.
B) They assume the shape of a rock and sink down to the ocean floor. The camouflage themselves to resemble the nearby Corals and are not detected.
C) It is an Optical illusion created by the interplay of light and waves that makes it appear that the Octopus is only a rock.
D) It is by employing camouflage tricks and by blending into its surrounding environment of the light and waves that the Octopus creates its escape mechanism.

DIRECTIONS for the question : *Read the passage and answer the question based on it.*

Question No. : 14

Quételet did not pursue the forensic applications of his ideas. He had bigger plans: to employ the normal distribution in order to illuminate the nature of people and society. If you made 1,000 copies of a statue, he wrote, those copies would vary due to errors of measurement and workmanship, and that variation would be governed by the error law. If the variation in people's physical traits follows the same law, he reasoned, it must be because we, too, are imperfect replicas of a prototype. Quetelet called that prototype *l'homme moyen,* the average man. He felt that a template existed for human behavior too. The manager of a large department store may not know whether the spacey new cashier will pocket that half-ounce bottle of Chanel Allure she was

sniffing, but he can count on the prediction that in the retail business, inventory loss runs pretty steadily from year to year at about 1.6 percent and that consistently about 45 percent to 48 percent of it is due to employee theft.

Crime, Quetelet wrote, is "like a budget that is paid with frightening regularity."Quetelet recognized that *l'homme moyen* would be different for different cultures and that it could change with changing social conditions. In fact, it is the study of those changes and their causes that was Quetelet's greatest ambition. "Man is born, grows up, and dies according to certain laws," he wrote, and those laws "have never been studied." Newton became the father of modern physics by recognizing and formulating a set of universal laws. Modeling himself after Newton, Quetelet desired to create a new "social physics" describing the laws of human behavior. In Quetelet's analogy, just as an object, if undisturbed, continues in its state of motion, so the mass behavior of people, if social conditions remain unchanged, remains constant.

And just as Newton described how physical forces deflect an object from its straight path, so Quetelet sought laws of human behavior describing how social forces transform the characteristics of society. For example, Quetelet thought that vast inequalities of wealth and great fluctuations in prices were responsible for crime and social unrest and that a steady level of crime represented a state of equilibrium, which would change with changes in the underlying causes. A vivid example of such a change in social equilibrium occurred in the months after the attacks of September 11, 2001, when travelers, afraid to take airplanes, suddenly switched to cars. Their fear translated into about 1,000 more highway fatalities in that period than in the same period the year before—hidden casualties of the September 11 attack.

But to believe that a social physics exists is one thing, and to define one is another. In a true science, Quetelet realized, theories could be explored by placing people in a great number of experimental situations and measuring their behavior. Since that is not possible, he concluded that social science is more like astronomy than physics, with insights deduced from passive observation. And so, seeking to uncover the laws of social physics, he studied the temporal and cultural variation in *l'homme moyen.*

Excerpted from 'The Drunkard's Walk - How Randomness Rules our Lives' by Leonard Mlodinow

Based on the passage, in retail business, inventory loss –

A) Can be eliminated 100 % by applying forensic analytic techniques
B) Can be attributed only to the deviant conduct of the employees
C) Will be the same percentage of sales turnover annually and is even provisioned for accordingly
D) Materially impacts a company's sales volume

Question No. : 15

Quételet is likely to agree to the following statement –

A) We can perform active experiments involving mankind to study social behavior.
B) Western societies are less prone to crime than the developing world as they have a better standard of living
C) Human behavior can be studied and is governed by laws of nature
D) Newton's pioneering research in the field inspired him to study the dynamics of human behavior

Question No. : 16

The statement, 'Man is an irrational creature', is best illustrated by the following –

A) There were more car accidents post the September 11 attacks as US people were under stress
B) Inflation governs man's social behavior   C) His behavior is prone to 'herd mentality'
D) His perceptions on a disaster shape his immediate response to a disproportionate extent.

Question No. : 17

A 'Normal' distribution curve is –

A) Bell-shaped describes distribution pattern of a random event and is subject to margin of error
B) Applicable only to physical phenomenon   C) Cannot be used to predict social behavior
D) Didn't appeal to Quételet who didn't chose to pursue forensic application of his ideas

DIRECTIONS for the question : *Read the passage and answer the question based on it.*

Question No. : 18

(a)   (b)
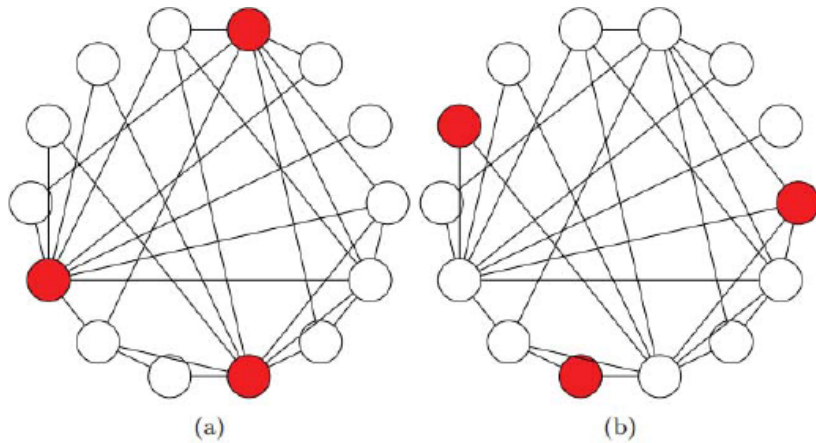
One of the curious things about social networks is the way that some messages, pictures, or ideas can spread like wildfire while others that seem just as catchy or interesting barely register at all. The content itself cannot be the source of this difference. Instead, there must be some property of the network that changes to allow some ideas to spread but not others.
Network scientists have known about the paradoxical nature of social networks for some time. The most famous example is the friendship paradox: on average your friends will have more friends than you do.

This comes about because the distribution of friends on social networks follows a power law. So while most people will have a small number of friends, a few individuals have huge numbers of friends. And these people skew the average.

Here's an analogy. If you measure the height of all your male friends. You'll find that the average is about 170 centimetres. If you are male, on average, your friends will be about the same height as you are. Indeed, the mathematical notion of "average" is a good way to capture the nature of this data.

But imagine that one of your friends was much taller than you—say, one kilometer or 10 kilometers tall. This person would dramatically skew the average, which would make your friends taller than you, on average. In this case, the "average" is a poor way to capture this data set.

Now Lerman and co have discovered a related paradox, which they call the majority illusion. This is the phenomenon in which an individual can observe a behaviour or attribute in most of his or her friends, even though it is rare in the network as a whole.

They illustrate this illusion with a theoretical example: a set of 14 nodes linked up to form a small world network, just like a real social network (see picture above). They then colour three of these nodes and count how many of the remaining nodes link to them in a single step.
Two versions of this setup are shown above. In the left-hand example, the uncoloured nodes see more than half of their neighbours as coloured. In the right-hand example, this is not true for any of the uncoloured nodes.
But here's the thing: the structure of the network is the same in both cases. The only thing that changes is the nodes that are coloured.

This is the majority illusion—the local impression that a specific attribute is common when the global truth is entirely different.

The reason isn't hard to see. The majority illusion occurs when the most popular nodes are coloured. Because these link to the greatest number of other nodes, they skew the view from the ground, as it were. That's why this illusion is so closely linked to the friendship paradox.
So how prevalent is it in the real world? To find out, Lerman and co study several real-world networks including the coauthorship network of high-energy physicists, the follower graph of the social-media network 'Digg', and the network representing links between political blogs.
And the majority illusion can occur in all of them. "The effect is largest in the political blogs network, where as many as 60%–70% of nodes will have a majority active neighbours, even when only 20% of the nodes are active," they say. In other words, the majority illusion can be used to trick the population into believing something that is not true.

That's interesting work that immediately explains a number of interesting phenomena. For a start, it shows how some content can spread globally while other similar content does not—the key is to start with a small number of well-connected early adopters fooling the rest of the network into thinking it is common.

According to the 'Friendship Paradox', the "average" is a poor way to capture this data set on social network trends. An illustration that best describes the concept would be –

A) Friendship patterns on Facebook follow the power law and so the data set is not uniform.
B) On average, your coauthors will be cited more often than you, and the people you follow on Twitter will post more frequently than you.
C) People with a large number of friends have the momentum, so their network keeps expanding at a more rapid pace than the average.
D) Social networks behave as per the law of normal distribution on most parameters.

Question No. : 19

The 'majority illusion' is closely linked to the Friendship Paradox. It provides the best explanation for which of the following social trends –

A) In the social world everyone wants to be an acknowledged leader instead of being a follower.
B) Retail investors tend to lose money trading in shares, on account of herd mentality.
C) It explains the spread of antisocial behaviour. Various studies have shown that teenagers consistently overestimate the amount of alcohol and drugs their friends consume.
D) Politicians tend to be rhetorical and pandering to popular appeal with their constituency

Question No. : 20

The node experiment provides insights into how views are shared and articulated within groups. Marketers have always known the importance of managing perception to influence consumer behaviour. The experiment provides validation regarding –

A) Marketers need to invest heavily in spends to ensure that adequate number of nodes in their social network are activated and promote their brand.
B) Marketers need to factor in influences beyond the standard markers of demographics and psychographics of their target audience.
C) Marketers need to create social media specific campaigns to improve their visibility
D) Marketers must first be able to identify the popular nodes that can *influencerati* must then be persuaded to adopt the create the majority illusion for the target audience. These desired behaviour or product.

Question No. : 21

Among stories of similar nature and content only a few manage to go viral and become hugely popular. The phenomenon is best explained by –

A) There is no rational explanation – it is a random phenomenon and no one can try to influence which stories will probably go viral.
B) Viral stories depend on the clout of the initial adopters. Such adopters have the influence to make the story popular in their network.
C) Viral stories best represent the taste of the target audience. Customized messages can be easily popularized in the network.
D) Viral stories need to be topical and simple to understand. Ideally they must be relatable to the popular news stories of the day, this will help them piggy back on the popularity of the base story.

Question No. : 22

The Camel is able to manage without drinking water for a long period of time. Select the option below that best explains the secret behind its success –

A) The Camel stores the water along with its fat deposits in its Hump.
B) The Camel stores the water in its body tissues. It loses weight and water after a long trek. It then takes in adequate water to restore its balance.
C) Unlike the other animals, the Camel's blood does not thicken even when it goes without water.
D) The 'Red Blood Cells' are so designed in the Camel to ensure they store water and make it available when required.

Question No. : 23

Many animals have a devised a mechanism to store Fat to enable them survive without having to forage for food. The following statements are true with reference to the Bear and Camel in this regard, except –

A) The Bear tends to store Fat in the winter when it hibernates; the Camel is able to manage this whenever it is required during the year.
B) The Fat functions in the same manner when it is being released during the fasting period.
C) The mechanisms adapted by the Bear and the Camel reflect their environment and are customized to address their specific needs.
D) The Bear and the Camel lose significant amount of weight during their long period of fasting.

DIRECTIONS for the question: *Identify the most appropriate summary for the paragraph and write the key for most appropriate option.*

Question No. : 24

In *Shakuntala* (classic Sanskrit's greatest play), the tragic part is in the middle but it all ends well. Mahabharata has tragic parts but it also ends well. There is no inevitability of tragedy that you can get in Greek drama, that sort of thing we have never had. That does not mean we don't have tragedy. And we do have audiences that love tragedy but there are regional variations. I can give you all excellent example. For instance, there was a time in the south when they had a film made in Tamil and Malayalam. Same film. The film made in Kerala would have a tragic ending. The film released in Tamil Nadu had a happy ending. It was felt the people in Kerala liked tragic endings. They thought tragic endings were far more entertaining and satisfying than happy ones. There were many explanations given such as in Kerala there is a very high level of literacy (almost 100% by now).

Which of the following best summarises the given paragraph?

1. Tamil and Malayalam audience have contrasting preferences with reference to ending of a movie due to cultural reasons
2. Even today, Indians are not always comfortable with a film that ends tragically.
3. Indian drama has a rich cultural legacy spanning centuries as is the case with Greek drama
4. Literacy rates determine the audience's taste and preference with regards to films

A) 2   B)   C)   D)

DIRECTIONS for the question: *Identify the most appropriate summary for the paragraph and write the key for most appropriate option.*

Question No. : 25

Sending pink chaddis to the perpetrators of the Mangalore incident marks an interesting transition in the battle against the enforcer of morality. From the standard response that vacillated between fuming and foaming, we are now seeing a new kind of reaction, one that uses symbols instead of words. Given the fact that the Mangalore attacks were themselves of a symbolic nature, in that they used a single action to create a larger debate about an issue of concern to the attackers, it is interesting that we are beginning to see more creative responses that recognize the power of symbols.

The following statement best summarizes the given passage –

1. The Mangalore incident is a rebellion against patriarchal and feudal mores prevalent in a traditional society.
2. Morality lies in the eye of the beholder.
3. A symbol is really a device that collapses a larger meaning into a representative action.
4. The Mangalore incident reflects the chasm between the 'haves' and 'have-nots' in a rapidly urbanizing society.

A) 3   B)   C)   D)

DIRECTIONS for the question: *Identify the most appropriate summary for the paragraph and write the key for most appropriate option.*

Question No. : 26

It turns out that children all over the world make the same mistake. 'They suffer from transient difficulties in discriminating letters or words from their mirror images. It is also not unusual for them to spontaneously write backwards. Mirror writing occurs in all cultures, including China and Japan. It appears for a short period of time at the age when children first begin to write, and then promptly vanishes. Unless this phenomenon extends beyond the ages of eight to ten, there is no cause for alarm. At this late age, mirror errors are indeed more frequent in dyslexic children, though they can disappear later." With my son, mirror writing only

lasted a few months. He learned to read and write at a normal speed, but I remained fascinated by the existence of this `mirror stage" in reading acquisition. Where does this mysterious competence come from? As adults, we find it relatively difficult to write our name from right to left. Why do small children who can barely hold pencil exhibit abilities that exceed those of most educated adults? This, moreover, is an age when children can easily locate anomalies in drawings or missing letters in their names.

