

Directions of Test

Test Name	2016 Bull CAT 08	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

Three or four hundred years ago there was little to choose between per capita incomes in the West and in the East. Beijing, for centuries the world's largest city, dwarfed Boston. The Yangtze delta seemed as likely a place as the Thames Valley to produce major productivity-enhancing technological innovations. Yet between 1700 and 1950 there was a 'great divergence' of living standards between East and West. By 1820 per capita income in the United States was roughly twice that of China; by 1870, nearly five times higher; by 1913 nearly ten times; by 1950 nearly twenty-two times.

What went wrong in China between the 1700s and the 1970s? One argument is that China missed out on two major macroeconomic strokes of good luck that were indispensable to the North-West's eighteenth-century take-off. The first was the conquest of the Americas and particularly the conversion of the islands of the Caribbean into sugar-producing colonies, 'ghost acres' which relieved the pressure on a European agricultural system that might otherwise have suffered from Chinese-style diminishing returns. The second was the proximity of coalfields to locations otherwise well suited for industrial development. Besides cheaper calories, imperial expansion brought other unintended economic benefits, too. It encouraged the development of militarily useful technologies that turned out to have big spin-offs for the development of industrial machinery.

Another credible hypothesis is that China's problems were as much financial as they were resource-based. For one thing, the unitary character of the Empire precluded that fiscal competition which proved such a driver of financial innovation in Renaissance Europe and subsequently. For another, the ease with which the Empire could finance its deficits by printing money discouraged the emergence of European-style capital markets. Coinage, too, was more readily available than in Europe because of China's trade surplus with the West. When modern financial institutions finally came to China in the late nineteenth century, they came as part of the package of Western imperialism and, as we shall see, were always vulnerable to patriotic backlashes against foreign influence.

The last age of globalization had anything but a happy ending. On the contrary, less than a hundred years ago, in the summer of 1914, it ended not with a whimper, but with a deafening bang. It has recently been suggested that the war should be understood as a kind of backlash against globalization, heralded by rising tariffs and immigration restrictions in the decade before 1914, and welcomed most ardently by Europe's agrarian elites, whose position had been undermined for decades by the decline in agricultural prices and emigration of surplus rural labor to the New World.

Excerpted from 'The Ascent of Money' by Niall Ferguson.

As used in the second paragraph, what is a 'ghost acre'?

- A) The distance food is transported from the time of its production until it reaches the consumer.
- B) Forest land which is saved as wood is substituted by coal.
- C) Additional land offshore used to supply the diet of a nation.
- D) Land used to grow feed for animals being reared for meat and dairy production.

Question No. : 2

Which of the line which would immediately follow the last line of the passage?

- A) Indeed, so profound was the mid-century reaction against globalization that the two most populous Asian countries ended up largely cutting themselves off from the global market from the 1950s until the 1970s.
 - B) Before blithely embracing today's brave, new and supposedly 'post-American' world, we must be sure that similar unforeseen reactions could not pull the geopolitical rug out from under the latest version of globalization.
 - C) While China may have suffered an absolute decline in per capita income in the nineteenth-twentieth century, the societies of the North West - in particular Britain and its colonial offshoots - experienced unprecedented growth.
 - D) Over a century ago, enterprising businessmen in Europe and North America could see that there were enticing opportunities throughout Asia. By the middle of the nineteenth century, the key technologies of the industrial revolution could be transferred anywhere.
-

Question No. : 3

All of the following are plausible reasons for the divergence in growth rates between the East and the West, except -

- A) differences in topography B) differences in resource endowments
- C) differences in attitudes towards science and technology D) differences in human evolution.

Question No. : 4

What can be construed to be the main reason for China lagging behind the West in the nineteenth and twentieth century?

- A) The Industrial revolution of the West B) The presence of Western colonies in Asia and America
 - C) The absence of the Banking sector in China D) The lack of democracy in China
-

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

Question No. : 5

The university is an ideal place to reflect. It is a magnet for people who like to be *critical*, in the two meanings of the word: "Inclined to find fault" and the "art or act of judging the quality" of something. Many academics are certainly inclined to find fault. But that becomes useful when it is combined with the art of judging quality: to see beneath, above, and beyond the obvious, to the deeper and higher meaning of important things. This is what can make the university such a powerful setting for the development of managers. And it is what makes so unfortunate current trends in the business schools toward hype and "businesslike" behavior.

The classrooms common in business schools today line up students in neat rows so that they can all see the professor. That setup may be fine for conveying information from the front, but it hardly facilitates sharing among everyone else. Arching these rows in the shape of a U so that the students can also see each other for case discussions may be an improvement, but that puts attention on the individual, not the group, especially that individual at the front, in the so-called pit. These are classrooms designed more for competition than collaboration, for making points more than for sharing experiences. They speed things up; they do not slow them down.

The classroom may not be the workplace, but it should at least be compatible with it. A flat classroom with round tables facilitates natural discussion in small groups alongside formal presentations. There is no need to "break out." Managers can go in and out of reflective discussions on a moment's notice. Each table becomes a little learning community in its own right, within the larger learning community that is the whole classroom. And by varying how people sit—in company groups, by job concerns, cross-culturally, and so on—the focus of discussion around the tables can be varied: While the conventional classroom clearly shows itself to be designed for the faculty, this kind of seating allows the managers to assume co-ownership of the space.

Adaptable educating in a flexible space requires an adaptable and facilitating faculty. The faculty certainly have to be designers—architects of the learning experience—but as architecture was discussed earlier: not by designing and drawing, to create rigid structures, but by establishing flexible superstructures that can adapt to the people inside. The faculty, in other words, have to be the designers of an ongoing social process as much as the conveyers of conceptual knowledge. And unlike most architects today, they have to remain on site while their designs become reality. Bloom has likened this role to midwifery, in that the faculty help facilitate a perfectly natural process. Just because people are called professors does not mean they have to spend so much time professing.

Excerpted from 'Managers Not MBAs' by Henry Mintzberg

What is implied about the role that teachers need to play in a classroom?

- A) They need to take on the role which is akin to the moderator of a facebook page.
- B) They need to introduce interesting material and then engage the class with it – by stimulating, listening and integrating.
- C) They are the gardeners who cannot really cause a plant to grow; all they can do is to ensure that the water and nutrients are in place.
- D) They need to be first and foremost learners themselves – practice what they preach.

Question No. : 6

What can be implied about the role that a 'surprise' – a deviation from the plan because of student inputs – has to play in education?

- A) Because they interrupt the flow of a lesson plan, they are discouraged; though it is alright to have them happen once in a while.
- B) 'Surprises' create revolutions in the classroom; and most revolutions serve little purpose, as the new regime that emerges is usually as bad as the old one.
- C) Surprises are what cause learning in a professor – and hence also in students.
- D) They are unwelcome because they indicate a deficiency in the planning skills of the faculty.

Question No. : 7

Based on your understanding of the passage, the word *teacher* can be unhesitatingly replaced by which of the following words?

- A) Mentor
- B) Facilitator
- C) Leader
- D) Philosopher

Question No. : 8

In the third paragraph, the phrase "break out" means?

- A) To break ranks – that is to speak out of turn.
- B) To challenge the teacher – by having a point of view which is contrary to that of the teacher.
- C) To start abruptly – when the teacher gets straight to problems without giving any introductory background material in class.
- D) To stop the teaching for some time, so that the class can then discuss amongst themselves.

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

Question No. : 9

Sometimes change seems to happen in slow motion. A new technology or business model can be an ongoing topic of discussion, with little change in the market. The merits of e-book readers, for instance, were discussed over a period of 15 years. But when a compelling product—the \$ 139 Kindle—hit the market at an attractive price, consumers pounced. Industry players that adapted early to the shift are the ones that survived, while others ended up leveled because they failed to develop a strategy for the change.

These kinds of price changes can lead to a threshold for new consumer behavior. How many people do you know who never considered e-books an attractive option two years ago but are reading them now? In a similar way, we've been conditioned to believe that cleantech solutions are unattractive because of the cost. Many businesses and consumers are not aware of the fact that we're close to cost parity in the e-car space in the U.S.

Certainly, e-cars and e-books are different situations in many respects. But both are enabled by new technology and new business models. Book publishers that have embraced e-books have figured out how to create, price, and market their products in new ways.

Something similar is starting to happen with e-cars, where a new ecosystem is developing in anticipation of a new market. But are electric cars really cleaner than gas cars? While they don't produce any tailpipe emissions of carbon, they are indeed fuelled by electricity plants that burn fossil fuels like coal, which is the dirtiest source of power.

This is where **the cleantech threshold** gets even more interesting. That's because the electric grid is steadily getting cleaner.

Several new coal plants have been cancelled because of environmental concerns. Typically that capacity is replaced by natural gas, which produces roughly half the carbon emissions. Wind has already reached cost parity with natural gas in many locations. Due in part to cheap mass production in China, the cost of solar panels has dropped about 75 percent over the past decade, and the Energy Dept. forecasts that solar costs will drop another 75 percent by the end of this decade, bringing it in line with the cost of coal power.

Yet it's anyone's guess how fast consumers will warm to electric cars. Since electric cars are just now becoming widely available, the predictions are all over the map. Market research firms estimate e-cars will capture anywhere from 2 percent to 15 percent of the total car market within 10 years, depending largely on the price of oil.

Excerpted from an article by Mark Johnson in BusinessWeek

The structure of the passage is –

- A) An analysis of the problems being faced by a new technology is made and solutions are suggested for future implementation
- B) A hypothesis is stated regarding technology adoption and examples are presented to prove the hypothesis
- C) Facts related to technology are presented and a conclusion is derived on the basis of those facts
- D) A comparison has been made between two different products and a prediction of the adoption of the newer product is made based on the experience of the older one

Question No. : 10

What would you expect to follow after the last paragraph?

- A) The assumptions that Market Research firms make while making predictions based on current data
- B) A discussion on new oil discoveries across the globe and their impact on future oil prices
- C) Predictions of e-reader sales made in 2009
- D) The future of electric vehicles in terms of technologies required for these vehicles to gain wider acceptance

Question No. : 11

As used in the fifth paragraph, what could be inferred about 'the cleantech threshold'?

- A) A point where the total environmental impact of the electric vehicle gets to be lower than gas cars
- B) A breakeven point where the savings in fuel, just outweigh the higher upfront costs associated with electric vehicles
- C) An improvement in battery technology, whereby the difference in range of the two vehicles is barely perceptible
- D) A point where vehicles that run using only solar panels, so that the technology is totally clean and renewable

Question No. : 12

All of the following are determinants of future market share of electric vehicles, except

- A) The price of oil B) Infrastructure for battery charging C) Weight and cost of batteries
- D) Developments in hybrid vehicle technology

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

Question No. : 13

Public opinion in Germany seems strictly to forbid any allusion to the evil and dangerous consequences of a war, more particularly when the war in question has been a victorious one. Those writers, therefore, command a more ready attention who, regarding this public opinion as final, proceed to vie with each other in their jubilant praise of the war, and of the powerful influences it has brought to bear upon morality, culture, and art. Yet it must be confessed that a great victory is a great danger. Human nature bears a triumph less easily than a defeat; indeed, it might even be urged that it is simpler to gain a victory of this sort than to turn it to such account that it may not ultimately prove a serious rout.