The following statement best summarizes the given passage –

1. The author says that, 'Small children are better than adults in doing 'mirror writing'.
2. The writer is of the view that 'Mirror writing' can cause dyslexia in children older than eight to ten years.
3. 'Mirror writing' is a minor aberration in the lives of most young children when they begin to write. In certain instances among older kids it could be an indication for dyslexia.
4. 'Mirror writing' is not a western world phenomenon, it is found even in China and Japan.

A) 3   B)   C)   D)

DIRECTIONS for the question: *Identify the most appropriate summary for the paragraph and write the key for most appropriate option.*

Question No. : 27

So, people want a lot of things out of life, but I think, more than anything else, they want happiness. Aristotle called happiness "the chief good," the end towards which all other things aim. According to this view, the reason we want a big house or a nice car or a good job isn't that these things are intrinsically valuable. It's that we expect them to bring us happiness.

Now in the last 50 years, we Americans have gotten a lot of the things that we want. We're richer. We live longer. We have access to technology that would have seemed like science fiction just a few years ago. The paradox of happiness is that even though the objective conditions of our lives have improved dramatically, we haven't actually gotten any happier.

1. Americans are leading richer and meaningful lives driven by the resources and rewards of being citizens of the most powerful nation in the world.
2. Aristotle would have reasoned that since everything is in place, Americans have all the reason to be happy with their lot.
3. Materialism doesn't bring happiness in our lives.
4. People prioritize happiness over all other goals in their lives.

A) 3   B)   C)   D)

DIRECTIONS for the question: *Identify the most appropriate summary for the paragraph and write the key for most appropriate option.*

Question No. : 28

Can I ask you to please recall a time when you really loved something -- a movie, an album, a song or a book -- and you recommended it wholeheartedly to someone you also really liked, and you anticipated that reaction, you waited for it, and it came back, and the person hated it? So, by way of introduction, that is the exact same state in which I spent every working day of the last six years. I teach high school math. I sell a product to a market that doesn't want it, but is forced by law to buy it. I mean, it's just a losing proposition.

So there's a useful stereotype about students that I see, a useful stereotype about you all. I could give you guys an algebra-two final exam and I would expect no higher than a 25 percent pass rate. And both of these facts say less about you or my students than they do about what we call math education in the U.S. today.

The following statement best summarizes the given passage –

1. The state of math education in the U.S. today leaves a lot to be desired.
2. High school math is not a popular subject among students in the US.
3. The writer is a Math teacher who is diplomatic about the views his students have regarding the subject.
4. The writer thinks that Math education is not relevant to his students who are forced to put up with it due the school curriculum.

A) 1   B)   C)   D)

DIRECTIONS for the question: *Identify the most appropriate summary for the paragraph and write the key for most appropriate*

option.

Question No. : 29

Every theory consists of a set of symbols, usually words on pieces of paper. This is not reality, but the simplification of reality, and so cannot be true. A simple example will explain: The round Earth theory. We discovered "truth" in 1492: The world is round, not flat. Well, think again. The world bulges at the equator. And it has bumps called mountains. So the world is no more perfectly round than it is perfectly flat. Round, of course, has proved better for sailing ships. But not for building them—does any shipbuilder correct for the curvature of the sea? For building ships, the flat Earth theory works fine, just as does Newtonian physics for all kinds of applications, Einstein's insight about relativity notwithstanding.

The following statement best summarizes the given passage –

1. The Earth theory has multiple variants – Earth is flat, Earth is round, Earth bulges at the equator.
2. Theory itself is neutral. But the promotion of any one theory as truth is dogma; it turns learning into indoctrination. That is because no theory can ever be true.
3. The Earth theory is unknown – we are evolving our views and are yet to find the perfect answer.
4. Newtonian physics is the equivalent of the earlier view that the Earth is flat.

A) 2   B)   C)   D)

DIRECTIONS for the question: *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. Choose its number as your answer and key it in.*

Question No. : 30

1. A simple but sincere "That's quite good." from someone who's opinion we respect (usually a fellow artisan) is worth infinitely more than any pay-rise or bonus.
2. The riches we crave are acknowledgment and appreciation of the ideas that we have and the things that we make.
3. Truly creative people tend not to be motivated by money.
4. Handing out the odd gold statuette is a whole lot cheaper than dishing out stock certificates or board seats.
5. That's why so few of us have any.

A) 4   B)   C)   D)

DIRECTIONS for the question: *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. Choose its number as your answer and key it in.*

Question No. : 31

1. That is why a bee sting is quite painful and a massive attack by a swarm of bees sometimes has very heavy consequences: 200 to 300 simultaneous stings may cause the poisoning of the body, while 500 stings may have a fatal effect.
2. Naturally, it is not necessary that bees should actually sting the patient to introduce their venom into the body.
3. An angry bee attacks the, enemy", piercing its skin with its sting and injecting venom into the hole.
4. A bee's sting is jagged and intended for fighting chitin- covered insects.
5. When attacking a Human being, the bee cannot pull its sting out from his skin; it dies after stinging, but the muscles of its internal organs continue to contract and inject ever new portions of venom into the wound.

A) 2   B)   C)   D)

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

Question No. : 32

1. Also in 1931, three films in Bengali, one in Tamil and one in Telegu, appeared in their respective language areas.
2. The year he released Alan Ara, twenty-two other Hindi films appeared and all seemed to have made money.
3. The next year brought eight films in Marathi, two in Gujerati and the following year seventy-five Hindi features were produced and virtually all the films made money.

4. Irani's faith in India's capacity to make talkies was soon being justified.

A) 4213   B)   C)   D)

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

Question No. : 33

1. Soon the other side is jam-packed with vehicles of all descriptions and what was going to be an interminable wait becomes an intolerable one.
2. Underneath all the bombast, what really upsets you is that you thought about doing it yourself, restrained yourself knowing all the while with sick certainty that someone else would go ahead and break the rule and you would be sitting and ranting.
3. You are waiting for what seems like days at a level crossing waiting for some vitally important goods train to pass when some idiot goes right to the front on the wrong side of the road.
4. You rave and rant, pass scathing judgments on the morons who screw up things for everyone else and quickly move to denounce Indians as a race who cannot hope to do well without some discipline, civic duty and common sense.

A) 3142   B)   C)   D)

DIRECTIONS for the question: *Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.*

Question No. : 34

1. In spite of the modest expectations these organizations also seem frustrated about the result.
2. Some organizations are more modest in their expectations.
3. They expect that the manager who does not delegate adequately will start delegating when he goes through a three-day seminar on delegation.
4. They do not expect a finished product from the raw material they only expect the particular wrong characteristic to be replaced by the right one - something like sending the car to get the faulty carburettor replaced.

A) 2431   B)   C)   D)

Section : DI & Reasoning

DIRECTIONS for the question: *Read the information given below and answer the question that follows.*

Question No. : 35

A survey was conducted among 300 people to find which game they play in their free time. The games being discussed are Cricket, Hockey, Football, Basketball and Volleyball. It was observed thateach of those who played Football either played Basketball or Volleyball but did not play any other game.

- the number of people who played exactly one game is equal to that of those who played exactly four games, each of which is equal to 30.
- the number of people who played any pair of exactly two games is 15 each.
- the number of people who played only Volleyball, Basketball and Football is 30.
- 60 people played only Cricket, Basketball and Volleyball.
- 30 people played only Hockey, Basketball and Volleyball.

How many people among the surveyed played exactly two games? (in numerical value)

A) 120   B)   C)   D)

Question No. : 36

How many people played exactly three games? (in numerical value)

A) 120   B)   C)   D)

Question No. : 37

How many people played Basketball if 30 people played only Cricket? (in numerical value)

A) 210   B)   C)   D)

Question No. : 38

How many people played Football? (in numerical value)

A) 60   B)   C)   D)

DIRECTIONS for the question: *Read the information given below and answer the question that follows.*

Question No. : 39

A total of 91 students of a reputed B - School, studying in one of the four specializations Marketing (Mktg), Finance (Fin), Information Tech (IT) and Operations (Op) are eligible for the Campus Placement Exam to be conducted in their college. The breakup of number of students in these specializations is in such a way that the difference between the number of students in any two specializations is at most 10. The ratio of the number of students in Marketing and Finance is 3 : 4, which is same as the ratio of number of students in IT and Operations. All the students took the exam in which the maximum marks are 100. The average marks scored by the students of each specialization are calculated.

It is known that if the specializations were ranked according to the average marks of the students of the specialization, these would be ranked 2, 1, 3 and 4 respectively, with rank 1 allotted to the specialization with the highest average marks, the next one second and so on. In the same manner if the specializations are ranked according to the total marks of the students of the specialization, they would be ranked 4, 2, 3 and 1 respectively.

It is also known that the number of students in Marketing is less than that of IT.
The marks scored by each student and the average marks of each specialization are integers.
The average marks of each specialization are at least 50.

What is the number of students studying in specialization IT?

A) 18   B) 21   C) 24   D) Cannot be determined

Question No. : 40

If the average marks of Marketing are 64, then the average marks of Operations are at least _____

A) 54   B) 58   C) 56   D) 60

Question No. : 41

If the difference between the total marks scored by the students of Operations and IT is 105, then what can be the difference between the average marks of these specializations?

A) 12   B) 11   C) 10   D) 9

Question No. : 42

If five persons from IT whose average marks are more than the initial average of IT are shifted to Marketing, then how many ranking orders are possible if the specializations are ranked by average marks?
(Assume that no two specializations will have the same average after the arrangement)

A) 2   B) 4   C) 8   D) 12

DIRECTIONS for the question: *Study the table/s given below and answer the question that follows.*

Question No. : 43

The table below gives the number of students in M.B.B.S Course in a college in the years 2014 - 15 and 2015 - 16. The M.B.B.S course takes 6 years to complete (5 + one year of internship). The course has years from 1st to 6th and students are admitted only in the 1st year and students leave the college only if they pass the 6th year. Every year the students who pass the annual exams are promoted to the next year while students who fail have to study in the same year the next year also.

Year	2014 - 15	2015 - 16
1st	126	141
2nd	108	123
3rd	150	108
4th	141	150
5th	129	138
6th	135	147

It is known that 114 students passed out of 6th year in the year 2014 - 15.

How many students joined the college in the year 2015 - 16? (in numerical value)

A) 132   B)   C)   D)

Question No. : 44

In how many years did exactly six students fail in the exam in the year 2014 - 15? (in year)

A) 3   B)   C)   D)

Question No. : 45

How many students in the college failed in the exam in the year 2014 - 15? (in numerical value)

A) 51   B)   C)   D)

Question No. : 46

In which year was the pass percentage (number of students who passed as a percentage of total number of students) the highest in the year 2014 15?

A) 1st B) 2nd C) 5th D) 4th

DIRECTIONS for the question: *Study the table/s given below and answer the question that follows.*

Question No. : 47

Break up of total students of XYZ College by Country (in percentage)

COUNTRY	Values
India	40%
Bangladesh	25%
USA	10%
Thailand	12%
Malaysia	13%

Break up of total students of XYZ College by Stream (in percentage)

STREAM	Values

Engineering	15%
Medical	5%
Arts	10%
Commerce	25%
Fashion Tech.	30%
Vocational	15%

If the students of Fashion Tech. from India are zero, then the students of Commerce and Vocational put together from India as a percentage of the total students from India cannot be less than

A) 12.5%   B) 25%   C) 30%   D) 10%

Question No. : 48

If at least 20% of the total students in each of the countries comprised the students of Commerce stream, then the students of Commerce in any of the countries, as a percent of the total students from that country can be atmost

A) 45%   B) 55%   C) 70%   D) 50%

Question No. : 49

If there were no students of Medical stream from India, then for at most how many streams could the students have been only from India?

A) 2   B) 4   C) 3   D) 5

Question No. : 50

If at most 50% of the total students of any stream were from India, then the number of streams which had no students from India is at most

A) 2   B) 5   C) 4   D) 3

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 51

In a locality, there lived 200 people who speak different languages among English, Spanish and French. The number of people who speak English is more than that of people who speak Spanish which in turn is more than that of people who speak French. Among these 200 people, at least one person speaks all the languages. The number of people who speak exactly one language is more than the number of people who speak exactly two languages which is more than the number of people who speak all the three languages.

What is the minimum possible number of people who could speak English?

A) 69   B) 68   C) 70   D) 72

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 52

In a locality, there lived 200 people who speak different languages among English, Spanish and French. The number of people who speak English is more than that of people who speak Spanish which in turn is more than that of people who speak French. Among these 200 people, at least one person speaks all the languages. The number of people who speak exactly one language is more than the number of people who speak exactly two languages which is more than the number of people who speak all the three languages.

What is the maximum possible number of people who could speak French?

A) 121   B) 129   C) 131   D) 128

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 53

In a locality, there lived 200 people who speak different languages among English, Spanish and French. The number of people who speak English is more than that of people who speak Spanish which in turn is more than that of people who speak French. Among these 200 people, at least one person speaks all the languages. The number of people who speak exactly one language is more than the number of people who speak exactly two languages which is more than the number of people who speak all the three languages.

What is the maximum possible number of people who could speak only Spanish, if the number of people who could speak English only is the minimum possible?

A) 66   B) 65   C) 68   D) 67

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 54

In a locality, there lived 200 people who speak different languages among English, Spanish and French. The number of people who speak English is more than that of people who speak Spanish which in turn is more than that of people who speak French. Among these 200 people, at least one person speaks all the languages. The number of people who speak exactly one language is more than the number of people who speak exactly two languages which is more than the number of people who speak all the three languages.