But of all evil results due to the last contest with France, the most deplorable, perhaps, is that widespread and even universal error of public opinion and of all who think publicly, that German culture was also victorious in the struggle, and that it should now, therefore, be decked with garlands, as a fit recognition of such extraordinary events and successes. This error is in the highest degree pernicious: not because it is an error,—for there are illusions which are both salutary and blessed,—but because it

threatens to convert our victory into a signal defeat. A defeat? —I should say rather, into the uprooting of the "German Mind" for the benefit of the "German Empire."

Even supposing that the fight had been between the two cultures, the standard for the value of the victor would still be a very relative one, and, in any case, would certainly not justify such exaggerated triumph or self-glorification. For, in the first place, it would be necessary to ascertain the worth of the conquered culture. This might be very little; in which case, even if the victory had involved the most glorious display of arms, it would still offer no warrant for inordinate rapture.

Even so, however, there can be no question, in our case, of the victory of German culture; and for the simple reason, that French culture remains as heretofore, and that we depend upon it as heretofore. It did not even help towards the success of our arms. Severe military discipline, natural bravery and sustaining power, the superior generalship, unity and obedience in the rank and file—in short, factors which have nothing to do with culture, were instrumental in making us conquer an opponent in whom the most essential of these factors were absent. The only wonder is, that precisely what is now called "culture" in Germany did not prove an obstacle to the military operations which seemed vitally necessary to a great victory. Perhaps, though, this was only owing to the fact that this "thing" which dubs itself "culture" saw its advantage, for once, in keeping in the background. If however, it be permitted to grow and to spread, if it be spoilt by the flattering and nonsensical assurance that *it* has been victorious,—then, as I have said, it will have the power to extirpate German mind, and, when that is done, who knows whether there will still be anything to be made out of the surviving German body!

The author of the passage expresses:

- I. clear disapproval of the glorification of the German culture
- II. clear disapproval of the bragging about exploits in a war.
- III. an objection of viewing victory in a war as a victory of culture

A) I & II B) II & III C) I & III D) All of the above

Question No. : 14

The primary purpose of the passage as a whole is to

- A) give his opinion on different cultures. B) redress a misconception C) gauge an approach D) doubt a proposition

Question No. : 15

According to the author of the passage, exaggerated triumph in the case of a victory in war can be justified only when:

- A) the conquered culture is vanquished B) the conquered culture is of some value
- C) the conquered culture dominates the conqueror's culture
- D) the conquered culture has little influence on the conqueror's culture

Question No. : 16

When the author labels culture as a 'thing', he:

- A) obfuscates the term B) indulges in hyperbole C) exaggerates it D) objectifies it

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

Question No. : 17

In all ages of speculation, one of the strongest obstacles to the reception of the doctrine that Utility or Happiness is the criterion of right and wrong, has been drawn from the idea of Justice, the powerful sentiment, and apparently clear perception, which that word recalls with a rapidity and certainty resembling an instinct, have seemed to the majority of thinkers to point to an inherent quality in things; to show that the Just must have an existence in Nature as something absolute-generically distinct from every variety of the Expedient, and, in idea, opposed to it, though (as is commonly acknowledged) never, in the long run, disjoined from it in fact.

In the case of this, as of our other moral sentiments, there is no necessary connection between the question of its origin, and that of its binding force. That a feeling is bestowed on us by Nature, does not necessarily legitimate all its promptings. The feeling of

justice might be a peculiar instinct, and might yet require, like our other instincts, to be controlled and enlightened by a higher reason. If we have intellectual instincts, leading us to judge in a particular way, as well as animal instincts that prompt us to act in a particular way, there is no necessity that the former should be more infallible in their sphere than the latter in theirs: it may as well happen that wrong judgments are occasionally suggested by those, as wrong actions by these. But though it is one thing to believe that we have natural feelings of justice, and another to acknowledge them as an ultimate criterion of conduct, these two opinions are very closely connected in point of fact. Mankind is always predisposed to believe that any subjective feeling, not otherwise accounted for, is a revelation of some objective reality. Our present object is to determine whether the reality, to which the feeling of justice corresponds, is one which needs any such special revelation; whether the justice or injustice of an action is a thing intrinsically peculiar, and distinct from all its other qualities, or only a combination of certain of those qualities, presented under a peculiar aspect. For the purpose of this inquiry, it is practically important to consider whether the feeling itself, of justice and injustice, is *sui generis* like our sensations of colour and taste, or a derivative feeling, formed by a combination of others. And this it is the more essential to examine, as people are in general willing enough to allow, that objectively the dictates of justice coincide with a part of the field of General Expediency; but inasmuch as the subjective mental feeling of Justice is different from that which commonly attaches to simple expediency, and, except in extreme cases of the latter, is far more imperative in its demands, people find it difficult to see, in Justice, only a particular kind or branch of general utility, and think that its superior binding force requires a totally different origin.

To throw light upon this question, it is necessary to attempt to ascertain what is the distinguishing character of justice, or of injustice: what is the quality, or whether there is any quality, attributed in common to all modes of conduct designated as unjust (for justice, like many other moral attributes, is best defined by its opposite), and distinguishing them from such modes of conduct as are disapproved, but without having that particular epithet of disapprobation applied to them. If in everything which men are accustomed to characterise as just or unjust, some one common attribute or collection of attributes is always present, we may judge whether this particular attribute or combination of attributes would be capable of gathering round it a sentiment of that peculiar character and intensity by virtue of the general laws of our emotional constitution, or whether the sentiment is inexplicable, and requires to be regarded as a special provision of Nature. If we find the former to be the case, we shall, in resolving this question, have resolved also the main problem: if the latter, we shall have to seek for some other mode of investigating it.

According to the information given in the first paragraph, the 'Just' and the 'Expedient' are:

- A) almost always contradictory in nature
- B) though seemingly dissimilar, these have underlying mutual virtues
- C) though generally seen as opposing each other, these cannot be isolated from one another in the long term
- D) at times distinct and at times similar in nature

Question No. : 18

What does '*sui generis*' mean?

- A) distinctive and inherent
- B) reliant and objective
- C) exclusive and personal
- D) immanent and cooperative

Question No. : 19

Which of the following identifies best with the central idea of the passage?

- A) Are human beings really Just?
- B) What is the true nature of Justice?
- C) Can Justice be delivered efficiently?
- D) Is Justice for real?

Question No. : 20

The author of the passage will agree with which of the following statements?

- I. Man is likely to believe subjective feelings.
- II. It is not necessary that feelings that seemingly originate from Nature are always valid in all their forms.
- III. Animal instincts and intellectual instincts can be treated at par.

- A) I & II
- B) II & III
- C) I & III
- D) All of the above

Question No. : 21

According to the author of the passage:

- A) it is not important to establish whether justice or injustice have some individual character
- B) it is important to establish whether justice or injustice have some distinctive character
- C) it is not important to establish whether justice or injustice have some personal character
- D) it is important to establish whether justice or injustice have some personal character

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

Question No. : 22

The growing science of reading has no ready-made formulas, but it does offer a few suggestions. The punch line is quite simple: we know that conversion of letters into sounds is the key stage in reading acquisition. All teaching efforts should be initially focused on a single goal, the grasp of the alphabetic principle whereby each letter or grapheme represents a phoneme.

In kindergarten, very simple games can prepare children for reading acquisition. At the phonological level, preschoolers benefit from playing with words and their component sounds (syllables, rhymes, and finally phonemes). At the visual level, they can learn to recognize and identify letter shapes.

After this preparatory stage, children must be taught, without fear of repetition, how each letter or group of letters corresponds to a phoneme. It must be explicitly told that each speech sound can be represented in different "clothes" (letters or groups of letters) and that each letter can be pronounced in one of several ways. Their presentation must start with the simplest and most frequent ones that are almost always pronounced in the same way, such as "t," "k," and "a." Less frequent graphemes ("b," "m," "T"), irregular ones ("i," "o"), or complex ones ("un," "ch," "ough") can be introduced gradually. Children's attention must be drawn to the presence of these individual elements within familiar words.

Children must know that reading is not simply mumbling a few syllables—it requires understanding what is written. Each reading period should end with reading words or sentences that can be easily understood and that the child can repeat, summarize, or paraphrase.

I once tried out reading software that was supposedly "award-winning" where the very first word introduced to the beginning reader was the French word oignon, pronounced *onion* almost as in English—probably the most irregular spelling in the French language! Stressing what parents and teachers should *not* do is equally important. To trace the global contours of words is useless.

Because of the essential need to avoid distracting the child's attention from the letter level, I am wary of the many richly decorated reading manuals that contain more illustrations than text. Word posters displayed in classrooms all through the school year, with the same words appearing at the same place, can also create problems. Some children, often the most gifted, merely memorize the fixed position of each word and the general layout of the page and no longer attend to the actual letters in the individual words. A return to sober texts, written on a blackboard during class (so that gesture is also memorized) might be beneficial. It might also be worthwhile to remind the child that although reading is hard work, it has its own inherent reward in the decoding and understanding of text.

Going too fast can also be a handicap. At each step, the words and sentences introduced in class must only include graphemes and phonemes that have already been explicitly taught

As expert reading adults, we systematically underestimate how difficult it is to read. The words given to beginning readers must be analyzed letter by letter in order to ensure that they do not contain spelling problems that are beyond the child's current knowledge for instance, unusual pronunciations, silent letters, double consonants, or peculiar endings such as the suffix "-tion." Finally, guardians of children with reading problems should not give in to despondency. Reading difficulty varies across countries and cultures, and English has probably the most difficult of all alphabetic writing systems. Its spelling system is by far the most opaque each individual letter can be pronounced in umpteen different ways, and exceptions abound.

Excerpted from 'Reading in the Brain' by Stanislas Dehaene Page 228-233

The author of the passage would agree with the statement:

- A) it is easier for adults to learn how to read
- B) to learn how to read does not pose a single challenge
- C) reading can be made fun and entertaining
- D) reading should always be a classroom activity

Question No. : 23

What is the point that author wants to convey through the usage of the phrase “award winning reading software”?

- A) To illustrate the fact that the supposedly best might actually not be so
- B) To highlight the fact that nothing is perfect in this world
- C) To help us understand some facts that how reading operates in a child’s brain
- D) To highlight that learning mechanics of reading is not an end itself

Question No. : 24

Which of the following can be inferred regarding word posters’ containing decorated reading manual being displayed in classrooms all through the year?

- A) It will restrict the learning of students to a few words only
- B) The students will learn very important aspects of the learning and that are repetition of words and their visual images
- C) This strategy can give illusion to teachers, parents and worst of all, the child himself that he knows how to read and lives in a world of overestimation and distraction
- D) By using these aids, children will not be able to understand the overall meaning of the words and hence the text

DIRECTIONS for question: Four sentences related to a topic are given below. Three 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. : 25

1. Each of these fragile specimens is a package of innovation waiting to be understood and adapted.
2. This is the idea behind the increasingly influential discipline of biomimicry: that we human beings, who have been trying to make things for only the blink of an evolutionary eye, have a lot to learn from the long processes of natural selection, whether it’s how to make a wing more aerodynamic or a city more resilient or an electronic display more vibrant.
3. Over some 150 million years, “products”, each essentially a specimen in itself, have been ruthlessly prototyped, market-tested, upgraded, refined and otherwise made new and improved as the world around them changed.
4. Though biomimicry has inspired human innovations for decades—one of the most often-cited examples is Velcro, which the Swiss engineer Georges de Mestral patented in 1955 after studying how burs stuck to his clothes—better technology and more nuanced research have enabled increasingly complex adaptations.