What is the maximum possible number of people who could speak all the three languages?

A) 80   B) 65   C) 62   D) 64

DIRECTIONS for the question: *Study the table/s given below and answer the question that follows.*

Question No. : 55

The following table gives the information of the marks scored by three top scorers of the colleges A, B, C, D and E. For each college, the percentage of combined scores obtained by the top three scorers is given in the last row. In any college, every person has to score at least one mark and no two persons got the same marks.

Persons	College				
	A	B	C	D	E
P	64		59	48	
Q		86	55		54
R	56	60		42	
S		54	61		50
T	48			40	66
% score	75	80	87.5	$83^1/_3$	85

The marks of each of the given persons in each of the given colleges is a natural number. For each of the given persons, two values are calculated viz, median value and deviation value. Median value is the value that occurs in the middle if the marks obtained by a particular person in the given colleges are written in the ascending order. Deviation value is the difference between the highest marks and lowest marks obtained by a person in the given colleges.

For how many persons can we determine the exact median value?

A) 1   B) 2   C) 3   D) 4

Question No. : 56

Who has the least median value?

A) R or P   B) T or R   C) P or T   D) Q or S

Question No. : 57

At most how many persons can simultaneously have the deviation value of 50 or more? (in numerical value)

A) 5   B)   C)   D)

Question No. : 58

Who among the following cannot have the least deviation value?

A) P   B) Q   C) R   D) S

DIRECTIONS for the question: *Study the table/s given below and answer the question that follows.*

Question No. : 59

The following table gives the information about the average age of the employees in three departments - IT, Marketing and Systems as on 31st December of different years from 2011. Whenever an employee attains an age of 60 years, he retires. All the employees recruited are of age 25 years. The number of employees in IT, Marketing and Systems (in 2011) are 3, 5 and 4 respectively. At most one employee retires or joins any department in any year and no employee can be shifted from one department to other.

Year	IT	Marketing	Systems
2011	44	39	38
2012	40	35	39
2013	41	28	37
2014	36	28	38
2015	37	29	39

In total, how many persons retired from the company from 2012 to 2015?

A) 1   B) 2   C) 3   D) 4

Question No. : 60

In total, how many persons joined the company from 2012 to 2015?

A) 1   B) 2   C) 3   D) 4

Question No. : 61

In 2015, what was the sum of the ages of the persons who were in the IT Department from 2011 to 2015?

A) 75 years   B) 83 years   C) 79 years   D) 88 years

Question No. : 62

At the end of 2015, how many employees were working in the given departments?

A) 9   B) 10   C) 11   D) 12

DIRECTIONS for the question: *Read the information given below and answer the question that follows.*

Question No. : 63

The Wimbledon Tennis tournament was won by four players Roger Federer, Rafael Nadal, Novak Djokovic and Andy Murray in a period of ten years, with no player winning it in consecutive years. The tournament had only a single winner in each of the years. In a quiz competition, ten contestants A through J were asked to match the winner of the tournament with the year during this period. The names given by the contestants were as follows:

Contestant	I	II	III	IV	V	VI	VII	VIII	IX	X
A	Roger Federer	Rafael Nadal	Novak Djokovic	Andy Murray	Andy Murray	Roger Federer	Andy Murray	Novak Djokovic	Rafael Nadal	Rafael Nadal
B	Roger Federer	Rafael Nadal	Novak Djokovic	Rafael Nadal	Andy Murray	Roger Federer	Rafael Nadal	Novak Djokovic	Rafael Nadal	Andy Murray
C	Novak Djokovic	Andy Murray	Roger Federer	Rafael Nadal	Andy Murray	Andy Murray	Roger Federer	Andy Murray	Novak Djokovic	Rafael Nadal
D	Andy Murray	Rafael Nadal	Roger Federer	Novak Djokovic	Novak Djokovic	Roger Federer	Rafael Nadal	Andy Murray	Rafael Nadal	Andy Murray
E	Novak Djokovic	Andy Murray	Rafael Nadal	Rafael Nadal	Roger Federer	Andy Murray	Rafael Nadal	Roger Federer	Andy Murray	Novak Djokovic
F	Rafael Nadal	Roger Federer	Andy Murray	Novak Djokovic	Andy Murray	Andy Murray	Rafael Nadal	Novak Djokovic	Roger Federer	Andy Murray
G	Roger Federer	Rafael Nadal	Roger Federer	Novak Djokovic	Andy Murray	Roger Federer	Rafael Nadal	Novak Djokovic	Rafael Nadal	Andy Murray
H	Andy Murray	Novak Djokovic	Rafael Nadal	Novak Djokovic	Roger Federer	Roger Federer	Rafael Nadal	Andy Murray	Novak Djokovic	Rafael Nadal
I	Roger Federer	Rafael Nadal	Roger Federer	Novak Djokovic	Novak Djokovic	Roger Federer	Rafael Nadal	Novak Djokovic	Rafael Nadal	Andy Murray
J	Rafael Nadal	Roger Federer	Roger Federer	Novak Djokovic	Novak Djokovic	Andy Murray	Rafael Nadal	Andy Murray	Rafael Nadal	Roger Federer

It was also found that, no two contestants had the same number of right answers, and each contestant marked the right winner in at least one of the years.

Which contestant gave the least number of correct answers?

A) A   B) H   C) E   D) F

Question No. : 64

Which player won the tournament in year III?

A) Roger Federer   B) Rafael Nadal   C) Andy Murray   D) Novak Djokovic

Question No. : 65

Contestant D marked the correct winner on how many occasions?

A) 4   B) 5   C) 7   D) 8

Question No. : 66

Which contestant got the name of the winner correct in each of the ten years?

A) G   B) A   C) I   D) B

Section : Quantitative Ability

Question No. : 67

If in a set of three numbers, one number is also the HCF of all 3 numbers, then …

A) One of the other two will also be the LCM of all three   B) For the other two numbers, one will be the HCF
C) The LCM for the three numbers will be the LCM of the other two   D) None of the above

Question No. : 68

Find 'x' if 'x > 0' and $4 \times 2^{x(x - 3)} \times 2^4 = 2^{2(x + 1)(x - 6)}$. (in numerical value)

A) 9   B)   C)   D)

Question No. : 69

A & B can do a piece of work in 20 days and 30 days respectively. They start together to finish the work but after sometime B slips. If A completes the rest of the work in 10 days, then B has worked for ____ days. (in numerical value)

A) 6   B)   C)   D)

Question No. : 70

a, b, c, d and e are five consecutive even numbers. What is the maximum power of 2 by which the product of the above numbers be necessarily divisible? (in numerical value)

A) 8   B)   C)   D)

Question No. : 71

A tank supplies water to a family for 60 days. Due to a leak in the tank, 5 litres of water is wasted everyday and then the supply lasts for 10 days less. For how many days less will the supply last if 50 litres of water leak every day?

A) 20 days   B) 16 days   C) 18 days   D) 40 days

Question No. : 72

If m and n are integers and √mn = 10, then which of the following cannot be the value of m + n?

A) 29   B) 25   C) 52   D) 50

Question No. : 73

The roots of the equation $\dfrac{2x^2}{x-1} - 4 = \dfrac{6x-4}{x-1}$

A) 4 and 1   B) Only 1   C) Only 4   D) 4 and some other root.

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 74

If the roots of the equation $x^2 - 3(2m + 4) x + m^2 + 18m + 81 = 0$ are reciprocal of each other, then the possible values of m are:

A) m = 3 or m = -6   B) m = 10 or m = 8   C) $m \geq 3$ or $m \leq -6$ D) m = -10 or m = -8

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 75

ABCD is a quadrilateral whose diagonals intersect at E. Which one of the following is not sufficient to prove AB || DC?

A)   B) AE : EC = BE : ED   C) AB : BE = DC : DE   D)

$\angle ABD = \angle BDC$ $\angle ADC = \angle BCD$ and AD = CB

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 76

Nandu decided to treat his girlfriend to a bus ride but on account of his limited resources, they had to walk back. If the bus goes at an average speed of 9 kmph and they walk at 3 kmph, how much distance can they travel by the bus so that they can be back in 8 hrs? (ans in km)

A) 18   B)   C)   D)

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 77

If r, s and t are consecutive odd integers with r < s < t, which of the following must be true?

A) rs = t   B) r + t = 2t − s   C) r + s = t + 2   D) r + t = 2s

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 78

If S_e = Sum of first 50 even numbers; S_o = Sum of first 50 odd numbers
Sp = Sum of first 5 prime numbers, then which of the following statements is true?

A) $S_e + S_o + S_p = \dfrac{100 \times 101}{2} - 28$ B) $S^e = S^o + 49$ C) $S_e + S_o + S_p = \dfrac{100 \times 101}{2} + 28$ D) $S^o = S^e + 49$

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 79

How many numbers are there between 1 and 100, both inclusive, which are not divisible by 2 or 3 or 5? (in numerical value)

A) 26   B)   C)   D)

Question No. : 80

A man travels 1200 km from X to Y by air, train, and ship. The distance travelled by ship is twice that travelled by train. The average speed by aircraft is twice the overall speed and the time he was on the ship was thrice the time he was on the train. If the man travels 10 hours by train out of the total travel time of 50 hours, find the distance covered by the ship.

A) 480 km   B) 240 km   C) 720 km   D) 600 km

Question No. : 81

The difference between two positive numbers is 72. The smaller number exactly divides the greater number and gives a quotient 4. Find the numbers.

A) 12, 48   B) 24, 96   C) 18, 90   D) 36, 108

Question No. : 82

A 700 gm dry fruit pack costs Rs.72. It contains some cashew kernel and the rest as dry grapes. If cashew kernel costs Rs.96 per kg and dry grapes costs Rs.112 per kg, what were the quantities of two dry fruits separately?

A) Cashew kernel = 600 gm, Dry grapes = 100 gm   B) Cashew kernel = 450 gm, Dry grapes = 250 gm
C) Cashew kernel = 350 gm. Dry grapes = 350 gm   D) Cashew kernel = 400 gm, Dry grapes = 300 gm

Question No. : 83

4 men can do a certain task working 8 hours a day in 1 day that requires 3 women 2 days working 8 hours a day, and 4 boys 4 days working 5 hours a day. If a contractor hires 20 men, 9 women, and 10 boys to complete together 1000 such tasks, starting on 10th February 2004, when will the entire work get over if they work an 8 hours a day?

A) 2nd July   B) 22nd June   C) 30th August   D) 4th August

Question No. : 84

Three birds are flying at the same altitude in straight lines at the same speed, two of them in exactly opposite directions. The three had crossed the same point together. Now suppose at any instant of time a triangle is drawn with the three birds at the three vertices. The nature of the triangle would be:

A) Acute angled   B) Obtuse angled   C) Right angled   D) Equilateral and thus acute angled

Question No. : 85

A rectangular carpet has an area of 60 sq. ft. The sum of its diagonal and the longer side is five times the shorter side. What is the perimeter of the rectangle? (ans in ft.)

A) 34   B)   C)   D)

Question No. : 86

Anil gave Sunil as many rupees as Sunil already had. When Sunil received the money he asked Anil how much he had left and promptly gave the same amount back to Anil. Anil then gave Sunil as many rupees as Sunil had after which Anil did not left any money with him. In the end, Sunil had Rs. 80 in all. How much did Anil have in the beginning? (in numerical value)

A) 50   B)   C)   D)

Question No. : 87

If (x – 1) is one of the factor of p(x) = x^6 - $28x^3$ + k, then which of the following is the factor of p(x)? (write the correct option)

1. x - 6   2. x - 4   3. x - 3   4. x - 2

A) 3   B)   C)   D)

Question No. : 88

If a and b are real numbers and $|a^2 - b^2|$ = 0.4; b = -0.3, find value of |a| + |b|

A) 1   B) 0.21   C) 0.4   D) 0.49

Question No. : 89

If $f(x, y) = (x + y)(\frac{1}{x} + \frac{1}{y})$ and $x > 0, y > 0$; then the function $f(x, y)$ is:
(write the correct option)

1. ≥ 2 2. ≤ 3 3. ≤ 5 4. ≥ 4

A) 4   B)   C)   D)

Question No. : 90

How many pairs of numbers are there between 1 and 5 (not including 1 and 5), such that the sum of the two numbers in the pair is equal to their product? (write the correct option)
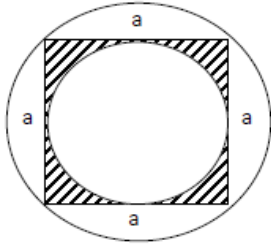
1. 0   2. 1   3. 2   4. More than 2

A) 4   B)   C)   D)

Question No. : 91

Find the area of shaded region if the diameter of outer circle is 20 cms.

A) $200\left[1-\dfrac{\pi}{4}\right]$ B) $200\left[\dfrac{1-\pi}{4}\right]$ C) $100\left[1-\dfrac{\pi}{4}\right]$ D) $100\sqrt{2}\left[1-\dfrac{\pi}{4}\right]$

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 92

A trader makes a profit of Rs.576 after offering a discount of 15% on the mark-up price which is 160% of the cost price. What is the actual selling price? (in numerical value)

A) 2176   B)   C)   D)

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 93

A number when divided by 11 leaves the remainder 1, when divided by 22 leaves the remainder 12 and when divided by 33 again leaves remainder 1. Find the positive lowest such number. (in numerical value)

A) 34   B)   C)   D)

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 94

A car accelerates uniformly from rest to 8K km/hr in K/5 minutes. It continues at that speed for K min, then decelerates uniformly and takes another K/5 minutes to come to rest, having travelled exactly (K – 1) km together. How many minutes did the trip take if the number of minutes it took is an integer? (in min)

A) 7   B)   C)   D)

DIRECTIONS for the question : *Solve the following question and mark the best possible option.*

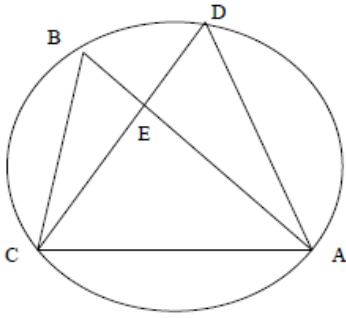**Question No. : 95**

If $\log_3[\log_5(x^2 - x - 25)] = 0$, then what could be the value of x?

A) 3   B) 6   C) 2   D) 4

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 96

In the figure below, points A, B, C and D lie on the circle. AD = 24 and BC = 12. What is the ratio of the area of triangle CBE to that of triangle ADE?

A) 1 : 4   B) 1 : 2   C) 1 : 3   D) 2 : 3

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 97

The population of a city is 200,000. If the annual birth rate and annual death rate are 6 % and 3 % respectively, then calculate the population of the city after 2 years? (in years)

A) 212180   B)   C)   D)

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 98

The auto fare in Ahmedabad has the following formula based upon the meter reading. The meter reading is rounded up to the next higher multiple of 4. For instance if the meter reading is 37 paise, it is rounded up to 40 paise. The rounded off fare is multiplied by 12. This product is rounded off to the nearest multiple of 25 paise. If 53 paise is the meter reading, what will be the auto fare?

A) Rs. 6.75   B) Rs. 6.50   C) Rs. 6.25   D) Rs. 7.50

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 99

The remainder obtained when 1! + 2! + 3! ... + 95! is divided by 15 is – (in numerical value)

A) 3   B)   C)   D)

DIRECTIONS for the question: *Solve the following question and mark the best possible option.*

Question No. : 100

If $f(x) = \dfrac{1+x}{1-x}$ what is the value of $f(f(f(f(f(x)))))$?

A) x^4 B) $\dfrac{-1}{x^4}$ C) $x^2 + 1$ D) None of these

QNo:- 1 ,Correct Answer:- B

Explanation:-   Since the internet can't replace the 'USP' of the library. It is a trend that needs to be acknowledged to ensure appropriate strategies are employed to sharpen the relevance and value of libraries in the modern world.
1 – Internet is impacting the functioning of libraries and making them question their positioning in the modern world.
3 – The statement is a strong opinion but it doesn't amount to a slur against the libraries.
Calumny - the making of false and defamatory statements about someone in order to damage their reputation; slander.

4 – While the opinion is shared by some, it is not the only opinion in the academia. To the contrary many people want to challenge it by repositioning the way libraries function in the modern world.

QNo:- 2 ,Correct Answer:- D

Explanation:- *Since the passage is about libraries repositioning their relevance. The author is not of the view that the libraries have become redundant.*
1 – It is the first strategy mentioned in the passage.
2 – It is the second strategy mentioned in the passage.
3 – It is the third strategy mentioned in the passage.

QNo:- 3 ,Correct Answer:- B

Explanation:- *The Government has set the agenda to apply open access policy to all research funded by agencies under the Health, Human Services, and Education umbrellas.*
1 – The passage focuses of repositioning the roles of libraries in the context of the rise of the internet.
3 – The passage is about improving access of information to everyone and it nowhere suggests that the research standards be 'dumbed down' to improve the access.
4 – Libraries are functioning to enable public access of research information. Improved reading habits and its consequences are only an outcome of this positioning and not the purpose of the same.

QNo:- 4 ,Correct Answer:- B

Explanation:- *The writer has suggested three strategies to address the core challenges being faced by the libraries.*
1 – It is a possible view of some people but the writer doesn't subscribe to the same.
3 – The writer sees the internet as a challenger and an enabler. He believes that the technology can be co-opted to reposition the relevance of libraries.
4 – The passage discusses Government initiatives to improve public access to research information but it doesn't mention using the subsidy route to sponsor the same.

QNo:- 5 ,Correct Answer:- B

Explanation:- *The statement explains the nature of a cyclone and option b is the accurate.*
Option 1 doesn't make sense since it is negative and cannot be used in combination of 'or more'. Even if it was to be used, it would simply state that the wind won't reach a particular speed.
Option 3 is not an appropriate usage to describe a natural phenomenon. It tries to portray it as a 'command' i.e. the wind is ordered to reach the said speed.
Option 4 is again a negative and is not an appropriate usage to define a characteristic of the cyclone.

QNo:- 6 ,Correct Answer:- B

Explanation:- *Lager is a form of Beer and the statement is about its origins. So option 2 is the most appropriate choice to complete the statement.*
In 1, the choice seems to suggest an evolution over a period of time. This doesn't gel with the specific fact that it was developed at a point of time i.e. about 150 years ago.
In 3, the tense is plural so is incorrect.
In 4, again the phrase suggests continuity of the development which is not correct as explained for option 1.

QNo:- 7 ,Correct Answer:- A

Explanation:- *People assume that an increased average life expectancy means that they will live longer than earlier. They fail to*

understand the statistical nature of the average, which can simply go up since Infant Mortality Rates are on a downtrend and so the children live longer thereby pulling up the overall average as well.

2 – It is a factually correct statement but it doesn't prove the fallacious nature of improved average life expectancy translating into older people living longer.

3 – It is a factually correct statement but it doesn't prove the fallacious nature of improved average life expectancy translating into older people living longer.

4 – The statement is factually correct but it addresses the factors that contribute to improved life expectancy and does not address the fallacious nature of the average life expectancy

QNo:- 8 ,Correct Answer:- D

Explanation:-   It attributes factors beyond modern medicine and pharmaceutical industry's effort to have improved the average life expectancy.

1 – It illustrates the narrow scope of modern medicine that focuses on the cure than ensuring preventative steps are taken to address the issue.

2 – The statement points to an apparently contradictory trend whereby increased investments in healthcare have only worsened the health care trends.

This phenomenon is known as autogenesis and has been the subject of much study. Depending upon how one uses statistics, autogenesis is now considered either first, second or third in comparison to cancer and cardiovascular rates. It is one of the biggest killers; most iatrogenic deaths are due to undesired effects of drugs when taken at a normal dose. In Australia alone, thousands of people die prematurely every year as a result of prescription drugs.

3 – The statement is a critique of current approach and even points at misallocation of resources in our fight to improve healthcare.

QNo:- 9 ,Correct Answer:- D

Explanation:-   The writer advocates prevention over cure. Accordingly improvements in our lifestyle will have a more significant impact on our health than focusing on curing our ailments.

1 –The passage does not make any statement regarding the genetic factors impacting American's health risk.

2 –The passage makes no mention of data quality errors leading to disparity when healthcare trends are compared across nations

3 –The passage does not make any statement about varying trends in Infant Mortality Rate across nations.

QNo:- 10 ,Correct Answer:- A

Explanation:-   The writer regards good lifestyle habits including diet control as a key contributor to improving average life expectancy.

2 – The passage does not make any comment about the role of Government in improving healthcare and the initiatives mentioned herein are not in the direction of being preventive measures.

3 – The passages clearly states that pharmaceutical companies cannot rightfully claim credit for improvement in average life expectancy

4 – The writer advocates a preventative approach but the statement contradicts the same.

QNo:- 11 ,Correct Answer:- B

Explanation:-   The writer asks the reader to understand that we should not apply a straitjacket definition to the term 'intelligence'. We need to regard intelligence within the framework of the Octopus' environment and seek evidence to demonstrate its application in helping it survive and thrive.

1 – The writer quotes these examples to emphasize that we can't expect to apply IQ tests to judge Octopus' intelligence. Except for these two claims he in fact mentions different examples of Octopus' behavior that seem to demonstrate its intelligence.

3 – The writer doesn't detract from the appeal of YouTube videos but thinks that scientific evidence should back anecdotal claims. He then provides illustrations that support the claim.

4 – Octopus' have managed to survive and thrive. We are still unraveling all the tricks they have up their arms. Yet adequate evidence is available to be cited to state that Octopus are intelligent.

QNo:- 12 ,Correct Answer:- D

Explanation:- *Octopus does not have a shell and it is not mentioned to sink to the bottom of the ocean floor.*
1 – It is mentioned that the Octopus tries to blend into the background by resembling the corals in its environment.
2 – It is mentioned that the Octopus puffs up its body and turns white to scare off its predator.
3 – The passage states that the Octopus is known to shoot off puffs of ink to distract its predator.

QNo:- 13 ,Correct Answer:- A

Explanation:- *It is the most lucid explanation of the passage quotation, 'They can't detect its motion because the octopus matches its speed to the motion of the light in the surrounding water.' In fact YouTube even has videos that demonstrate the mentioned trick.*
2 – While they do assume the shape of a rock, they don't employ the camouflage trick of mimicking Corals in this instance.
3 – While the statement is factually accurate, it doesn't clearly explain the mechanics of the trick.
4 – The statement is not meaningful as it combines two different tactics i.e. camouflage and moving rock to provide an explanation.

QNo:- 14 ,Correct Answer:- C

Explanation:- *Data is available to support the mentioned trend. Its reliability makes it possible to even budget for the said loss as an inevitable operational hazard in doing retail business.*

1 – No such opinion is mentioned in the passage. Also given the nature of crime, it can be reduced but never quite eliminated 100 %.
2 – Losses result due to other factors than employees and a key trend observed is 'shop-lifting' done by the potential customers as well.
4 – Inventory loss does have an impact on a company's profitability, but not so much the sales.

QNo:- 15 ,Correct Answer:- C

Explanation:- *Quételet desired to create a new 'social physics' to describe the laws of human behavior. He derived inspiration from Newton's work in recognizing and formulating a set of universal laws.*
1 – In the passage it is clearly mentioned as a limitation that unlike physical sciences active experiments are not possible and the research needs to be done using passive observation of human behavior.
2 – While it is conceded that human behavior is affected by culture, inflation and wealth inequality in society, no further correlation is mentioned with reference to Western societies and the developing world.
4 – Quételet was inspired by the phenomenon of Normal distribution and its implications. He regarded Newton to be a father of modern physics and wanted to mirror his achievement by formulating similar universal laws in relation to 'human behavior'. However Newton did not undertake any studies in the realm of 'social physics'

QNo:- 16 ,Correct Answer:- D

Explanation:- *It is illustrated in the passage using the example of the 9/11 attack. People developed an irrational fear against flying and tried to change travel related behavior by driving cars. This resulted is more road accidents that the standard average.*

1 – There were more car accidents post the Sept 11 attacks as people switched to using cars for travel instead of using airplanes. However this is not related to any stress factor.
2 – Inflation is said to impact social behavior and may account for rise in crime during hard times. However it does not illustrate the mentioned statement that 'Man is an irrational creature'
3 – While herd mentality does prevail and is a feature of human behavior, it indicates that people tend to seek validation and

behave as per the commonly held social norms. However it does not illustrate the mentioned statement that 'Man is an irrational creature'

QNo:- 17 ,Correct Answer:- A

Explanation:- It provides the definition of a normal distribution curve.

2 – While it is indeed applicable to physical phenomenon, it is also applicable to human behavior.
3 – It can be used to predict human behavior and it was an inspiration to Quételet to elucidate the laws governing human behavior.
4 – The idea appealed to Quételet for a larger cause. He decided to employ the normal distribution in order to illuminate the nature of people and society.

QNo:- 18 ,Correct Answer:- B

Explanation:- The passage explains that the patterns on the social network do not mirror normal distribution. Quite often a few data points have a disproportionately large impact on the average, rendering it to be meaningless information. Option 2 gives a relevant illustration of this trend.
1 – This statement supports the base argument. It does not illustrate the outcome of the theory.
3 – No such statement is made or directly derived from the theory. Even if it were correct it is not an outcome of the 'Friendship Paradox' theory.
4 – The statement in fact contradicts the 'Friendship Paradox' theory

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QNo:- 19 ,Correct Answer:- C

Explanation:- It shows the perceptual bias of assuming a few samples in your network to represent the world reality. So option 3, shows the bias encouraging teenagers to abuse alcohol and drugs as they feel everyone is doing it.

1 – This may be true but it is not related to the 'majority illusion' principle
2 – The statement is an illustration of 'herd mentality'. It doesn't illustrate the 'majority illusion' principle.
4 – While the statement may find support, it again doesn't illustrate the 'majority illusion' principle.

QNo:- 20 ,Correct Answer:- D

Explanation:- The social network is a natural phenomenon. Marketers can try to exploit its inherent structure and use popular figures to drive their message.
1 – No such opinion is mentioned in the passage. Also the emphasis of the passage is on identifying the active nodes rather than trying to manufacture such nodes themselves.
2 – While the statement is relevant, it is not the outcome of the node experiment.
3 – The statement acknowledges the growing power of social media but is not an outcome of the node experiment.

QNo:- 21 ,Correct Answer:- B

Explanation:- According to the passage the dynamics of the social network are such that the stories promoted by the initial adopters are more likely to become popular and go viral.

1 – While no single factor can explain or predict 100 % of the cases of a story going viral, it cannot be denied that early adopters promoting the story does have an impact on the outcome.
3 – The passage doesn't state this approach, although it may well contribute to the popularity of a story.
4 – The passage does not discuss this aspect of the phenomenon. The approach of course may contribute to the success of 'viral stories'.

QNo:- 22 ,Correct Answer:- D

Explanation:- The Camel manages to survive without drinking water for a long period of time using the water it stores within its Red Blood Cells. This also explains why its blood does not thicken due to absence of water as happens with the other animals.

1 – The said theory was proposed but was disproved later.
2 – While the Camel does lose weight during a long trek and replenishes the same, it does not store water in its tissues.
3 – This is factually correct but not the best explanation of how it stores water.

QNo:- 23 ,Correct Answer:- B

Explanation:- The fat releases energy and warms up the Bear during is hibernation. The Camel manages to avoid getting warmed up while consuming fat as unlike in the case of a Bear hibernating during the winter, it would be inimical to its living environment.