- A) 4 B) C) D)

Question No. : 26

1. “Don’t worry,” it read on the two weeks to be spent with a notoriously long allegorical poem; it’s “only drudgery if you’re reading it for school.”
2. The goal of the class was that students engage meaningfully with the readings rather than “going thoughtlessly, dutifully through institutionally approved motions” in search of a good grade.
3. You’d be forgiven if, settling into the fall 2003 “Literature of the 16th Century” course at University of California, Berkeley, you found the unassuming 70-year-old man standing at the front of the lecture hall a bit eccentric.
4. For one thing, the class syllabus, which was printed on the back of a rumpled flyer promoting bicycle safety, seemed to be preparing you for the fact that some readings may feel toilsome.

- A) 2 B) C) D)

Question No. : 27

1. Discussing the paintings of Jéan-Léon Gerôme, Nochlin claims that the absence of a Western colonial presence in the scenes comprises an attempt to hide the historical reality of that presence, presumably in the furtherance of some vaguely imperialist agenda
2. Another gem comes in an attack on the cultural relativism that has become academic orthodoxy: “relativism, like cholesterol, comes in two forms: good and bad ... the good type of relativism was originally only a way of preaching tolerance to others.”
3. Ibn Warraq’s defense of the West centers around what he calls the “Three Tutelary Guiding Lights” (rationalism, universalism, and self-criticism), which he portrays as the cement of Western civilization
4. Ibn Warraq responds with a bit of disarming logic: This is brilliant in its clarity and simplicity — Occam’s razor meets art history

A) 3 B) C) D)

DIRECTION for the question: The six sentences (labelled 1,2,3,4,5 and 6) given in this question, when properly sequenced, form a coherent paragraph. Decide on the proper order for the sentence and key in this sequence of six numbers as your answer.

Question No. : 28

1. Although genetic testing is protected, like medical data, by privacy laws, many states have passed laws that treat genetic test results as super-double-special secret.
2. As two Georgetown law professors wrote in 1999 about state laws: “Why, for example, should medical information about a woman who has developed breast cancer of genetic origin ... be given greater protection than a woman who has developed breast cancer because of environmental or behavioral factors (e.g., smoking)?”
3. Congress brought all of the related concerns together in the Genetic Information Nondiscrimination Act of 2008, which is aimed specifically at employers and insurers.
4. The idea that genetic testing somehow reveals dark, infallible secrets about the future puts pressure on politicians to do something about it.
5. Ironically, genetic privacy laws discriminate in their own way by singling out people whose diseases can be tied to genetic risks.
6. Besides, the professors added, genetic test results usually tell a doctor far less about future risk than a patient’s sex, age, race, occupation, financial status, employment status, and family history—all of which receive only “ordinary” protection from prying eyes.

A) 314526 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

If you still think 2008 and the financial crisis changed everything, still think of it as a progressive triumph, think again. Instead of the brave new world of reformed finance, what’s been created in the US is something close to a perfect world, policy-wise, for the plutocrats. The biggest rewards have come from an economic policy, backed by the Federal Reserve and the administration, that has maintained ultra-low interest rates. This has forced investors into the market, at the expense of middle-class savers, particularly the elderly. The steady supply of bond purchases has essentially given free money to those least in need and most likely to do damage to everyone else. The results make a mockery of the Democrats’ attempts to stoke populist sentiments. In this recovery, the top 1% gained 11% in their incomes while the other 99% experienced, at best, stagnant incomes. As one writer at the Huffington Post put it: “The rising tide has lifted fewer boats during the Obama years – and the ones it’s lifted have been mostly yachts.”

1. Post the financial crises of 2008, plutocrats have found renewed strength with the help of the government and have managed to offset the heavy losses they suffered
2. Post the significant financial crises of 2008, the US financial world and administration has cleverly manipulated the context and ensured that those who not deserve any help get the maximum possible aid
3. In a post-crises scenario, the US financial world and administration has belied expectations by continuing profligate measures of the past
4. In a post 2008 financial crises scenario, the US financial world and administration has cleverly managed to run an agenda that actually helps those who do not need help, and does not get rid of malice of the financial world it was supposed to

A) 4 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. : 30

Humans are easily bored creatures, which is why the most dangerous thing about any car is the muppet driving it – or more accurately half driving it and half shouting at squabbling children, or changing radio stations, or worrying about work, or applying mascara, or shaving at the wheel (and yes, one intrepid driver was caught by police doing just that last year). But none of these distractions compare, in intensity and addictiveness, to the one increasingly sapping our attention at the wheel: smartphones. Texting while driving kills more American teenagers than drink-driving does. That’s not to downplay the sheer selfish idiocy of drunk drivers but merely to clarify the risk from phones: the average texter takes their eye off the road for less than five seconds but at 55mph, that’s like driving the length of a football field blindfold.

1. Human beings constant attraction to smartphones is riskier than drunk driving
2. Boredom of humans, coupled with drunk-driving, leads to accidents on the road
3. Boredom of humans is more deadly than drinking when it comes to driving
4. Human ability to be easily distracted and bored leads to fatal accidents on the road

A) 4 B) C) D)

DIRECTIONS for question: Four sentences related to a topic are given below. Three 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. On the surface, we are working harder, performing better and are more productive, but this makes us vulnerable to the belief that we just need more "energy" to be able to keep up.
2. We have become obsessed with the concept of "energy" and yet display a profound misunderstanding of what energy is.
3. On a purely biological level, it's molecules that help cells do the work they need to do—the carbohydrate, protein and fat we get from food that feeds our muscles and brain.
4. By contrast, the active ingredient in "energy" drinks is not energy but a chemical stimulant: caffeine.

A) 1 B) C) D)

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

Question No. : 32

1. By admitting Zagreb, the EU will send out a signal to the other Balkan states that it attaches a high premium on cooperation with the Hague tribunal which is adjudicating the war crimes of the 1990s
2. Democracy, market economy, and rule of law are among the eligibility criteria for EU membership.
3. The potential of such a step to bring closure to historic wrongs and build reconciliation among Balkan countries that are torn by bloody ethnic strife cannot be exaggerated.
4. This is of particular relevance to Serbia, whose position on Kosovo's 'independence' has pushed back its ambitions for EU membership.
5. Abolition of the death penalty is also a precondition for admission, and this reform perforce imparts a rational and humane aspect to the administration of criminal justice.

A) 25314 B) C) D)

Question No. : 33

1. In a sense, our people are the seeds of our growth and shareholder value.
2. Parts of the organization will perform to world-class standards, and parts will look like the puny rows of corn in Timisoara.
3. In farming and in business, there are so many factors you can't control — from drought to floods to the Greek bailout — the key is to focus on those areas that you can control.
4. We can surround them with resources and nurture them with benefits, but if we don't communicate explicitly with them and decide to align our resources in similar ways, they will make decisions that yield uneven results.
5. Your ability to execute is definitely one of those.

A) 35142 B) C) D)

Question No. : 34

1. Prising the lid off human assumptions and hidden biases thus requires clever tools.
2. One of the most widely deployed, known as the implicit-association test, measures how quickly people associate words describing facial characteristics with different types of faces that display those characteristics.
3. Not only may participants in a study be lying to those running a test, but they may also, fundamentally, be lying to themselves.
4. Nobody likes to admit an uncomfortable truth about himself, especially when charged issues such as race, sex, age and even supersized waistlines come into play.
5. That makes the task of the behavioural scientist a difficult one.

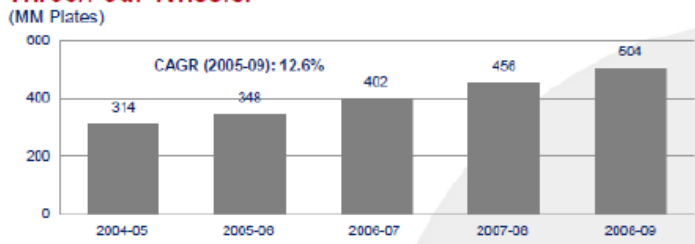
Section : DI & Reasoning

DIRECTIONS for the question: Analyse the graph/s given below and answer the question that follows.

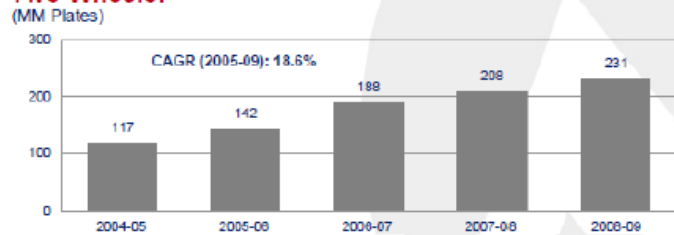
Question No. : 35

The bar graphs below show the sales of Exide batteries in the three/four wheeler, two wheeler (million plates) and industrial segments (million amp- hour) from 2004 - 05 to 2008 - 09, the total sales of two wheelers, passenger vehicles and commercial vehicles from 2004 - 05 to 2008 - 09 and the pie charts show the break-up of sales of Exide batteries in different segments.

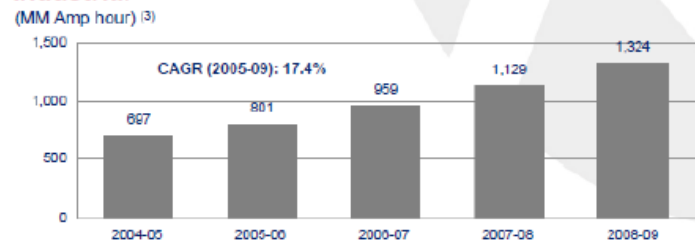
Three/Four Wheeler



Two Wheeler

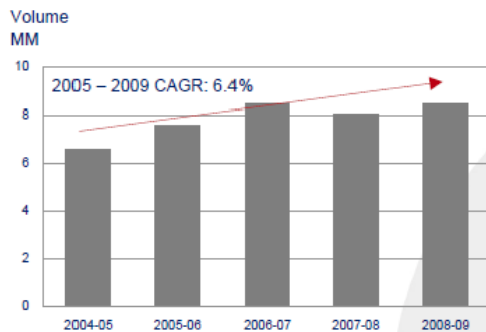


Industrial

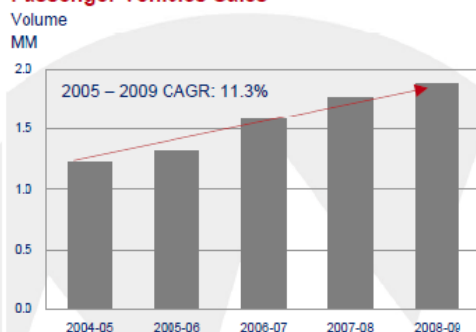


Industry Data

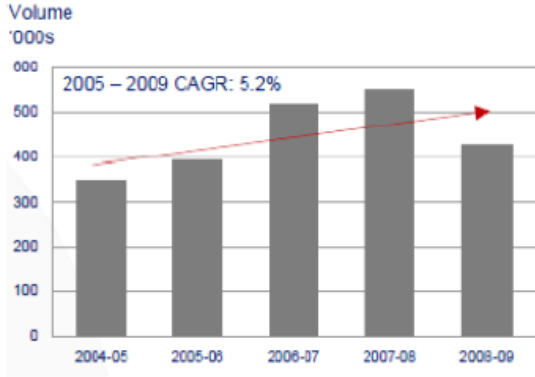
Two-Wheeler Sales



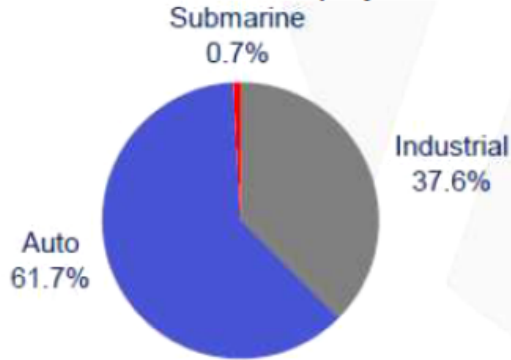
Passenger Vehicles Sales



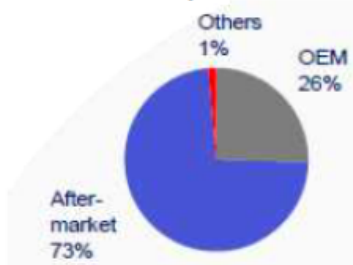
Commercial Vehicles Sales



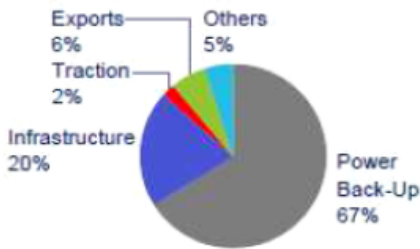
Segment wise distribution of company Sales in 2008-09



2008-09 Break-up of Auto Sales



2008-09 Break-up of Industrial Sales



What is the size of the auto after-market sales of Exide batteries in 2008 - 09?