1 – The statement is factually correct hence not the right answer.
3 – This is correct – the Bear's activity is suitable for hibernation during winter, while the Camel manages to survive without food even in a hotter climate.
4 – The statement is factually correct hence not the right option.

QNo:- 24 ,Correct Answer:- 2

Explanation:- Usually Indian movies tend to have a happy ending. In fact the trend mentioned with reference to Malayalam cinema is an aberration possibly attributable to the higher literacy rates prevalent in the society.

1 – They do have contrasting preferences but it is possibly driven by higher literacy rates in Kerala. Further it is an aberration and not the central theme of the passage.
3 – The statement is factually correct – dramas like Shakuntala and Iliad & Odyssey were written around 7th century BC. However this is not the central idea of the passage.
4 – The statement is a possible explanation as to why the audiences of Malayalam movies have a preference for tragedies. It is not the central statement of the passage.

QNo:- 25 ,Correct Answer:- 3

Explanation:- The incident and the sharp rebuttal it drew were expressed to symbolism. The symbolism enabled to convey the underlying meaning in an easy manner.
1 – The incident was a symbol of feminism and freedom of expression. It didn't resonate with patriarchal and feudal mores.
2 – While it conveys the divergence of views that exist in various sections of the society, it is still not the central theme of the passage.
4 – The passage doesn't focus on entitlement issues that are a typical example of the divide between the 'haves' and 'have-nots'.

QNo:- 26 ,Correct Answer:- 3

Explanation:- The writer defines the 'mirror writing' phenomenon and its progress.

1 – 'Mirror writing' is an aberration phase that occurs when children start learning to write. Hence to draw a comparison about the same with adults is not meaningful.
2 – Mirror writing' in older children may be regarded as an indicator that they are dyslexic. However it is not a cause of dyslexia.
4 – The statement is factually correct but is not the central theme of the passage. The writer does mention that it occurs across cultures.

QNo:- 27 ,Correct Answer:- 3

Explanation:- The writer believes like Aristotle that happiness needs enabling conditions. So he is surprised to note that Americans are not happier given that they have achieved a good life style to support their quest.

1- While Americans are enjoying good living standards, they seem to be missing 'meaning' in life and accordingly are not happy. Hence the statement is not completely accurate and so is not the right answer.
2 – The inference is logical but it is not the central theme of the passage. The Aristotle quotation is used by the writer to only illustrate a point.
4 – The statement is factually correct but is not the central theme of the passage.

QNo:- 28 ,Correct Answer:- 1

Explanation:- The writer is worried about the fact that majority of the kids in the U.S. don't enjoy Math as a subject. He is interested in understanding the reasons that contribute to the same.

2 – The statement is factually correct but is not the central theme of the passage.
3 – The writer uses humor to drive across his point. But he doesn't mince any words in suggesting that the state of affairs is pathetic.
4 – The writer mentions this as the attitude of the students towards the subject particularly since they are not doing well with it. However he thinks Math education is very relevant for the children and is worried about its decline.

QNo:- 29 ,Correct Answer:- 2

Explanation:- The writer advocates the message that the theory is relevant in its own context. And a single theory usually fails to account for the various facets of the real nature of the subject.
1 – The statement indicates the improved knowledge we have about the Earth. However it is used as an illustration and is not the central idea of the passage.
3 – The Earth theory is used only for the purpose of illustration. The passage does not mention that we are yet to find the perfect answer, rather it advocates the view that there isn't '1-size-fits-all' solution to it.
4 – The statement draws a corollary to emphasize the point that every theory is relevant in its own context. However it is not the central idea of the passage.

QNo:- 30 ,Correct Answer:- 4

Explanation:- The paragraph talks about the nature of truly creative people and their motivations. It indicates that usually creative people crave for acknowledgement and praise from their peers. They are not interested so much in money and often do not have enough of it.
Hence 3 – 5 – 2 – 1 is a sequence that explains the concept.. Statement 4 is a related statement but is not core to the concept. It indicates how people take advantage of this streak within creative people – they hand out accolades that cost far less than handing out money or power in the corporate world.

QNo:- 31 ,Correct Answer:- 2

Explanation:- The paragraph talks about the mechanism of a bee sting. It explains that usually bees aim to attack insects. On occasions when they attack a human being, they are not able to pull out their sting from our skin and this further exacerbates the pain and poisoning. Hence 3-4-5-1 explains the impact of a bee sting on us.
Statement 2 is not part of this sequence. It seems to refer to the use of a bee sting to cure a patient. While this is a related statement, it is not addressing the theme of the passage.

QNo:- 32 ,Correct Answer:- 4213

Explanation:- The opening sentence defines a premise that it made commercial sense for India to make talkie films. The second sentence substantiates it with the supporting fact that the movies were making money. The third sentences beginning with, 'Also …'

further reiterates the opening statement. The last sentence begins with, 'The next year ...' and clearly conveys that chronologically this statement follows the earlier ones.

**QNo:- 33 ,Correct Answer:-** *3142*

Explanation:- *The passage explains the simple phenomenon of wrong actions causing traffic jams and having to deal with the resultant frustration. The first three statements structurally narrate the sequence of the event. The final statement provides the underlying reason why one feels so frustrated about the situation.*

QNo:- 34 ,Correct Answer:- *2431*

Explanation:- *The opening statement is a premise about an organization's expectation from training programs. The second statement sets out the precise terms of the expectation in a generic manner. The third statement shows the applicability of the second statement to the specific training scenario. The closing statement indicates that although modest expectations were set as set out above, the outcome is still not satisfactory.*

QNo:- 35 ,Correct Answer:- *120*

Explanation:- *Given Grand Total = 300*
Exactly one = Exactly four = 30
a + b +c + d = 30 and r = 30
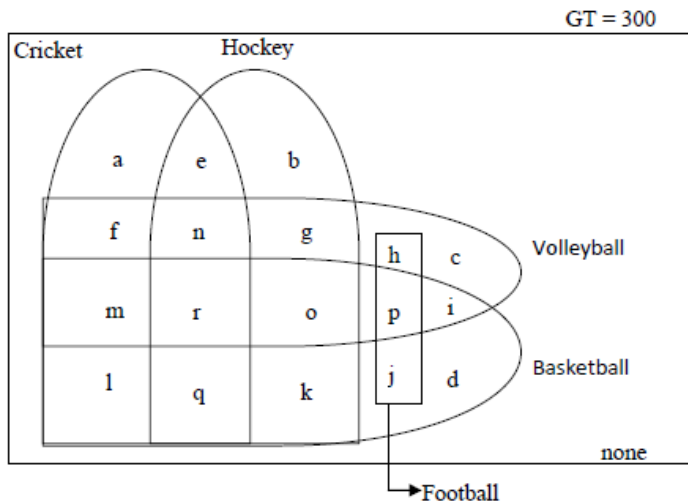
Given all those who played Football either played Volleyball or Basketball but do not play any other game. Hence the fifth set Football can be drawn as shown in the figure. Also e = f = g = h = i = j = k = l = 15
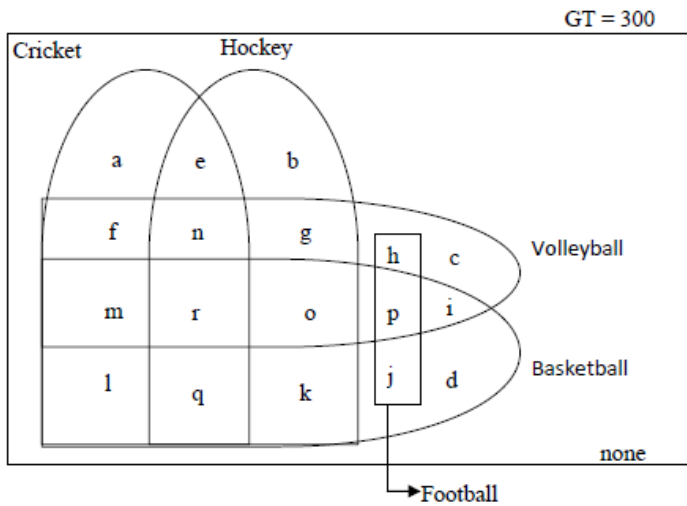*Also p = 30, m = 60, o = 30, r = 30*
Grand Total = a + b + c + d + e+ f + g + h + i + j + k + l + m + n + o + p + q + r + none 300 = 30 + 15 (8) + 60 + n + q + 30 + 30 + 30 + none n + q + none = 0
n = q = 0
Exactly two games is represented by e + f + g + h + i + j + k + l = 15(8) = 120.

QNo:- 36 ,Correct Answer:- *120*

Explanation:- *Given Grand Total = 300*
Exactly one = Exactly four = 30
a + b +c + d = 30 and r = 30

Given all those who played Football either played Volleyball or Basketball but do not play any other game. Hence the fifth set
Football can be drawn as shown in the figure. Also $e = f = g = h = i = j = k = l = 15$
Also $p = 30, m = 60, o = 30, r = 30$
Grand Total $= a + b + c + d + e + f + g + h + i + j + k + l + m + n + o + p + q + r +$ none $300 = 30 + 15 (8) + 60 + n + q + 30 + 30 + 30 +$ none $n + q +$ none $= 0$
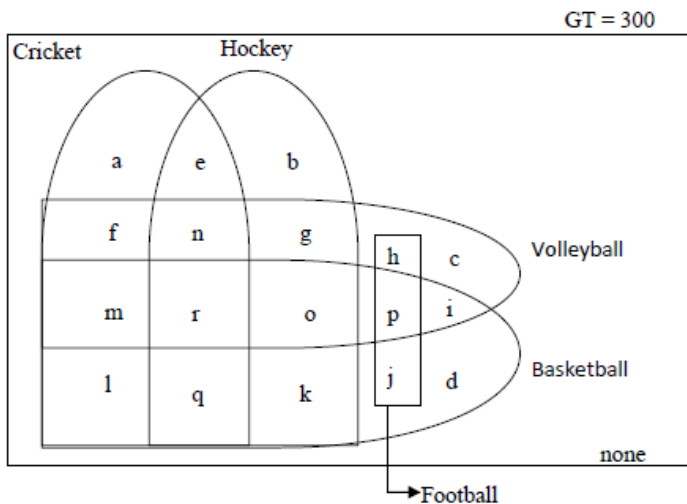$n = q = 0$

Exactly three games is represented by $m + n + o + q + p = 60 + 0 + 30 + 0 + 30 = 120$.

QNo:- 37 ,Correct Answer:- 210

Explanation:- Given Grand Total = 300
Exactly one = Exactly four = 30
$a + b + c + d = 30$ and $r = 30$

Given all those who played Football either played Volleyball or Basketball but do not play any other game. Hence the fifth set
Football can be drawn as shown in the figure. Also $e = f = g = h = i = j = k = l = 15$
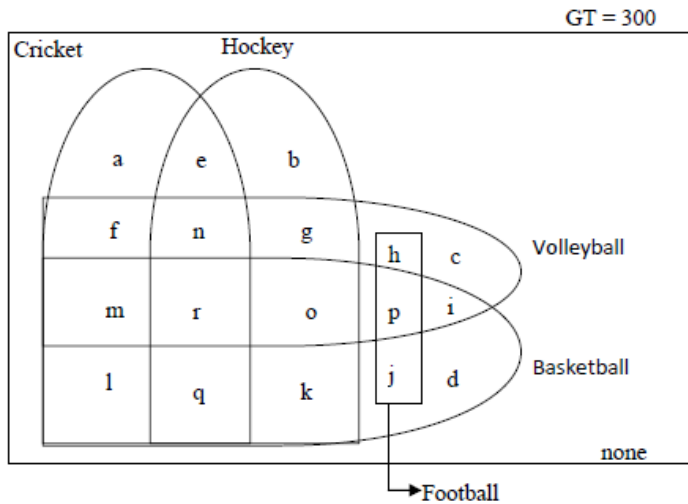Also $p = 30, m = 60, o = 30, r = 30$
Grand Total $= a + b + c + d + e + f + g + h + i + j + k + l + m + n + o + p + q + r +$ none $300 = 30 + 15 (8) + 60 + n + q + 30 + 30 + 30 +$ none $n + q +$ none $= 0$
$n = q = 0$

Given a = 30, ∴ b = c = d = 0. Basketball is represented by i + p + o + r + m + l + q + k + j + d = 15 + 30 + 30 + 30 + 60 + 15 +

0 + 15 + 15 + 0 = 210.

QNo:- 38 ,Correct Answer:- 60

Explanation:- *Given Grand Total = 300*
Exactly one = Exactly four = 30
a + b +c + d = 30 and r = 30

Given all those who played Football either played Volleyball or Basketball but do not play any other game. Hence the fifth set Football can be drawn as shown in the figure. Also e = f = g = h = i = j = k = l = 15
Also p = 30, m = 60, o = 30, r = 30
Grand Total = a + b + c + d + e+ f + g + h + i +j + k + l + m + n + o + p + q + r + none 300 = 30 + 15 (8) + 60 + n + q + 30 + 30 + 30 + none n + q + none = 0
n = q = 0
Football is represented by h + p + j, which is equal to 15 + 30 + 15 = 60

QNo:- 39 ,Correct Answer:- B

Explanation:- *Let the number of students in Mktg, Fin, IT and Op specializations be 3x, 4x, 3y, and 4y respectively. 3x + 4x + 3y + 4y = 91 x + y = 13 (1) and 4y " 3x ¤ 10 (2). From (1) and (2): x = 6 and y = 7. Number of students in the given specializations: Mktg = 18, Fin = 24, IT = 21, Op = 28.*

QNo:- 40 ,Correct Answer:- C

Explanation:- *Average marks of specialization Mktg = 64. The least average marks of specialization Fin = 65. The least total marks of specialization Fin = 65 - 24 = 1560.*
But the total marks of specialization Op. > 1560. Average marks of specialization Op. > 1560/28 i.e., > 55
´ the average marks of specialization Op. are at least 56.

QNo:- 41 ,Correct Answer:- A

Explanation:- *Let the average marks of the specializations Operations and IT be x and y respectively. 28x " 21y = 105 (1) and x ¥ 50; y ¥ 50 (2). From (1) and (2) there are several possibilities as follows:*
(i) when x = 51, y = 63 and y " x = 12. (ii) when x = 54, y = 67 and y " x = 13

(iii) when x = 57, y = 71 and y " x = 14.
We can observe that minimum difference between y and x is 12. Hence, only 1ˢᵗ option is possible as the difference between the average marks of Operations & IT.

QNo:- 42 ,Correct Answer:- B

Explanation:- *According to the given information, the average marks of IT may become less than that of Op. And the average marks of Mktg may become more than Fin.*
´Four different arrangements M₁, M₂, M₃ and M₄ are possible.

	M₁	M₂	M₃	M₄
Mktg	2	1	2	1
Fin	1	2	1	2
IT	4	3	3	4
Op	3	4	4	3

QNo:- 43 ,Correct Answer:- 132

Explanation:-
It is given that 114 students passed out of 6ᵗʰ year in the year 2014 - 15. As there were 135 students in the 6ᵗʰ year, it means that 21 students failed in that year. Now these 21 students would have stayed in the same year in 2015 - 16. In 2015 - 16, as there were 147 students in the 6ᵗʰ year, it means that 147 - 21 = 126 students who were in the 5ᵗʰ year in 2014 - 15 passed and got promoted to the 6ᵗʰ year.
Three students in the 5ᵗʰ year in 2014 - 15 failed and as there were 138 students in the 5ᵗʰ year in 2015 - 16, it means 138 - 3 = 135 students who were in 4ᵗʰ year in 2014 - 15 passed and got promoted. Similarly we can find the corresponding values for each year.

Year	Students passed	Students failed
1ˢᵗ	117	9
2ⁿᵈ	102	6
3ʳᵈ	144	6
4ᵗʰ	135	6
5ᵗʰ	126	3
6ᵗʰ	114	21

As 9 students in 1ˢᵗ year failed in the year 2014 - 15 and as there were 141 students in the college in 2015 - 16, a total of 141 - 9 = 132 students joined the college in 2015 - 16.

QNo:- 44 ,Correct Answer:- 3

Explanation:-
It is given that 114 students passed out of 6ᵗʰ year in the year 2014 - 15. As there were 135 students in the 6ᵗʰ year, it means that 21 students failed in that year. Now these 21 students would have stayed in the same year in 2015 - 16. In 2015 - 16, as there were 147 students in the 6ᵗʰ year, it means that 147 - 21 = 126 students who were in the 5ᵗʰ year in 2014 - 15 passed and got promoted to the 6ᵗʰ year.
Three students in the 5ᵗʰ year in 2014 - 15 failed and as there were 138 students in the 5ᵗʰ year in 2015 - 16, it means 138 - 3 =

135 students who were in 4th year in 2014 - 15 passed and got promoted. Similarly we can find the corresponding values for each year.

Year	Students passed	Students failed
1st	117	9
2nd	102	6
3rd	144	6
4th	135	6
5th	126	3
6th	114	21

Exactly six students failed in 2nd, 3rd and 4th years i.e., 3 years.

QNo:- 45 ,Correct Answer:- 51

Explanation:-

It is given that 114 students passed out of 6th year in the year 2014 - 15. As there were 135 students in the 6th year, it means that 21 students failed in that year. Now these 21 students would have stayed in the same year in 2015 - 16. In 2015 - 16, as there were 147 students in the 6th year, it means that 147 - 21 = 126 students who were in the 5th year in 2014 - 15 passed and got promoted to the 6th year.

Three students in the 5th year in 2014 - 15 failed and as there were 138 students in the 5th year in 2015 - 16, it means 138 - 3 = 135 students who were in 4th year in 2014 - 15 passed and got promoted. Similarly we can find the corresponding values for each year.

Year	Students passed	Students failed
1st	117	9
2nd	102	6
3rd	144	6
4th	135	6
5th	126	3
6th	114	21

The total number of students who failed in the year 2014 - 16 was 9 + 6 + 6 + 6 + 3 + 21 = 51.

QNo:- 46 ,Correct Answer:- C

Explanation:-

It is given that 114 students passed out of 6th year in the year 2014 15. As there were 135 students in the 6th year, it means that 21 students failed in that year. Now these 21 students would have stayed in the same year in 2015 16. In 2015 16, as there were 147 students in the 6th year, it means that 147 21 = 126 students who were in the 5th year in 2014 15 passed and got promoted to the 6th year.

´Three students in the 5th year in 2014 15 failed and as there were 138 students in the 5th year in 2015 16, it means 138 3 = 135 students who were in 4th year in 2014 15 passed and got promoted. Similarly we can find the corresponding values for each year.

Year	Students passed	Students failed
1st	117	9

2nd	102	6
3rd	144	6
4th	135	6
5th	126	3
6th	114	21

The pass percentage was the highest in 5th year.

QNo:- 47 ,Correct Answer:- B

Explanation:- The students of Fashion Tech. from India is given to be zero. We want to find the minimum number of students of Commerce and Vocational in India. For that, maximize the number of students of other streams in India. Now Except Fashion Tech, Commerce and Vocational, the total number of students of Engineering, Medical and Arts are 30%. If all these students are from India, then the remaining 10% students from India would be from Commerce and Vocational streams.

Hence the required percentage $= \dfrac{10}{40} \times 100 = 25\%.$

QNo:- 48 ,Correct Answer:- C

Explanation:- Total students of Commerce stream = 25% and at least 20% of the total students in each of the countries comprised the students of Commerce stream which in turn, is equal to 20% of the total students of Commerce stream. Now the remaining 5% can be distributed in any of the five countries. The country will have a total of 5% + 20% of that country. The required percentage will be maximum when the denominator selected i.e. the country selected has the least number of total students, that must be USA, which has only 10% of total number of students.

$\therefore$ Required $\% = \dfrac{5\% + 20\% \, of \, 10}{10} \times 100 = \dfrac{7}{10} \times 100 = 70\%.$

QNo:- 49 ,Correct Answer:- C

Explanation:- To maximize the number of streams that have students only from India, consider the streams with the least possible number of students, and the sum of which must not exceed 40%.
It is given that there were no students of Medical stream from India, the streams with next least values of students were Arts, Engineering and Vocational. ´ At the most there can be only three streams, students of which can be only from India.


QNo:- 50 ,Correct Answer:- A

Explanation:- For each stream, at most 50% of the students can be from India. The total students from India are 40%. ´ All the streams which have students from India should at least make up to 40%/50% = 80% of the total. ´ Remaining 20% can be distributed among Arts and one of Engineering or Vocational. Hence the number of streams which had no students from India is at most 2.

QNo:- 51 ,Correct Answer:- A
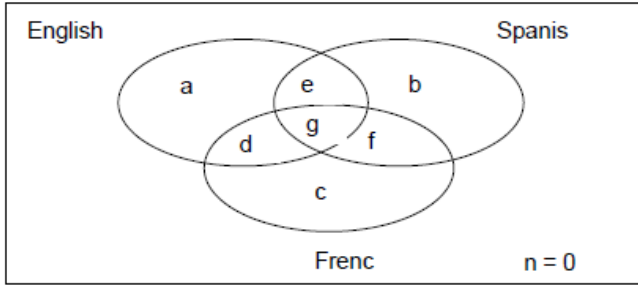
Explanation:- Let us consider the venn diagram as follows:

G.T = 200

English   Spanis
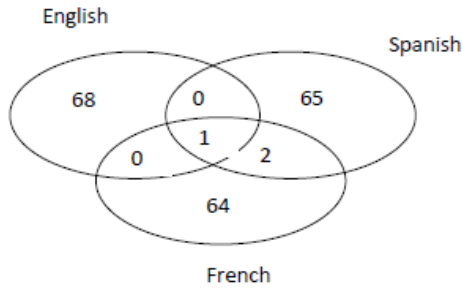
a   e   b
d   g   f
c
Frenc   n = 0

Given
English > Spanish > French
And Exactly 1 > Exactly 2 > Exactly 3 ´ (a + b + c) > (d + e + f) > g
Also, (a + b + c) + (d + e + f) + g = 200.

English
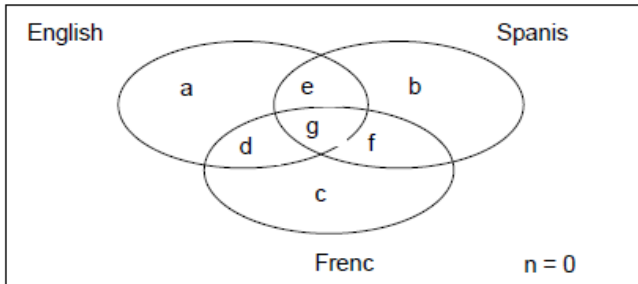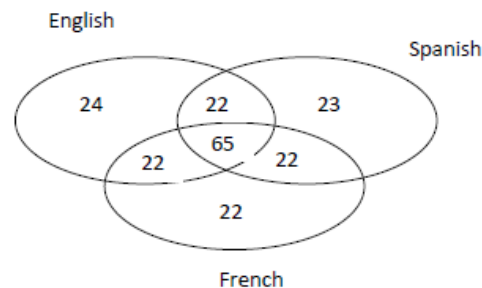   Spanish
68   0   65
1
0   2
64
French

Minimum number of people who could speak English would be obtained when we minimize the number of people who could speak all the three languages which is equal to 1. We can make the following diagram which satisfies all the given conditions. So we get the answer as 69.

QNo:- 52 ,Correct Answer:- C

Explanation:- *Let us consider the venn diagram as follows:*

G.T = 200

English   Spanis

a   e   b
d   g   f
c
Frenc   n = 0

Given
English > Spanish > French
And Exactly 1 > Exactly 2 > Exactly 3 ´ (a + b + c) > (d + e + f) > g
Also, (a + b + c) + (d + e + f) + g = 200.

English
       Spanish
24   22   23
65
22   22
22
French
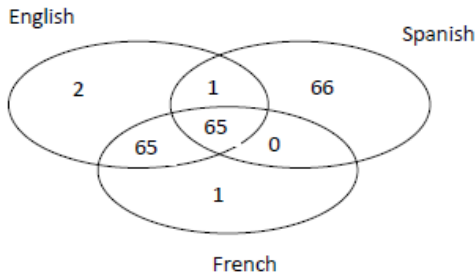
Maximum number of people who could speak French would be obtained when we maximize the number of people who could speak all the languages which is equal to 65. So we can make the following diagram and get the answer as 131.

QNo:- 53 ,Correct Answer:- A
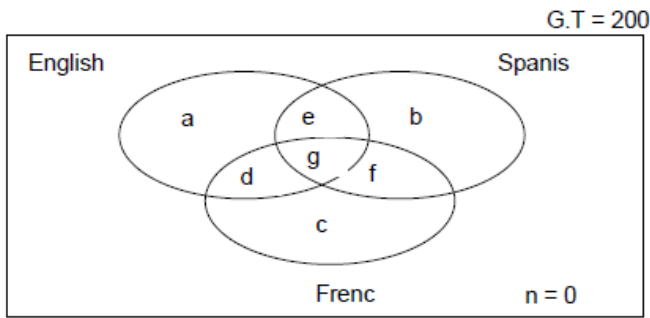
Explanation:- Let us consider the venn diagram as follows:

G.T = 200

English | Spanis

a | e | b
| g |
d | | f
| c |

Frenc | n = 0

Given

English > Spanish > French

And Exactly 1 > Exactly 2 > Exactly 3 ´ (a + b + c) > (d + e + f) > g

Also, (a + b + c) + (d + e + f) + g = 200.

English | Spanish

2 | 1 | 66
| 65 |
65 | 0
| 1 |

French

The minimum number of people who could speak English would be obtained when we maximize the number of people who could speak all the languages which is equal to 65. And so number of people who speak English is minimum 133. So we can get the diagram as follows and maximum number of people who could speak only Spanish is 66.

QNo:- 54 ,Correct Answer:- B

Explanation:- Let us consider the venn diagram as follows:
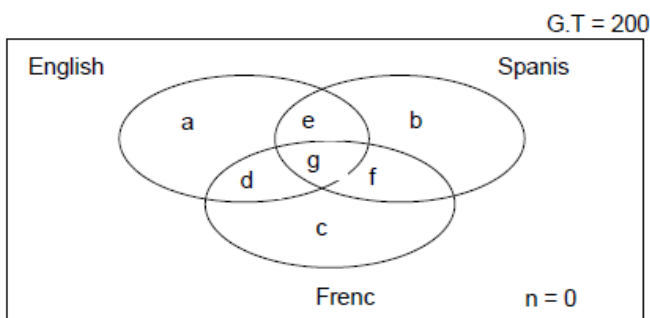
G.T = 200

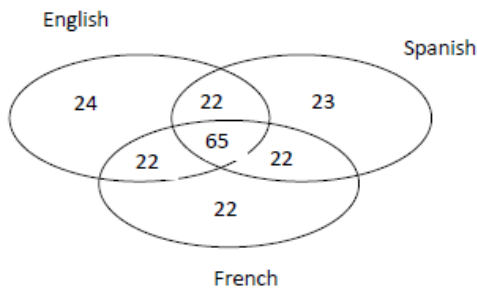English | Spanis

a | e | b
| g |
d | | f
| c |

Frenc | n = 0

Given

English > Spanish > French

And Exactly 1 > Exactly 2 > Exactly 3 ´ (a + b + c) > (d + e + f) > g

Also, (a + b + c) + (d + e + f) + g = 200.