- A) 1503 million plates
- B) 782 million plates
- C) 536 million plates
- D) 751 million plates

Question No. : 36

Which of the following statements can be inferred about the market share of Exide batteries in the two wheeler segment from 2004 - 05 to 2008 - 09?

- I. The market share has increased by approximately 97%.
- II. The highest increase in the market share was from 2005 - 06 to 2006 - 07.
- III. The average annual growth rate in the market share was approximately 24%.

A) I and II only B) II and III only C) I, II and III only D) None of these

Question No. : 37

If total revenue for Exide in 2008-09 was ₹43,440 million, then what was the approximate average cost of the average auto battery plate sold by them in that year?

A) ₹ 21 B) ₹ 58 C) ₹ 37 D) Cannot be determined

Question No. : 38

There are 11,100 distributors for the automotive segment and 1,000 dealers for the industrial segment, supplying primarily to the power backup segment. What is the difference in the average revenue of an automotive dealer and an industrial dealer?

A) ₹64,800 B) ₹1,257,000 C) ₹185,600 D) Cannot be determined

DIRECTIONS for the question: Go through the graph and the information given below and answer the question that follows.

Question No. : 39

The graphic below shows the 20 people who work in your office. A connecting line between people means that these people are friends.



What is the average number of friends the average person has?

A) 2 B) 2.75 C) 2.9 D) 1.9

Question No. : 40

What is the average number of friends a person's friend has?

- A) 2.8 B) 3.45 C) 3.25 D) Cannot be determined

Question No. : 41

18 out of 20 people in your office are friends with at least one of the 'popular' people (those who have many friends). How many popular people are there?

- A) 6 B) 3 C) 11 D) 8

DIRECTIONS for the question: The question below is followed by two statements marked I and II. Mark as your answer.

Question No. : 42

The average weight of a class of 100 students is 45 kg. The class consists of two sections, A and B, each with 50 students. The average weight A_1 , of section A is less than the average weight A_2 , of section B. If the heaviest student, Shantanu, of Section B is moved to section A and the lightest student Sunder of section A is moved to section B, then the average weights of the two sections are interchanged. What is weight of Sunder?

I. $A_2 - A_1 = 1$.

II. If Shantanu is moved from section B to section A and Sunder is not moved, then the average weights of the two sections will be equal.

- A) if the question can be answered by using statement I alone but not by using statement II alone
B) if the question can be answered by using statement II alone but not by using statement I alone
C) if the question can be answered by using either statement I alone or statement II alone, and
D) if the question can be answered by using both statements I and II together

DIRECTIONS for the question: Go through the graph and the information given below and answer the question that follows.

Question No. : 43

The change in the patterns and the timings of a premier Business School Entrance Test has made Atul worried. As part of the test series at Bulls Eye, Atul has designed 15 new papers.

Business School Entrance Test has made Atul worried. As part of the test series at Bulls Eye, Atul has designed 15 new papers.

Of the attempted questions, 1 mark will be awarded for every correct answer and $1/3$ mark will be deducted for every wrong answer. There will be no marks awarded or deducted for the un-attempted questions. The net score for each test will be calculated as (number of correct answers – $1/3 \times$ number of incorrect answers).

Atul wants to classify the tests into 3 difficulty levels – *Easy*, *Moderate* and *Difficult*. The measure of difficulty is calculated as the ratio of the net score on a test to the time taken (in minutes) in answering the test. A test will be classified as,
Easy – if the measure of difficulty is at least $2/3$;
Moderate – if the measure of difficulty is at least $1/2$, but less than $2/3$; and,
Difficult – if the measure of difficulty is less than $1/2$.

The 15 tests were solved by the best trainers at Bulls Eye and Atul has compiled the following results.

Test	No. of questions attempted	Percentage of questions attempted	No. of correct answers	Time taken (in minutes)
Test 01	80	53.33%	53	108
Test 02	110	66.66%	65	91
Test 03	60	80%	45	73
Test 04	119	77.77%	80	87
Test 05	84	80%	57	104

Test 06	108	60%	72	112
Test 07	82	66.66%	67	88
Test 08	111	60%	72	71
Test 09	78	65%	66	77
Test 10	50	55.55%	47	83
Test 11	78	78%	69	75
Test 12	60	75%	54	68
Test 13	84	75%	69	99
Test 14	143	71.5%	101	141
Test 15	90	72%	72	121

How many of the 15 tests will be classified as *Easy*? (in numerical value)

- A) 6 B) C) D)

Question No. : 44

Referring to the measure of difficulty, if each test is given a separate rank from 1 to 15, with 1 being the easiest test and 15 being the toughest test, how many tests will be ranked as tougher than test 15? (in numerical value)

- A) 3 B) C) D)

Question No. : 45

What is the ratio of the number of tests classified as *Easy*, *Moderate* and *Difficult* respectively?

- A) 7 : 4 : 4 B) 6 : 7 : 2 C) 5 : 6 : 4 D) 5 : 8 : 2

Question No. : 46

What is the total number of questions in the 15 tests? (in numerical value)

- A) 1963 B) C) D)

DIRECTIONS for the question: Answer the following question as per the best of your ability.

Question No. : 47

The question below is made up of two statements, which are true. As your answer, choose the option which is the logical conclusion drawn on the basis of both the given statements.

All wires are strings.
Some tubes are wires.

- A) All strings are tubes B) All tubes are strings C) No strings are tubes D) None of these

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

Question No. : 48

All Iconia computers are available with at least one pre-loaded program from each of three categories: Word Processor – F, G, H; Databases – O, P, R; Browsers – T, U, W. When installing these programs, the company ensures that:

- An equal number of programs from each category is loaded on a computer.

- T and P cannot both be loaded on the same computer.
- If R is loaded on a computer, then U must also be loaded on the computer.
- O must be loaded on a computer if F is loaded on the computer.
- If P is loaded on a computer, then R is not loaded on the computer.

If R and W are loaded on a computer, which of the following must also be loaded on the computer?

- A) F and G B) G and H C) O and U D) O and T

Question No. : 49

How many possible combinations of programs can be loaded on to the computer if P is the only database loaded on the computer? (write the ans key)

1. two 2. three
3. four 4. five

- A) 3 B) C) D)

Question No. : 50

If F and T are loaded on a computer, which of the following cannot be true?

- A) O is the only database loaded on the computer B) G or H is loaded on the computer C) P is loaded on the computer
D) U is loaded on the computer

Question No. : 51

If two browsers are loaded on the computer, which of the following cannot be true? (write the ans key)

1. R and O are loaded 2. F and G are loaded
3. P and O are loaded 4. T and W are loaded

- A) 4 B) C) D)

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

Question No. : 52

Rahul is the DJ for his school's farewell party. He has to play 6 songs from amongst three dance songs – F, G and H – three item songs – M, N and O – and three pop songs – W, X and Y. While selecting two songs of each type, he must ensure that:

- G and H cannot both be played at the party.
- M and G cannot both be played at the party.
- If N is played at the party, then O must be played at the party.
- If M and X are both played at the party, then X must be played earlier in the party than M.
- If H and W are both played at the party, then W must be played immediately before H is played.
- Either M or O must be played first and either X or Y must be played fifth.

If M is played first, which of the following could be true?

- A) H is played second B) W is played third C) G is played sixth D) N is played fourth

Question No. : 53

Which one of the following songs must be played at the party?

- A) H B) G C) O D) W

Question No. : 54

If M is played second, which of the following songs cannot be played at the party?

- A) F B) H C) Y D) N
-

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

Question No. : 55

Six persons – A, B, C, D, E and F – are Monika’s daughter, son, husband, sister, mother and aunt, though not necessarily in the same order. They also satisfy the conditions as follows:

- (i) Either A or B, or both are male.
- (ii) C and D are either both males and both females.
- (iii) Either E or F, or both are female.

Any of the following could be Monika’s son except

- A) A B) B C) D D) E

Question No. : 56

Six persons – A, B, C, D, E and F – are Monika’s daughter, son, husband, sister, mother and aunt, though not necessarily in the same order. They also satisfy the conditions as follows:

- (i) Either A or B, or both are male.
- (ii) C and D are either both males and both females.
- (iii) Either E or F, or both are female.

Which of the following statements must be false? (write the ans key)

1. A is D’s grandson 2. D is A’s niece 3. A is B’s nephew 4. F is E’s son

- A) 4 B) C) D)
-

Question No. : 57

Six persons – A, B, C, D, E and F – are Monika’s daughter, son, husband, sister, mother and aunt, though not necessarily in the same order. They also satisfy the conditions as follows:

- (i) Either A or B, or both are male.
- (ii) C and D are either both males and both females.
- (iii) Either E or F, or both are female.

If A is E’s sister, then F could be any of the following except

- A) Monika’s sister B) Monika’s daughter C) Monika’s aunt D) Monika’s husband

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

Question No. : 58

Five MBA aspirants, Akash, Shreya, Subahu, Apoorva and Minoti have enrolled at Bulls Eye for the Math Refresher course. The Math Refresher course is conducted five days a week and the students have a choice of joining any one of five available batches – C251210, C251211, C251212, C251213 and C251214. Each of these batches has only one seat available and Neelima, the counsellor, has asked these students to submit two preferences for the batch they would like to join. Shreya would prefer either C251210 or C251212, Akash would prefer either C251210 or C251211, Apoorva would prefer either C251211 or C251213, Minoti would prefer either C251212 or C251214 and Subahu would prefer either C251213 or C251214. If any of these students

cannot be accommodated in a batch of his or her choice, the student is enrolled in the Week-end batch.

Which of the five MBA aspirants will definitely be enrolled in the Week-end batch?

- A) Akash or Shreya B) Shreya or Minoti C) Subahu or Apoorva D) Each one gets a batch of his or her choice
-

Question No. : 59

Five MBA aspirants, Akash, Shreya, Subahu, Apoorva and Minoti have enrolled at Bulls Eye for the Math Refresher course. The Math Refresher course is conducted five days a week and the students have a choice of joining any one of five available batches – C251210, C251211, C251212, C251213 and C251214. Each of these batches has only one seat available and Neelima, the counsellor, has asked these students to submit two preferences for the batch they would like to join. Shreya would prefer either C251210 or C251212, Akash would prefer either C251210 or C251211, Apoorva would prefer either C251211 or C251213, Minoti would prefer either C251212 or C251214 and Subahu would prefer either C251213 or C251214. If any of these students cannot be accommodated in a batch of his or her choice, the student is enrolled in the Week-end batch.