English
Spanish

24 | 22 | 23
65
22 | 22
22

French

Maximum number of people who could speak French would be obtained when we maximize the number of people who could speak all the languages which is equal to 65. (Just as per question solved above).

QNo:- 55 ,Correct Answer:- C

Explanation:-
Total marks in college A by the five persons = (64 + 56 + 48)/75 ï¿½ 100 = 224. Similarly, total marks in college B, C, D and E are 250, 200, 156 and 200 respectively. (Q + S) in A = 25% of 224 = 56.
But the maximum score of any of the two must be less than 48 (the least value of the top three). Similarly the values for B, C, D and E are 50, 25, 26 and 30 respectively.

As the maximum score in B and E is 49 and 29 respectively, the median value for P is at most 49 and at least 48. ï¿½ï¿½ we cannot determine the median value.
The median values for Q, R and S are 54, 42 and 50 respectively. [As the other two values for these persons are less than each of these values]. For T, the median value is at most 48, i.e we cannot determine the exact value.
So, the final table will be

	A	B	C	D	E	Median	Maximum Score	Minimum Score	Deviation
P	64	1-49	59	48	1-29	48-49	64	1-29	35-63
Q	9-47	86	55	1-25	54	54	86	1-25	61-85
R	56	60	1-24	42	1-29	42	60	1-24	36-59
S	9-47	54	61	1-25	50	50	61	1-25	36-60
T	48	1-49	1-24	40	66	40-48	66	1-24	42-64
Total	224	250	200	156	200				

Therefore, we can determine the exact median value for 3 persons.

QNo:- 56 ,Correct Answer:- B

Explanation:-
Total marks in college A by the five persons = (64 + 56 + 48)/75 ï¿½ 100 = 224. Similarly, total marks in college B, C, D and E are 250, 200, 156 and 200 respectively. (Q + S) in A = 25% of 224 = 56.
But the maximum score of any of the two must be less than 48 (the least value of the top three). Similarly the values for B, C, D and E are 50, 25, 26 and 30 respectively.

As the maximum score in B and E is 49 and 29 respectively, the median value for P is at most 49 and at least 48. ï¿½ï¿½ we cannot determine the median value.
The median values for Q, R and S are 54, 42 and 50 respectively. [As the other two values for these persons are less than each of these values]. For T, the median value is at most 48, i.e we cannot determine the exact value.
So, the final table will be

	A	B	C	D	E	Median	Maximum Score	Minimum Score	Deviation
P	64	1-49	59	48	1-29	48-49	64	1-29	35-63
Q	9-47	86	55	1-25	54	54	86	1-25	61-85
R	56	60	1-24	42	1-29	42	60	1-24	36-59

S	9-47	54	61	1-25	50	50	61	1-25	36-60
T	48	1-49	1-24	40	66	40-48	66	1-24	42-64
Total	224	250	200	156	200				

Therefore, we can determine the exact median value for 3 persons.

QNo:- 57 ,Correct Answer:- 5

Explanation:-
Total marks in college A by the five persons = (64 + 56 + 48)/75 × 100 = 224. Similarly, total marks in college B, C, D and E are 250, 200, 156 and 200 respectively. (Q + S) in A = 25% of 224 = 56.
But the maximum score of any of the two must be less than 48 (the least value of the top three). Similarly the values for B, C, D and E are 50, 25, 26 and 30 respectively.

All the five persons can have the deviation value of 50 or more as shown in the table (which is one of the possibilities).

	P	Q	R	S	T	Total
A	64	46	56	10	48	224
B	10	86	60	54	40	250
C	59	55	15	61	10	200
D	48	25	42	1	40	156
E	29	54	1	50	66	200

QNo:- 58 ,Correct Answer:- B

Explanation:- Total marks in college A by the five persons = (64 + 56 + 48)/75 ï¿½ 100 = 224. Similarly, total marks in college B, C, D and E are 250, 200, 156 and 200 respectively. (Q + S) in A = 25% of 224 = 56.
But the maximum score of any of the two must be less than 48 (the least value of the top three). Similarly the values for B, C, D and E are 50, 25, 26 and 30 respectively.

As the maximum score in B and E is 49 and 29 respectively, the median value for P is at most 49 and at least 48. ï¿½ï¿½ we cannot determine the median value.
The median values for Q, R and S are 54, 42 and 50 respectively. [As the other two values for these persons are less than each of these values]. For T, the median value is at most 48, i.e we cannot determine the exact value.
So, the final table will be

	A	B	C	D	E	Median	Maximum Score	Minimum Score	Deviation
P	64	1-49	59	48	1-29	48-49	64	1-29	35-63
Q	9-47	86	55	1-25	54	54	86	1-25	61-85
R	56	60	1-24	42	1-29	42	60	1-24	36-59
S	9-47	54	61	1-25	50	50	61	1-25	36-60
T	48	1-49	1-24	40	66	40-48	66	1-24	42-64
Total	224	250	200	156	200				

Therefore, we can determine the exact median value for 3 persons.

QNo:- 59 ,Correct Answer:- C

Explanation:- When a new employee joins or an employee retires, the average age of the group decreases. Else it increases by one in every other year.

For IT in 2011, the total age was 44 × 3 = 132.

As the average age decreased, the number of employees in 2012 would be 2 or 4.

(i) (132 + 3) – 40 × 2 = 55

(ii) (40 × 4) - (132 × 3) = 25

´ A new employee joined in the IT Department in 2012. Similarly in 2014,

(i) 36 × 5 - (41 × 4 + 4) = 12

(ii) (41 × 4 + 4) – 36 × 3 = 60. ´ An employee retired in 2014.

Similarly, we can find that a new employee joined in Marketing in 2014 and employee retired from Marketing in 2012 and 2013. In the Systems Department a new employee joined in 2013.

A total of three employees retired from the company i.e., one from IT in 2014 and one each in 2012 and 2013 from Marketing.

QNo:- 60 ,Correct Answer:- C

Explanation:- When a new employee joins or an employee retires, the average age of the group decreases. Else it increases by one in every other year.

For IT in 2011, the total age was 44 × 3 = 132.

As the average age decreased, the number of employees in 2012 would be 2 or 4.

(i) (132 + 3) – 40 × 2 = 55

(ii) (40 × 4) - (132 × 3) = 25

´ A new employee joined in the IT Department in 2012. Similarly in 2014,

(i) 36 × 5 - (41 × 4 + 4) = 12

(ii) (41 × 4 + 4) – 36 × 3 = 60. ´ An employee retired in 2014.

Similarly, we can find that a new employee joined in Marketing in 2014 and employee retired from Marketing in 2012 and 2013. In the Systems Department a new employee joined in 2013.

Three employees joined. (One in IT in 2012, one in Marketing in 2014 and one in Systems in 2013).

QNo:- 61 ,Correct Answer:- B

Explanation:- When a new employee joins or an employee retires, the average age of the group decreases. Else it increases by one in every other year.

For IT in 2011, the total age was 44 × 3 = 132.

As the average age decreased, the number of employees in 2012 would be 2 or 4.

(i) (132 + 3) – 40 × 2 = 55

(ii) (40 × 4) - (132 × 3) = 25

´ A new employee joined in the IT Department in 2012. Similarly in 2014,

(i) 36 × 5 - (41 × 4 + 4) = 12

(ii) (41 × 4 + 4) – 36 × 3 = 60. ´ An employee retired in 2014.

Similarly, we can find that a new employee joined in Marketing in 2014 and employee retired from Marketing in 2012 and 2013. In the Systems Department a new employee joined in 2013.

In 2011, the total age of the employees in the IT Department is 44 × 3 = 132.

But one of these three employees retired in 2014. His age in 2014 was 60.

His age in 2011 was 57. ´ The sum of ages of the remaining two persons = 75.

In 2015, their age would be 75 + 2(2015 - 2011) = 83 years.

QNo:- 62 ,Correct Answer:- D

Explanation:- When a new employee joins or an employee retires, the average age of the group decreases. Else it increases by one in every other year.

For IT in 2011, the total age was 44 × 3 = 132.

As the average age decreased, the number of employees in 2012 would be 2 or 4.

(i) (132 + 3) 40 2 = 55

(ii) (40 4) - (132 3) = 25

∴ A new employee joined in the IT Department in 2012. Similarly in 2014,

(i) 36 5 - (41 4 + 4) = 12

(ii) (41 4 + 4) 36 3 = 60. ∴ An employee retired in 2014.

Similarly, we can find that a new employee joined in Marketing in 2014 and employee retired from Marketing in 2012 and 2013. In the Systems Department a new employee joined in 2013.

In IT, 3 + 1- 1 = 3. In Marketing, 5 - 1 - 1 + 1 = 4. In Systems, 4 + 1= 5

∴ Total employees = 12.

QNo:- 63 ,Correct Answer:- C

Explanation:- As it is given that no player won it in consecutive years, contestants, A, C, D, E, F, H, I and J would have made at least one mistake.

∴ One of G or B would have got winners in all the years correctly. As it is also known that each contestant had at least one right match and no two contestants had the same number of right matches. Only G can have all of them right.

The number of correct matches for the others can be found to be G 10, I 9, B 8, D 7, A 6, F 5, J 4, H 3, C 2 and E 1.

QNo:- 64 ,Correct Answer:- A

Explanation:- As it is given that no player won it in consecutive years, contestants, A, C, D, E, F, H, I and J would have made at least one mistake.

∴ One of G or B would have got winners in all the years correctly. As it is also known that each contestant had at least one right match and no two contestants had the same number of right matches. Only G can have all of them right.

The number of correct matches for the others can be found to be G 10, I 9, B 8, D 7, A 6, F 5, J 4, H 3, C 2 and E 1.

QNo:- 65 ,Correct Answer:- C

Explanation:- As it is given that no player won it in consecutive years, contestants, A, C, D, E, F, H, I and J would have made at least one mistake.

∴ One of G or B would have got winners in all the years correctly. As it is also known that each contestant had at least one right match and no two contestants had the same number of right matches. Only G can have all of them right.

The number of correct matches for the others can be found to be G 10, I 9, B 8, D 7, A 6, F 5, J 4, H 3, C 2 and E 1.

QNo:- 66 ,Correct Answer:- A

Explanation:- As it is given that no player won it in consecutive years, contestants, A, C, D, E, F, H, I and J would have made at least one mistake.

∴ One of G or B would have got winners in all the years correctly. As it is also known that each contestant had at least one right match and no two contestants had the same number of right matches. Only G can have all of them right.

The number of correct matches for the others can be found to be G 10, I 9, B 8, D 7, A 6, F 5, J 4, H 3, C 2 and E 1.

QNo:- 67 ,Correct Answer:- C

Explanation:- Let the 3 numbers be a, b and c. a = HCF ∴ b = ka; c = ℓ a where k, ℓ are integers.

∴ LCM of a, b and c = (LCM of k and ℓ) × a = LCM of b and c.

QNo:- 68 ,Correct Answer:- 9

Explanation:- $4 \times 2^{x(x-3)} \times 2^4 = 2^{2(x+1)(x-6)} \Rightarrow 2^2 \times 2^{x(x-3)} \times 2^4 = 2^{2(x+1)(x-6)}$

$\Rightarrow 2^{x(x-3)+4+2} = 2^{2(x+1)(x-6)}$ *i.e.,* $x(x-3) + 6 = 2(x+1)(x-6)$

$\Rightarrow x^2 - 3x + 6 = 2x^2 - 10x - 12;$

$\Rightarrow x^2 - 7x - 18 = 0 ;$

$\Rightarrow (x - 9)(x + 2) = 0$

∴ x = 9 or x = -2. But x > 0. ∴ x = 9.

QNo:- 69 ,Correct Answer:- 6

Explanation:- *Let x be the amount of work. In 20 days A completes x. In 10 days A completes x/2*

$\therefore A + B \text{ together completed } \dfrac{x}{2}$

Let n be the number of days for which A and B have worked together.

$\dfrac{nx}{20} + \dfrac{nx}{30} = \dfrac{x}{2}$

n = 6.

QNo:- 70 ,Correct Answer:- 8

Explanation:- *a, b, c, d and e are five consecutive even integers.*
At least, one of the five is divisible by 4, one by 8.

∴ Product should be divisible by 2 to the power of (5 + 2 + 1) = 8.

QNo:- 71 ,Correct Answer:- D

Explanation:- *Let family's requirement of water be x litres per day. If there was no leakage, the supply of water would last for 60 days, because of leakage it will last for 50 days.*

∴ *60x = 50 (x + 5)* ⇒ *x = 25 litres*

∴ *Volume of water in tank = 60 × 25 = 1500 litres.*

When there is a leakage of 50 litres a day, if supply lasts for 'd' days then we get

1500 = d (25 + 50) = 75d ⇒ *d = 20 days.*

Hence the supply will last for 40 days less.

QNo:- 72 ,Correct Answer:- D

Explanation:- *Given that mn = 100. m and n can be any of the following pairs 25, 4 or 20, 5 or 50, 2 or 100,1 or 10, 10 whose sum is 29 or 25 or 52 or 101 or 20 but there are no factors of 100 whose sum can be 50.*

QNo:- 73 ,Correct Answer:- C

$$\frac{2x^2}{x-1} - 4 = \frac{6x-4}{x-1} \Rightarrow \frac{2x^2 - 4x + 4}{x-1} = \frac{6x-4}{x-1}$$

x - 1 being in the denominator of given equation, x - 1 ≠ 0
∴ $2x^2 - 4x + 4 - 6x - 4 \Rightarrow x^2 - 5x + 4 = 0 \Rightarrow (x - 1)(x - 4) = 0$
⇒x − 4 = 0 (Since x − 1 ≠ 0)

Explanation:- ⇒ x = 4

QNo:- 74 ,Correct Answer:- D

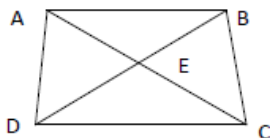***Explanation:-*** *As the roots are reciprocal, a = c. i.e., $m^2 + 18m + 81 = 1$*
∴ $m^2 + 18m + 81 - 1 = 0$
∴ (m + 10) (m + 8) = 0
∴ m = -10 or m = -8.

QNo:- 75 ,Correct Answer:- C

Explanation:-

1) ∠ABD = ∠BDC ⇒ AB || DC

2) AE : EC = BE : ED ⇒ In ∆ABE and ∆CDE, we have corresponding sides proportional and their included angles equal (vertically

opposite)

⇒ They are similar triangles ⇒ ∠ABD= ∠BDC ⇒ AB || DC

3) AB : BE = DC : DE. We take the same two triangles as in (2), but as we do not know whether the included angles ∠ABD and

∠BDC are equal or not, we cannot conclude that AB || DC.

4) ∠ADC = ∠BCD and AD = BC. We extend DA and CB to meet at O.

As ∠ADC = ∠BCD, ODC is isosceles ⇒ OD = OC. As AD = BC, OA = OB,

If a line(seg AB) divides any two sides of a triangle

$(∆ODC)$ in equal ratio $\left(\dfrac{OA}{AD} = \dfrac{OB}{BC} \right)$,

then it is parallel to the third side (seg DC).
Hence, AB || DC

QNo:- 76 ,Correct Answer:- 18

Explanation:- The bus goes at 3 times the speed at which they can walk. So total hours would be divided in the ratio 3 : 1 between walking and riding.

∴ Total hrs ⇒ 4x = 8hrs

∴ x = 2hrs. They travel by bus in 2 hrs = 2 × 9 = 18 km.

QNo:- 77 ,Correct Answer:- D

Explanation:- Let r = 2n - 1, s = 2n + 1 and t = 2n + 3

∴ r + t = 4n + 2 = 2(2n + 1) =2s.

QNo:- 78 ,Correct Answer:- C

Explanation:- $S_e + S_0 = 1 + 2 + ... + 100 = \dfrac{100 \times 101}{2}$

$S_p = 2 + 3 + 5 + 7 + 11 = 28.$

Hence, $S_e + S_o + S_p = \dfrac{100 \times 101}{2} + 28$

QNo:- 79 ,Correct Answer:- 26

Explanation:- P_1 = Numbers divisible by 2 = 50. i.e., 100/2.
P_2 = Numbers divisible by 3 = 33, i.e., 100/3.
P_3 = Numbers divisible by 5 = 20, i.e., 100/5.

P_1 and P_2 = Numbers divisible by (2 × 3 = 6) = 16 , $\dfrac{100}{6}$ = 16.

P_2 and P_3 = Numbers divisible by (3 × 5 = 15) = 6, $\dfrac{100}{15}$ = 6

P_1 and P_3 = Numbers divisible by (2 × 5 = 10) = 10, $\dfrac{100}{10}$ = 10

P_1 and P_2 and P_3 = Numbers divisible by (2 × 3 × 5 = 30) = 3, $\dfrac{100}{30}$ = 3

∴Numbers divisible by 2 or 3 or 5 = 50 + 33 + 20 - 16 - 6 - 10 + 3 = 74.

∴ Numbers not divisible by 2 or 3 or 5 = 100 – 74 = 26.

Hence, [2]
Alternatively,
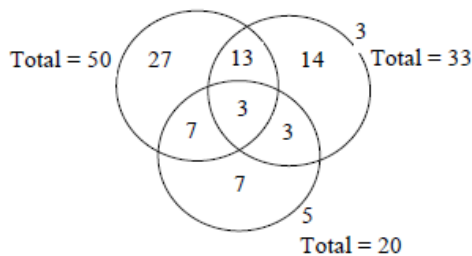
∴ Numbers divisible by 2 or 3 or 5 = 27 + 13 + 3 + 7 + 14 + 3 + 7 = 74.

∴ Numbers not divisible by 2 or 3 or 5 = 100 – 74 = 26.

QNo:- 80 ,Correct Answer:- A

Explanation:- Let the distances covered by air, train, and ship be d_a, d_t, d_s respectively, and time in each case be t_a, t_t, t_s respectively. $d_a + d_t + d_s = 1200$, $t_a + t_t + t_s = 50$

Given: $d_s = 2d_t$; $\dfrac{d_a}{t_a} = 2 \times \dfrac{1200}{50}$;

$t_s = 3t_t$; $t_t = 10$ hours. $t_s = 30$; $t_a = 10$

$d_a = 2 \times \dfrac{1200}{50} \times 10 = 480$, $2d_t + d_t + 480 = 1200 \Rightarrow 3d_t = 720 \Rightarrow d_t = 240$

$d_s = 2 \times 240 = 480$.

QNo:- 81 ,Correct Answer:- B

Explanation:- *Let the two numbers be x and x + 72.* $\dfrac{x+72}{x} = 4 \Rightarrow x = 24$.

∴The other number is 96. Hence, [2]

Alternatively,
Looking at the options you can easily make out that only [2] satisfies the given conditions.

QNo:- 82 ,Correct Answer:- D

Explanation:- *Let cashew kernel = x gm and dry grapes = (700-x) gm.*

Then, cost of x gms of cashew kernel = Rs. $\dfrac{96}{1000}$ x.

Then, cost of (700 - x) gms of dry grapes

$= Rs. \left[\dfrac{112}{1000} \times (700-x)\right]$

Given, $\dfrac{96}{1000}$ x $+ \dfrac{112}{1000}(700-x) = 72$

$\Rightarrow 96x + 78400 - 112x = 72000 \Rightarrow 16x = 6400$, $x = 400$ gm.

QNo:- 83 ,Correct Answer:- B

Explanation:- *Let one work be x. 4 men working 8 hrs a day complete x work.*

Hence, 1 man will complete $\dfrac{x}{4}$ *work per day (in 8 hours).*

Similarly, 1 woman will complete $\dfrac{x}{3 \times 2} = \dfrac{x}{6}$ *work per day (in 8 hours).*

20 men complete 5x work per day and 9 women complete 1.5x work per day.
10 boys complete x work per day. Together they complete 7.5x work per day. So to finish 1000x work they will take

$\dfrac{1000}{7.5} = 133.33$ *days.*
They finish on the 22nd of June.

QNo:- 84 ,Correct Answer:- C

Explanation:- Let the three birds be A, B, and C with O being their meeting point and A and B moving in opposite directions. Now, OA = OB = OC.
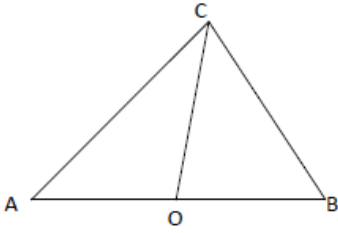
Thus, a semicircle can be drawn through A, B, and C with OC as radius and AB as diameter. So, angle ACB is the angle in a semicircle, which is a right angle.

QNo:- 85 ,Correct Answer:- 34

Explanation:- Let ℓ and b be the length and breadth of rectangle.

$\ell b = 60$; $\sqrt{\ell^2 + b^2} + \ell = 5b$; Solving $\ell = 12$, $b = 5$; $2(\ell + b) = 34$.

QNo:- 86 ,Correct Answer:- 50

Explanation:- Let a and s be the amounts initially with Anil and Sunil respectively.
After the first round Anil has a - s left and Sunil has 2s with him. Then Sunil gives a - s to Anil after which Anil has 2(a - s) left and Sunil has 2s - a + s = 3s - a left.
Then Anil gives Sunil (3s - a), so Anil has = 2(a - s) - (3s - a) = 3a - 5s = 0.

Thus, 3a = 5s. Sunil had 2(3s - a) = 80 $\Rightarrow$ 6s – 2a = 80; Solving a = 50.

QNo:- 87 ,Correct Answer:- 3

Explanation:- $p(x) = x^6 - 28x^3 + k$, $p(l) = 0 = (1)^6 - 28(1)^3 + k \Rightarrow k = +28 - 1 = 27$

$\therefore p(x) = x^6 - 28x^3 + 27 \Rightarrow x^6 - 27x^3 - x^3 + 27 = x^3(x^3 - 27) - 1(x^3 - 27)$

$= (x^3 - 27)(x^3 - 1) \therefore (x - 3)$ is the factor of $x^3 - 27$.

QNo:- 88 ,Correct Answer:- A

Explanation:- $|a^2 - b^2| = a^2 - b^2 = 0.4$ if $a > b$ &
$= b^2 - a^2 = 0.4$ if $b > a$

If $(a > b)$, $a^2 = b^2 + 0.4 = (-0.3)^2 + 0.4 = 0.09 + 0.4 = 0.49$

$\therefore |a| = 0.7$

$\therefore |a| + |b| = 0.7 + |-0.3| = 0.7 + 0.3 = 1.$

If $b > a$; $0\text{-}09 - a^2 = 0.4 \Rightarrow a^2 = -0.31$ (not possible)

QNo:- 89 ,Correct Answer:- 4

Explanation:-

$$f(x, y) = (x + y)\left(\frac{1}{x} + \frac{1}{y}\right) = (1 + 1) + \left(\frac{x^2 + y^2}{xy}\right)$$

$$= 2 + \left(\frac{x^2 + y^2}{xy}\right). \text{ But A.M.} \geq \text{G.M.}$$

$$\therefore \frac{x^2 + y^2}{2} \geq \sqrt{x^2 y^2}$$

$$\therefore \frac{x^2 + y^2}{xy} \geq 2.$$

$$\therefore 2 + \left(\frac{x^2 + y^2}{xy}\right) \geq 2 + 2 \geq 4.$$

QNo:- 90 ,Correct Answer:- 4

Explanation:- $ab = a + b$ or $a(b - 1) = b$ or $a = \dfrac{b}{b-1}$

Now, putting $b = \dfrac{5}{4}$, $a = 5$. And, putting $b = 5$, $a = \dfrac{5}{4}$

Any value of 'b' between $\dfrac{5}{4}$ and 5 will give a value of 'a' that is in the required range.

So, there are many such pairs.

QNo:- 91 ,Correct Answer:- A

Explanation:- Area of shaded region = Area of square - Area of inner circle.
$D_{outer} = 20 = \sqrt{2}$ [D_{outer} = diameter of outer circle, a = side of square]

$\therefore a = 10\sqrt{2}$

$D_{inner} = a = 10\sqrt{2}$ [D_{inner} = diameter of inner circle = side of square]

$\therefore$ Area of inner circle $= \dfrac{\pi a^2}{4}$

∴ Required area $= a^2 - \dfrac{\pi a^2}{4}$

$= a^2 \left[1 - \dfrac{\pi}{4}\right] = 200\left(1 - \dfrac{\pi}{4}\right).$

QNo:- 92 ,Correct Answer:- 2176

Explanation:- Let CP = 100; ∴ Mark-up = 160 ∴ SP = 160 × 0.85 = 136. ∴36% profit.

∴ CP $= \dfrac{576}{36} \times 100 = 1600$ ∴ SP = 1600 + 576 = 2176

QNo:- 93 ,Correct Answer:- 34

Explanation:- You can check from the options that 34 is the lowest such number.

QNo:- 94 ,Correct Answer:- 7

Explanation:-
The average speed during acc./dec. $= \dfrac{0 + 8K}{2} = \dfrac{8K + 0}{2} = 4K.$

Total distance travelled $= K - 1$. Total time taken $= \dfrac{7K}{5}\, min$

Hence we have $4K \times \dfrac{K}{5 \times 60} + 4K \times \dfrac{K}{5 \times 60} + 8K \times \dfrac{K}{60} = K - 1$

Solving this equation, we get K = 5 or 5/4. As the number of minutes is an integer, so K = 5.

Hence the time $= \dfrac{7K}{5} = \dfrac{7 \times 5}{5} = 7\, min.$

QNo:- 95 ,Correct Answer:- B

Explanation:- We have $\log_3[\log_5(x^2 - x - 25)] = 0 \Rightarrow [\log_5(x^2 - x - 25)] = 3^0$

$\Rightarrow [\log_5(x^2 - x - 25)] = 1 \Rightarrow (x^2 - x - 25) = 5 \Rightarrow x^2 - x - 30 = 0$ or $(x - 6)(x + 5) = 0$

$\Rightarrow x = 6, -5$. Thus, the possible value of x is 6 out of the given values.

QNo:- 96 ,Correct Answer:- A

Explanation:- We know that angles inscribed in the same arc are congruent. Using this we can show that triangle CBE is similar to triangle ADE.
The ratio of the areas of these triangles is same as the ratio of squares of their corresponding sides. The ratio of sides happens to be 12 : 24 i.e. 1 : 2.

Thus, the ratio of areas will become $1^2 : 2^2 \Rightarrow 1 : 4$.

QNo:- 97 ,Correct Answer:- 212180

Explanation:- The difference in the two rates is 3%.
Now at the end of first year, there will be an increase of 3% of 200,000 i.e. 6,000.
In the second year the growth of 3% will be on the population of 206,000 i.e. 6180.
Thus the population at the end of 2 years will be 206,000 + 6,180 = 212,180.

QNo:- 98 ,Correct Answer:- A

Explanation:- 53 is rounded up to 56, then it is multiplied with 12 $\Rightarrow$ 56 × 12 = 672.

So the fare is 675 paise i.e. Rs 6.75.

QNo:- 99 ,Correct Answer:- 3

Explanation:- All the number 5! Onwards have a 3 and 5 in them, thus they all are divisible by 15. The remaining numbers are 1, 2, 6 and 24.
Their sum is 33. Now when 33 is divided by 15, the remainder is 3.

QNo:- 100 ,Correct Answer:- D

Explanation:- $f(f(x)) = -\frac{1}{x}$. $f(f(f(x))) = \frac{x-1}{x+1}$.
$f(f(f(f(x)))) = x$.
Just apply the function formula given 4 times and get the answer as x.