If Neelima allocates Akash and Minoti to batches C251210 and C251212 respectively, who of the remaining students will be allocated to the Week-end batch? (write the ans key)

1. Apoorva 2. Subahu 3. Shreya 4. Each of them gets a batch of his or her choice

- A) 3 B) C) D)

Question No. : 60

Five MBA aspirants, Akash, Shreya, Subahu, Apoorva and Minoti have enrolled at Bulls Eye for the Math Refresher course. The Math Refresher course is conducted five days a week and the students have a choice of joining any one of five available batches – C251210, C251211, C251212, C251213 and C251214. Each of these batches has only one seat available and Neelima, the counsellor, has asked these students to submit two preferences for the batch they would like to join. Shreya would prefer either C251210 or C251212, Akash would prefer either C251210 or C251211, Apoorva would prefer either C251211 or C251213, Minoti would prefer either C251212 or C251214 and Subahu would prefer either C251213 or C251214. If any of these students cannot be accommodated in a batch of his or her choice, the student is enrolled in the Week-end batch.

If Akash decides to move to the Week-end batch and each of the remaining students is allocated to a batch of his or her choice. Now Neelima has to allocate the remaining 4 students in the week-day batches. Students approach her with a request that they be allowed to take a decision on their own batch themselves. What is the maximum number of students whose request she can now honor, ensuring that all the remaining students get into batches which they had originally specified? (in numerical value)

- A) 1 B) C) D)
-

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

Question No. : 61

Five persons, Amrinder, Bishamber, Chidambaram, Digamber and Inder of a family eat grapes, apples, cherries, mangoes and pineapples not in the order as mentioned, after lunch, from Tuesday to Saturday. No member eats any fruit on Sundays and Mondays. Each member eats only one fruit on every day and does not repeat it during the same week. No two members can eat the same fruit on the same day. Inder does not eat cherries or grapes on Wednesday. Amrinder eats cherries on Tuesday. Digamber eats apples on Tuesday. Inder does not take pineapples on Tuesday but takes apples on Thursday. Bishamber eats pineapples on Friday. Chidambaram eats grapes on Saturday, cherries on Wednesday and mangoes on Thursday. Digamber eats pineapples on Wednesday.

Which combination is correct ?

- A) B-Tu-Pineapple B) D-Wed-Mangoes C) C-Sat-Grapes D) I-Tue-Apples

Question No. : 62

Five persons, Amrinder, Bishamber, Chidambaram, Digamber and Inder of a family eat grapes, apples, cherries, mangoes and pineapples not in the order as mentioned, after lunch, from Tuesday to Saturday. No member eats any fruit on Sundays and

Mondays. Each member eats only one fruit on every day and does not repeat it during the same week. No two members can eat the same fruit on the same day. Inder does not eat cherries or grapes on Wednesday. Amrinder eats cherries on Tuesday. Digamber eats apples on Tuesday. Inder does not take pineapples on Tuesday but takes apples on Thursday. Bishamber eats pineapples on Friday. Chidambaram eats grapes on Saturday, cherries on Wednesday and mangoes on Thursday. Digamber eats pineapples on Wednesday.

On which day Bishambar eats Mango?

- A) Fri B) Wed C) Thu D) Tue

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

Question No. : 63

The Uttam Group of Industries owns four companies – ABC Ltd., JV Ltd., PQR Ltd. and XYZ Ltd. The Chartered Accountant of the group has reported Sales and Expenses figures to the Income Tax Department and submitted challans for the tax paid according to these figures. All the companies pay a 40% tax on profits, which are calculated as the difference between the Sales and Expenses. An Accountant with the Income Tax Department found the reported figures to be a bit odd and warded the following observations to an Auditor with the Department.

- The Profits of PQR Ltd. and XYZ Ltd. were each equal to a fifth of the Sales of XYZ Ltd..
- The Sales of JV Ltd. and PQR Ltd. were each equal to four times the Profits of JV Ltd..
- ABC Ltd. reported Profits as 15% of Sales, while PQR Ltd. reported Profits as a sixth of its Expenses.
- ABC Ltd. reported Expenses as 15% less than the Expenses of PQR Ltd. reported as Rs. 432 crores.

The Auditor scrutinized the books of all four companies and determined the following.

- The Sales of ABC Ltd. and JV Ltd. were reported 10% less than actual while those of XYZ Ltd. were reported 20% less than actual.
- The Expenses of ABC Ltd., JV Ltd. and PQR Ltd. were reported 20% more than actual while those of XYZ Ltd. were reported 25% more than actual.
- The Profits of PQR Ltd. were reported 20% less than actual.

Based on this information, the Income Tax Department issued notices to all the companies stating that they would have to make good the difference in the actual tax and the amount of tax paid as well as pay a penalty amounting to ten times this difference.

How much less Profits were reported by ABC Ltd. and JV Ltd. together?

- A) Rs. 245 crore B) Rs. 55 crore C) Rs. 228 crore D) Rs. 98 crore

Question No. : 64

What is the total penalty paid by JV Ltd. and XYZ Ltd. together?

- A) Rs. 1100 crore B) Rs. 1066 crore C) Rs. 100 crore D) Rs. 1190 crore

Question No. : 65

Which of the following represents the actual total Profits of the four companies as a percentage of their actual Sales?

- A) 37.55% B) 42.3% C) 35.4% D) 32.7%

Question No. : 66

If Profitability is calculated as Profits as a percentage of Expenses, what is the difference between the actual Profitability of ABC Ltd. and XYZ Ltd?

- A) 31.8 B) 38.45 C) 9.8 D) 46

Section : Quantitative Ability

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

Question No. : 67

Two pipes of different metals have equal weights and mean diameters in the ratio 3 : 4. If their thicknesses are in the ratio 2 : 3 respectively and densities are in the ratio 8 : 5 respectively, what is the ratio of their lengths?

- A) 0.6 B) 0.33 C) 1.33 D) None of these

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

Question No. : 68

x, y and z are positive integers. Let $A = \frac{xyz}{(x+y+z)(xy+yz+zx)}$. Then,

- A) $0 \leq A \leq 1/9$ B) $0 < A \leq 1/9$ C) $0 < A < 1/9$ D) $1/9 \leq A < 1$

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

Question No. : 69

If a, b, c and d are positive integers such that $\frac{1}{a}, \frac{1}{b}, \frac{1}{c}$ and $\frac{1}{d}$ form an arithmetic progression, which of the following is true?

- A) $ab > cd$ B) $ab < cd$ C) $ab = cd$ D) Cannot be determined

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

Question No. : 70

Two circles of maximum possible equal radii are drawn inside a square of side 1. What is the radius of each of the circles?

- A) $1/4$ B) $1/\sqrt{2}$ C) $1/(2+\sqrt{2})$ D) $1/2\sqrt{2}$

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

Question No. : 71

At 9:00 a.m., A_0 people enter room A. After 5 minutes, half of these people move to room B. After 5 minutes, half of these move to room C, while another A_0 people enter room B. If the number of people entering the rooms are integers, what is the minimum number of people A_0 ? (in numerical value)

- A) 4 B) C) D)

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

Question No. : 72

Three articles are purchased for Rs. 1017, each with a different cost. The first article was sold at a profit of 8%, second at a loss of 10% and the third at a profit of 5%. Later it was found that their SPs were same. What was the CP of the article sold at 5% gain? (in Rs.)

- A) 324 B) C) D)

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

Question No. : 73

The equations $x^2 + cx + b = 0$ and $x^2 + 3x - 4 = 0$ have a common real and positive root. Then,

- A) $c < -2\sqrt{b}$ B) $c > 2\sqrt{b}$ C) $b < 0$ D) No inference can be made

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

Question No. : 74

What is the value of $\log_3 27\sqrt{3} + \log_5 125 + \log_9 81$

- A) 6.5 B) 7.5 C) 3.5 D) 8.5

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

Question No. : 75

If $\log(x + y) = \frac{1}{2} \{ \log(k - 14) + \log xy \}$, what is the minimum value that integer k can take? (in numerical value)

- A) 18 B) C) D)

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

Question No. : 76

The registrar of an engineering college was asked by its Computer Science Department about the statistics of students opting for various courses in the department this year. He supplied the following data:

In the first semester 119 students enrolled in Introductory Computer Science.

In the second semester, of these 119 students, 96 took Data Structures, 53 took Foundations, and 39 took Assembly Language.

Also 38 took both Data Structures and Foundations, 31 took both Foundations and Assembly Language, 32 took both Data Structures and Assembly Language and 22 brave souls took all three courses.

Which of the following can be a definite conclusion based on the above?

- A) 35 students took exactly two courses. B) 52 students took exactly 1 course. C) 48 people took only Data Structures.
D) The registrar made an error in tabulating the data.

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

Question No. : 77

What is the highest power of 2 that divides $10^{15} \times (10^{23} + 2048^2)$ completely? (in numerical value)

- A) 37 B) C) D)

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

Question No. : 78

A primitive computer has been installed to light the staircase of the Bulls Eye center in Chandigarh. In order to save electricity students are expected to switch on the staircase light only when they are using the staircase and switch the light off when they go off the staircase. There are two switches – one at the bottom and one at the top. Both have two positions – let us say that these correspond to 0 and 1. We also know that if both switches are in the same position then the light is switched off. The primitive computer accepts inputs from these switches and gives an output of 0 or 1; 1 lights the bulb, 0 switches it off. Which of the

functions inside the CPU of the primitive computer are used for this decision making?

Note:

OR function is like addition. It gives 1 as an output if either of the two inputs are 1 or both are 1.

AND function is like multiplication. It gives 1 as an output only if both the inputs are 1.

NOT function just reverses the input.

XOR function is the one, where you can plan and customise the output ; but it has to be defined.

- A) $OR(x,y) = 0$, if $x = y = 0$ = 1, otherwise B) $AND(x,y) = 0$, if $x = y = 1$ = 1, otherwise
C) $XOR(x,y) = 0$, if $x = y$ = 1, otherwise D) $NOT(x) = 0$, if $x = 1$ = 1, if $x = 0$

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

Question No. : 79

Consider $x^2 - (k - 1)bx + c = 0$. If the roots of the equation are real and positive then,

- A) $0 < b < c < k$ B) $0 < b \leq c < k$ C) $0 < b \leq c \leq k$ D) None of these

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

Question No. : 80

x is the largest number possible such that it is divisible by all positive integers smaller than its square root. Which of the following represents a range that x is present in?

- A) $1 \leq x \leq 10$ B) $11 \leq x \leq 20$ C) $21 \leq x \leq 30$ D) $31 \leq x \leq 40$

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

Question No. : 81

The screen size of a monitor is the length of the diagonal. Aspect ratio is the ratio of the sides. For a monitor of 20" size, which of the following aspect ratios will have the biggest screen? (write the ans key)

1. 1 : 1 2. 16 : 9 3. 4 : 3 4. 3 : 2

- A) 1 B) C) D)

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

Question No. : 82

Given that a, b, c are in AP and b, a, c are in GP. If $|abc| = 216$ and $a \neq b \neq c$, find the common difference in the numbers. (in numerical value)

- A) 9 B) C) D)

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

Question No. : 83

In 2008, of the total sales volume of a company, 40 % was comprised of product A and 60 % was comprised of product B. In 2009, product C was added and the total sales volume increased by 25 %, but product A lost 20 % of its initial volume to product B while

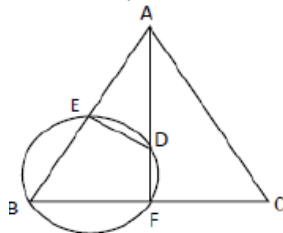
product B lost 30 % of its initial volume to product A. What percent of the total sales volume in 2009 is comprised of product A?

- A) 32 B) 40 C) 50 D) Cannot be determined

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

Question No. : 84

D is the in-centre of equilateral $\triangle ABC$ of side 24 shown below. The in-radii DE and DF are drawn so that $\square BEDF$ is a cyclic quadrilateral. What fraction of the circle shown is not covered by $\square BEDF$? (write the ans key)



1. $\frac{2\sqrt{3}-\pi}{\pi}$ 2. $\frac{\pi-\sqrt{3}}{\pi}$ 3. $\frac{6}{\pi}\left(\frac{\pi}{3}-\frac{\sqrt{3}}{2}\right)$ 4. $48(\pi-\sqrt{3})$

- A) 2 B) C) D)

DIRECTIONS for the question: Mark the best option.

Question No. : 85

2 trains each of length 120 metres move in the same direction. The faster train completely overtakes the slower one in 15 seconds. If the slower train were to move at half its speed, faster train would overtake it in 10 seconds. Find the speeds of the two trains (faster and slower respectively in m/s)

- A) 48 and 16 B) 32 and 16 C) 48 and 32 D) 64 and 48

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

Question No. : 86

If $A = 101^6 - 100^6 - \frac{101^8 - 100^8}{101^2 + 100^2}$, what is the number of digits in A? (in numerical value)

- A) 11 B) C) D)

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

Question No. : 87

P is a natural number such that $(P^2 + 96)$ is a perfect square. How many distinct values can P take? (in numerical value)

- A) 4 B) C) D)

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

Question No. : 88

In $\triangle PQR$, $PQ = 60$ cm, $QR = 80$ cm and $PR = 100$ cm. S is a point on PR such that QS divides $\triangle PQR$ into two triangles of equal perimeters. What is the approximate length of QS?

- A) 47cm B) 54cm C) 57cm D) Cannot be determined

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

Question No. : 89

For how many two digit positive numbers is the difference between the number itself and the number formed on reversing its digits is the perfect square of an integer? Given that both the digits are distinct.

- A) 26 B) 31 C) 38 D) None of these

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

Question No. : 90

If x is a positive integer and $f(1) = 13$ and $f(x + 1) - 4f(x) + 15 = -9x$, then what is the value of $f(101)$? (write the ans key)

1. $4^{101} + 309$ 2. $4^{100} - 308$ 3. $4^{101} + 303$ 4. $4^{101} - 309$

- A) 1 B) C) D)

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

Question No. : 91

The 1st term of a series is 1 and from second term onwards the each term is eight more than four times the previous term. What is the 99th term? (write the ans key)

1. $2^{198} + 2^3 \left[\frac{(4^{99} - 1)}{3} \right]$ 2. $2^{198} + 2^3 \left[\frac{(4^{98} - 1)}{3} \right]$ 3. $2^{196} + 2^3 \left[\frac{(4^{98} - 1)}{3} \right]$ 4. None of these

- A) 3 B) C) D)

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

Question No. : 92

The Data section of the JMAT exam has 4 caselets of equal length (in words), with 5, 8, 8 and 6 questions respectively. While writing this test, Bilu can answer exactly 12 questions in the time that he takes to read any one of the four caselets. If his rate of answering questions remains the same, by what percent should Bilu increase his speed of reading the caselets so that he can reduce his total time by 10%?

- A) 20% B) 18.5% C) 25% D) 15%

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

Question No. : 93

A baker sells a cake and a pastry for 564, so that he makes a profit of 25% on the cake and a profit of 20% on the pastry. Had he sold the cake and the pastry for 563, he would have earned a profit of 20% on the cake and a profit of 25% on the pastry. What is the ratio of the difference between the cost of the cake and pastry to the sum of the cost of the cake and pastry.

- A) $\frac{1}{11}$ B) $\frac{1}{19}$ C) $\frac{1}{23}$ D) None of these

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

Question No. : 94

The chief of the Harakiri tribe has decided that calendar dates will only be written in the format "mm/dd/yy" and a holiday will be declared on any date where $YY = MM \times DD$. What is the maximum possible number of holidays that can be declared in a year? (in numerical value)

A) 7 B) C) D)

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

Question No. : 95

Sawan is very fond of numbers. Whenever asked for a number he always replies with a four-digit number where the first two digits form a two-digit perfect square and the last two digits form a different two-digit perfect square. How many such numbers exist and what is the sum of all these numbers? (write the ans key)

1. 30, 136855 2. 30, 145675 3. 36, 136840 4. 20, 189234

A) 1 B) C) D)

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

Question No. : 96

A took two loans altogether for Rs. 1200 from B and C. B claimed 14% simple interest per annum, while C claimed 15% per annum. The total interest paid by A in one year was Rs. 172. Then, A borrowed (write the ans key)

1. Rs. 800 from C 2. Rs. 625 from C 3. Rs. 400 from B 4. Rs. 800 from B

A) 4 B) C) D)

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

Question No. : 97

A vessel contains 3 litres of glycerine. 1 litre of glycerine is taken out and 1 litre of water is added. Then 1 litre of this mixture is taken out and 1 litre of water is added. What is the ratio of water to glycerine in the final mixture?

A) 5:9 B) 5:4 C) 2:3 D) 4:9

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

Question No. : 98

Madhu, Shilpa and Mehr along with seven other girls had reached the finals of Miss Timbuktu 2003. Initially all the girls had an average weight of 47.9 kgs. After the elimination of Madhu, the average weight got reduced to 46 kgs. If the average weight of the rest of the girls is 3kgs less than the average weight of Madhu, Shilpa and Mehr together then:

What is the average weight of the rest of the girls, excluding Madhu, Shilpa and Mehr? (in numerical value)

A) 47 B) C) D)

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

Question No. : 99

A square and a regular hexagon have the same area. Find the ratio of the perimeter of the square to the perimeter of the hexagon.

A) $\sqrt{3} : 2$ B) $1 : 2$ C) $\sqrt[3]{3} : \sqrt[3]{4}$ D) $\sqrt[3]{4} : \sqrt[3]{3}$

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

Question No. : 100

A ten – digit number is to be formed using all the digits from 0 to 9 such that the number is odd and all the even digits in the number are at the 1st, 3rd, 5th, 7th and 9th positions from the left. How many such numbers can be formed (Repetition is not allowed)?

A) 9×10^9 B) 32,65,930 C) 14,400 D) 11,520

QNo:- 1 ,Correct Answer:- C

Explanation:-

Option C

Refer to 6th line of para 2 'Ghost acres' relieved the pressure on a European agricultural system. this means that the acres of land in the Carribean were used for agriculture. The produce would then be used by the European countries.

A - an acre is a unit of area, not length

B - There is specific mention of sugarcane - so the substitution was agriculture, not fuel

D - Does not have the offshore element in it which is critical.

QNo:- 2 ,Correct Answer:- B

Explanation:-

Option B

The subsequent passage would take the idea forward. Option 3 takes the passage back and would fit better after the second last para than the last paragraph. The passage states that the age of globalization had anything but a happy ending in Europe. So it would continue talking about the United States, as at the beginning of the passage, we are comparing China and US.

A - the last paragraph is about the first world war - India and China both did not participate in it. So no connection.

C - Restating the first para.

D - No connection with the world war.

QNo:- 3 ,Correct Answer:- D

Explanation:-

Option D

A - Topography could be one of the reasons for divergence in growth rates because, land in China was reutilized again and again probably depleting the soil of its nutrients. On the other hand, the newly acquired lands were fertile and produced enough so as to feed the population of the west adequately.

B - The passage states the China's problems were as much financial as they were resource-based, hence option 2 can also be a reason.

C- Expansion made it necessary for the west to look into military and they encouraged military innovations which developed the industrial machinery. Hence option 3 can also be a reason.

4 - Human Evolution has no relation to the divergence of growth rates.

QNo:- 4 ,Correct Answer:- A

Explanation:-

Option A

Stated in the first paragraph - 'The Yangtze delta seemed as likely a place as the Thames Valley to produce major productivity-enhancing technological innovations.' By implication it was the productivity enhancing measures of the industrial revolution, which caused the change in income levels. This is the root cause of the lag.

B, C- The main reason is what is asked for. What is mentioned in the options are not as strong as what is mentioned in option 1.

D - In the 17th century, democracy was not a popular form of governance in most parts of the world.

QNo:- 5 ,Correct Answer:- B

Explanation:-

Option 2.

The author states that the faculty have to be the designers of an ongoing social process as much as the conveyers of conceptual knowledge. They have to remain on site while their designs become reality. Thus option 2 defines the the teacher's role in the best manner.

1 - The role of the teacher is to facilitate learning. *A facebook page moderator works more like a censor.*

3 - Option 3 is incorrect because teachers prompt the students to do well and are constantly reorganising things so that learning is bettered. So teacher are not the gardeners who cannot really cause a plant to grow; all they can do is to ensure that the water and nutrients are in place.

4 - *Being learners is a necessary but not sufficient condition for being a good teacher.*

QNo:- 6 ,Correct Answer:- C

Explanation:-

Option 3.

Adaptable educating in a flexible space requires an adaptable and facilitating faculty. Hence if a surprise moment occurs there is learning for the faculty and that in turn becomes a learning for the students.

1, 2, 4 - *a surprise being an interruption/ revolution/ deficiency is against the theme of the passage.*

QNo:- 7 ,Correct Answer:- B

Explanation:-

Option 2.

The passage clearly states - Adaptable educating in a flexible space requires an adaptable and facilitating faculty. Hence the faculty is looked upon as a facilitator.

Option 2 is the correct answer.

QNo:- 8 ,Correct Answer:- D

Explanation:-

Option 4.

A flat classroom with round tables facilitates natural discussion in small groups alongside formal presentations. There is no need to "break out." Managers can go in and out of reflective discussions on a moment's notice. - this means that teachers do not need to stop for a discussion on any point, the discussions are going on anyway.

QNo:- 9 ,Correct Answer:- D

Explanation:-

The passage talks about two products e-books and e-cars which are different.

The author states that both are enabled by new technology and new business models.

Book publishers that have embraced e-books have figured out how to create, price, and market their products in new ways and

that something similar is happening to the e-cars.

QNo:- 10 ,Correct Answer:- C

Explanation:-

The predictions are all over the map hence option 1 is ruled out. The last para talks about the impact on future oil prices. Hence option 2 is ruled out.

As the passage has already talked of the electric technology and is predicting a rise in the number of e-cars sold, option 4 is also ruled out.

QNo:- 11 ,Correct Answer:- A

Explanation:-

A threshold is any place or point of entering or beginning. The author talks about how the electric grid is steadily getting cleaner. Several new coal plants have been cancelled because of environmental concerns.

Wind has already reached cost parity with natural gas in many locations.

Due in part to cheap mass production in China, the cost of solar panels has dropped about 75 percent over the past decade, and the Energy Dept. forecasts that solar costs will drop another 75 percent.

All this means that at one point the total environment impact of the electric vehicle will be lower than the gas cars if these alternate sources are used to manufacture e-cars.

QNo:- 12 ,Correct Answer:- D

Explanation:-

If oil prices increase, electric vehicles may sell more and vice-versa.

If infrastructure for battery charging is adequate or good then number of electric vehicles sold may increase.

If the cost of the batteries increases, vehicles will cost more leading to less people being interested in electric vehicles.

Hybrid technology – means probably integrating electric, gas and solar technologies and hence these would have a different market than simply electric vehicles.

QNo:- 13 ,Correct Answer:- B

Explanation:-

In the given case, the author of the passage expresses his clear disapproval of the glorification of war. This is part of the main theme of the author of the passage and this helps us identify statement II as a correct statement.

Statement III is derived from the lines: *If however, it be permitted to grow and to spread, if it be spoilt by the flattering and nonsensical assurance that it has been victorious,—then, as I have said, it will have the power to extirpate German mind, and, when that is done, who knows whether there will still be anything to be made out of the surviving German body!*

Statement I is incorrect in this case. The author is against the bragging of war and the inclusion of this sentiment in German culture; he is not against the glorification of German culture.

QNo:- 14 ,Correct Answer:- B

Explanation:-

The primary purpose of the author in this case is to clarify that the victory in war should not be misconceived/misunderstood by Germans. The author repeatedly harks on this aspect. Keeping this in mind, we can identify option b as the correct answer.

QNo:- 15 ,Correct Answer:- B

Explanation:-

The answer to this question can be derived from the lines: For, in the first place, it would be necessary to ascertain the worth of the conquered culture. This might be very little; in which case, even if the victory had involved the most glorious display of arms, it would still offer no warrant for inordinate rapture.

These lines clearly indicate that exaggerated triumph in war can only be justified when the conquered culture is of some value. If it has not value, then there is no benefit.

QNo:- 16 ,Correct Answer:- D

Explanation:-

By referring to culture as a 'thing', the author of the passage is essentially equating it to something that can be identified in a tangible way. Objectification is the act of representing an abstraction as a physical thing and is the perfect fit in the given case. Obfuscates means make obscure or unclear. Hyperbole means extravagant exaggeration.

QNo:- 17 ,Correct Answer:- C

Explanation:-

The answer can be derived from the lines: To show that the Just must have an existence in Nature as something absolute-generically distinct from every variety of the Expedient, and, in idea, opposed to it, though (as is commonly acknowledged) never, in the long run, disjoined from it in fact.

We can see that option C is the best answer in this case.

QNo:- 18 ,Correct Answer:- A

Explanation:-

Refer to the lines: For the purpose of this inquiry, it is practically important to consider whether the feeling itself, of justice and injustice, is sui generis like our sensations of colour and taste, or a derivative feeling, formed by a combination of others.

Sui generis means 'constituting a class of its own; unique' and we can see that option A is the best answer here.

QNo:- 19 ,Correct Answer:- B

Explanation:-

In the given case, the author of the passage constantly explores one question in the passage: what is the nature of justice and what constitutes justice? He goes on talk about the nature of justice, where it is related to expedient (Appropriate to a purpose; practical), its characteristics and so on. Keeping this in mind, option B is the apt answer in the given case.

QNo:- 20 ,Correct Answer:- A

Explanation:-

Each of the statements can be derived from the –passage:

Statement I is derived from the line: Mankind is always predisposed to believe that any subjective feeling, not otherwise accounted for, is a revelation of some objective reality.

Statement II is derived from the line: That a feeling is bestowed on us by Nature, does not necessarily legitimate all its promptings.

Statement III is the problem option. It can be negated from the lines: If we have intellectual instincts, leading us to judge in a particular way, as well as animal instincts that prompt us to act in a particular way, there is no necessity that the former should be

more infallible in their sphere than the latter in theirs: it may as well happen that wrong judgments are occasionally suggested by those, as wrong actions by these.

QNo:- 21 ,Correct Answer:- B

Explanation:-

The answer can be derived from the lines: To throw light upon this question, it is necessary to attempt to ascertain what is the distinguishing character of justice, or of injustice: what is the quality, or whether there is any quality, attributed in common to all modes of conduct designated as unjust (for justice, like many other moral attributes, is best defined by its opposite), and distinguishing them from such modes of conduct as are disapproved, but without having that particular epithet of disapprobation applied to them.

QNo:- 22 ,Correct Answer:- B

Explanation:-

The answer to this question can be specifically found in the last paragraph of the passage. The author clearly sees multiple challenges with reading and option B simply states the same. Options A, C and D find not mention in the passage, and these are clever improvisations of the text given in the passage.

QNo:- 23 ,Correct Answer:- A

Explanation:-

Refer to the lines: I once tried out reading software that was supposedly "award-winning" where the very first word introduced to the beginning reader was the French word oignon, pronounced onion almost as in English—probably the most irregular spelling in the French language! Stressing what parents and teachers should not do is equally important. To trace the global contours of words is useless.

It is clear from the lines above that the author of the passage uses the phrase in a negative sense and wishes to point out how the given software is actually not effective at all. This sentiment is best reflected by option A.

QNo:- 24 ,Correct Answer:- C

Explanation:-

Option C, as it can be inferred from the lines and as per these lines as a child can memorize the fixed position Individual words.

Option A, is rejected as this may or may not happen also there cannot be any learning just by looking at the posters.

Option B, is rejected as these are not the objectives desired by the author in the passage. In fact he gives equal importance to understanding of text also.

Option D, is rejected as the child may understand the overall meaning of the words/text but it will be restricted to a few words only.

QNo:- 25 ,Correct Answer:- 4

Explanation:-

In this case, statement 4 is the odd one out. Statement 3 introduces the paragraph by talking about products/specimens in the generic sense and statement 1 takes this forward. 31 represents a pair of connected statements. The sentiment in 31 is then taken forward in statement 2, which defines the idea presented in 31 and labels it as biomimicry. Statement 4 introduces examples for biomimicry and these do not fit in the given context. The other three statements are based on thought and human use of biomimicry till date is not mentioned.

QNo:- 26 ,Correct Answer:- 2

Explanation:-

The correct order of statements in this case is: 341. These are generic statements describing the general set-up and introducing us to the context of a certain class being taken by a certain professor. None of these statements discuss any specific point about the class. Statement 2 introduces a generic point of discussion and this does not co-relate with the given set of statements.

QNo:- 27 ,Correct Answer:- 3

Explanation:-

Option 3 is the best answer.

The lines 1,4 and 2 given here in continuation and form a logical paragraph but line 3 is out of place as it alludes to an altogether different issue tackled by Ibn Warraq.

QNo:- 28 ,Correct Answer:- 314526

Explanation:- 2 & 6, form a mandatory pair. It directly co-relate with the sentiment expressed in statement 5 and continues that grain of thought forward. Effectively, 526 forms a trio. . Also, statement 3 is the opening sentence in this case as it is the most generic statement, introducing the subject of the paragraph. The idea presented in 314 is contradicted by 526, which is why it follows it.

QNo:- 29 ,Correct Answer:- 4

Explanation:-

Option 4 is the best answer.

In this question, you need to carefully evaluate the options and identify the one which is most applicable in the given case:

Option 1: too strong an option; losses of plutocrats not mentioned.

Option 2: the paragraph does not mention maximum possible help to any particular group

Option 3: the paragraph does not mention that measures of the past have been continued

Option 4: this is the apt choice which highlights the significant points of the paragraph.

QNo:- 30 ,Correct Answer:- 4

Explanation:-

Option 4 is the best answer.

Let's carry out an option-wise analysis to identify the correct answer:

Option 1: attraction to smartphones is not the subject of the paragraph; distraction caused by smartphones while driving is.

Options 2 and 3: Boredom of humans is not the main subject of the paragraph; distraction caused by smartphones while driving is.

Option 4: It is the correct answer as the primary subject is retained.

QNo:- 31 ,Correct Answer:- 1

Explanation:-

The sequence is 2-3-4.

The paragraph is talking about energy and how we have misunderstood it.

The introductory sentence is 2.

On a purely biological level continues from the statement 2.

Sentence 1 is not is continuation with the idea conveyed in the other sentences as it introduces a new idea.

QNo:- 32 ,Correct Answer:- 25314

Explanation:-

In 5, also a precondition for admission tells you that this sentence follows 2, which is telling you the eligibility criteria for EU membership.

The step referred to in 3 is the abolition of the death penalty mentioned in 5. Thus, 253 are a pair. The idea mentioned in 1 is followed by 4. Hence, 1 & 4 are a pair.

Hence the sequence is 25314

QNo:- 33 ,Correct Answer:- 35142

Explanation:-

The opener in this case will be 3. After this 5 will come as 'the area that you can control is your ability to execute'. After this 1 will come as it forms the basis of 'what is to be included to execute' i.e people.

Pronoun 'they' in 4 are the people mentioned in 1.

Finally the sequence is concluded by 2 as it highlights the consequences due to 4.

Hence the final sequence is 35124.

QNo:- 34 ,Correct Answer:- 43512

Explanation:-

Statement 4 introduces the idea and 3 carries it forward. Thus, 4 & 3 are a pair.

The tools referred in 1 is the implicit association test in 2.

Hence, we have the following pairs: 43 and 12.

What makes the task difficult is that participants lying in the test. Hence, statement 5 follows 3, giving us the final order i.e. 43512.

QNo:- 35 ,Correct Answer:- C

Explanation:-

Total sales of Exide batteries in the auto sector in 2008 - 09 was $504 + 231 = 735$ million plates.

Of these, 73% account for after-market sales = $0.73 \times 735 = 536.55$ million plates.

QNo:- 36 ,Correct Answer:- D

Explanation:-

Since there is no information about the total two wheeler battery market, none of the statements can be verified.

The best answer is option 4.

QNo:- 37 ,Correct Answer:- C

Explanation:-

The total automotive sales of Exide batteries in 2008 - 09 was $504 + 231 = 735$ million plates.

So the average cost per battery was $43440 \times 0.62 / 735 \approx ₹37$.

QNo:- 38 ,Correct Answer:- D

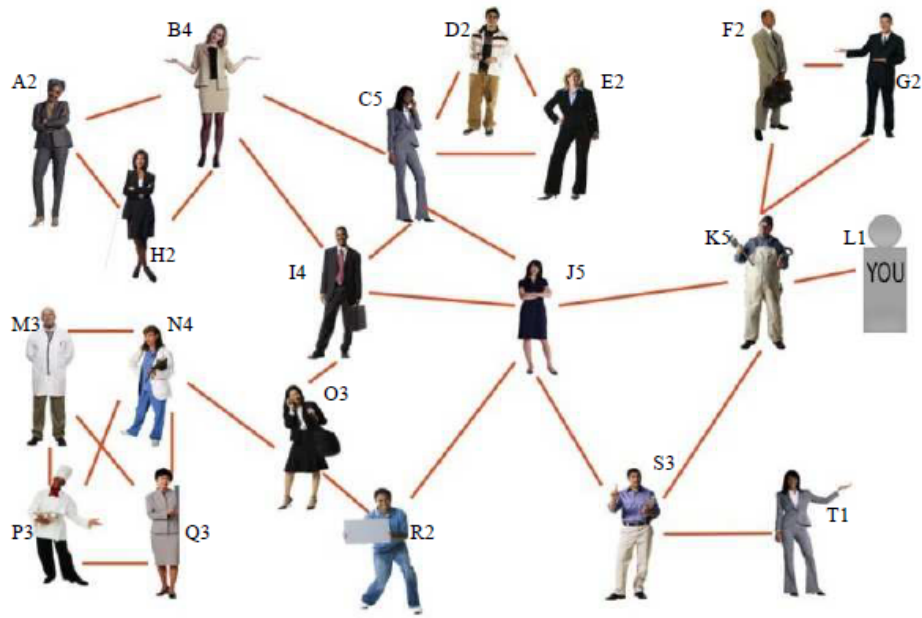
Explanation:-

Since the prices of auto batteries and industrial batteries are not known, it is not possible to find the revenue and hence the difference in average revenues.

The best answer is option 4.

QNo:- 39 ,Correct Answer:- C

Explanation:-

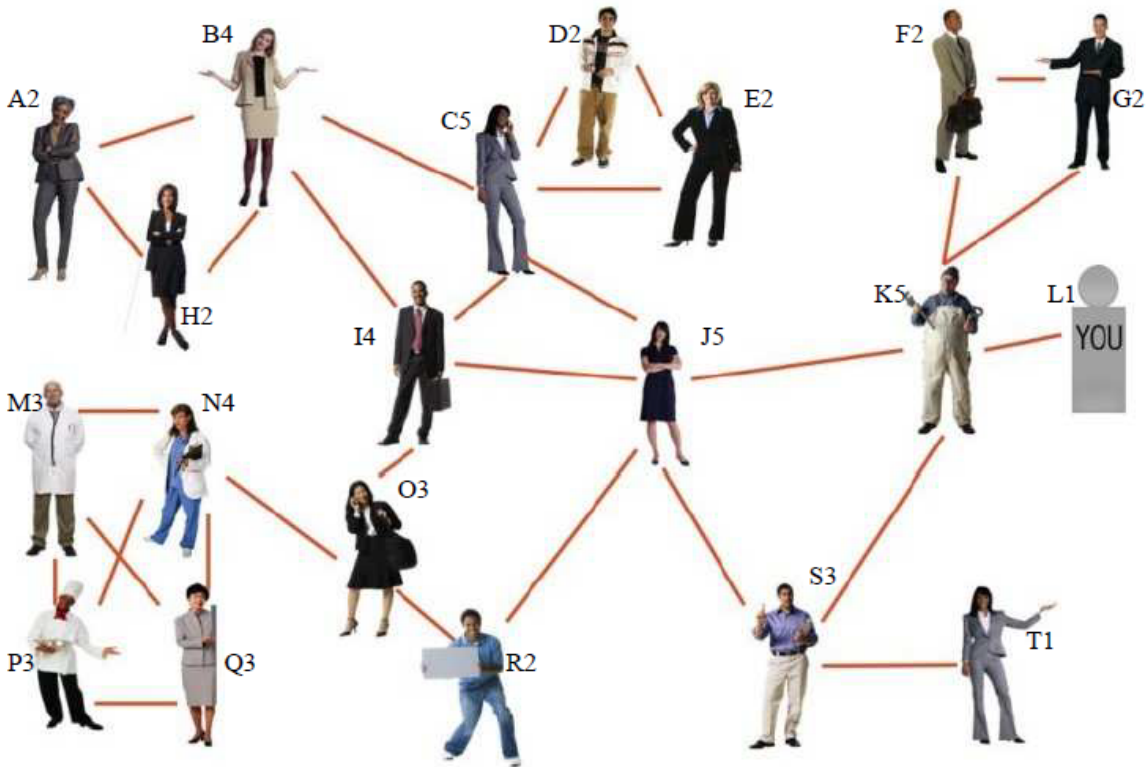


The above diagram shows the 20 people in the office and the number of friends each one has. Thus the required average is $58/20 = 2.9$.

QNo:- 40 ,Correct Answer:- B

Explanation:-

The figure below shows the 20 people and their friends.



Consider A who has 2 friends, B and H. B has 4 friends and H has 2 friends. So the average number of friends of the friends of A is $(4 + 2)/2 = 3$.

Consider B who has 4 friends, A, C, H and I. A has 2 friends, C has 5 friends, H has 2 friends and I has 4 friends. So the average number of friends of the friends of B is $(2 + 5 + 2 + 4)/4 = 13/4 = 3.25$.

If we continue in this manner, we get the following:

C: B4, D2, E2, I4, J5. So, the average is $17/5 = 3.4$.

D: C5, E2. So, the average is $7/2 = 3.5$.

E: D2, C5. So, the average is $7/2 = 3.5$.

F: G2, K5. So, the average is $7/2 = 3.5$.

G: F2, K5. So, the average is $7/2 = 3.5$.

H: A2, B4. So, the average is $6/2 = 3$.

I: B4, C5, J5, O3. So, the average is $17/4 = 4.25$.

J: C5, I4, K5, R2, S3. So, the average is $19/5 = 3.8$.

K: F2, G2, J5, L1, S3. So, the average is $13/5 = 2.6$.

L: K5. So, the average is 5.

M: N4, P3, Q3. So, the average is $10/3 = 3.33$.

N: M3, O3, P3, Q3. So, the average is $12/4 = 3$.

O: I4, N4, R1. So, the average is $10/3 = 3.33$.

P: M3, N4, Q3. So, the average is $10/3 = 3.33$.

Q: M3, N4, P3. So, the average is $10/3 = 3.33$.

R: O3, J5. So, the average is $8/2 = 4$.

S: J5, K5, T1. So, the average is $11/3 = 3.66$.

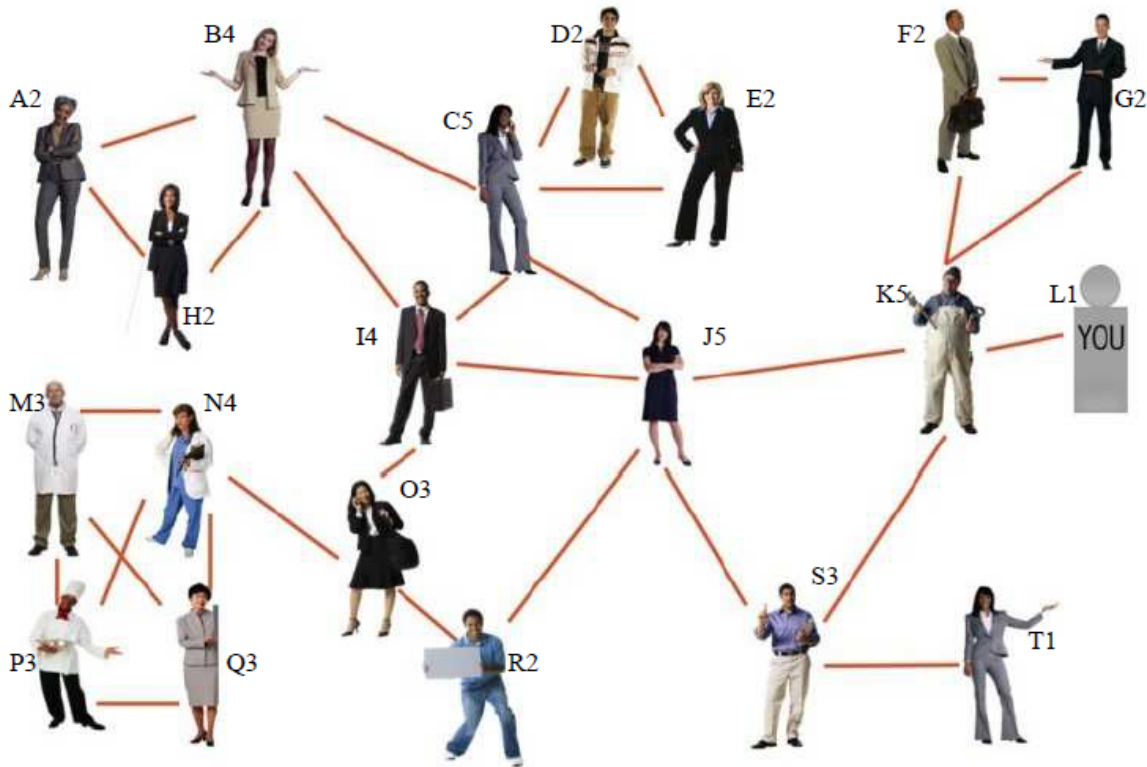
T: S3. So, the average is 3.

Thus the required average is $69.28/20 = 3.45$.

QNo:- 41 ,Correct Answer:- A

Explanation:-

C, J and K with 5 friends each and B, I and N with 4 friends each are the 6 popular people so that 18 of the 20 people are friends with at least one of these.



N and T are the two persons who are not friends with any of the 6 popular people.

QNo:- 42 ,Correct Answer:- D

Explanation:-

Since the average for all 100 students is 45 and each section has the same number of students, from statement I, we get $A_2 = 45.5$ kg and $A_1 = 44.5$ kg. However, this does not help us determine Sunder's weight. Statement II alone also does not help as we do not know the averages for the 2 sections. If we combine both statements, then from statement II, we know that when Shantanu is moved to section A, the average for section A is $\frac{(50 \times 44.5) + x}{51} = 45$. From this, we can calculate Shantanu's weight as 70 kg.

Consider the case when Sunder moves to section B and Shantanu moves to section A. The average of section A is now 45.5. So, $45.5 = \frac{(50 \times 44.5) + 70 - y}{50}$. Solving this yields Sunder's weight is $y = 20$ kg.

Thus both statements together are required to answer the question.

QNo:- 43 ,Correct Answer:- 6

Explanation:-

It is clear that we need to calculate the net score in order to compile the ratio. Also, for the last question, we need to find the total number of questions in each test. The calculations are not difficult, but there are too many of them. Consider Test 01. The 80 attempted questions are 53.33% = 8/15 of the total number of questions.

So the total number of question on this test is $(15/8) \times 80 = 150$. Of the 80 attempted questions, 53 were correct and $(80 - 53) = 27$ were incorrect. So, the net score on this test was $53 - (27/3) = 44$. The ratio is $44/108 = 0.41$. Since the ratio is less than $\frac{1}{2}$, this test will be classified as Difficult. Similar calculations will be needed for the remaining tests and we can then tabulate the information as shown below.

Test	Total Qns.	Net Score	Ratio	Diff. Level
T 01	150	44	0.41	D
T02	165	50	0.55	M
T 03	75	40	0.55	M

T 04	153	67	0.77	E
T 05	105	48	0.46	D
T 06	180	60	0.54	M
T 07	123	62	0.70	E
T 08	185	59	0.83	E
T 09	120	62	0.81	E
T 10	90	46	0.55	M
T 11	100	66	0.88	E
T 12	80	52	0.76	E
T 13	112	64	0.65	M
T 14	200	87	0.62	M
T 15	125	66	0.55	M
Total	1963			

6 tests, T04, T07, T08, T09, T11 and T12 are classified as Easy.

QNo:- 44 ,Correct Answer:- 3

Explanation:-

It is clear that we need to calculate the net score in order to compile the ratio. Also, for the last question, we need to find the total number of questions in each test. The calculations are not difficult, but there are too many of them. Consider Test 01. The 80 attempted questions are 53.33% = 8/15 of the total number of questions.

So the total number of question on this test is $(15/8) \times 80 = 150$. Of the 80 attempted questions, 53 were correct and $(80 \times 53) = 27$ were incorrect. So, the net score on this test was $53 \times (27/3) = 44$. The ratio is $44/108 = 0.41$. Since the ratio is less than $\frac{1}{2}$, this test will be classified as Difficult. Similar calculations will be needed for the remaining tests and we can then tabulate the information as shown below.

Test	Total Qns.	Net Score	Ratio	Diff. Level
T 01	150	44	0.41	D
T02	165	50	0.55	M
T 03	75	40	0.55	M
T 04	153	67	0.77	E
T 05	105	48	0.46	D
T 06	180	60	0.54	M
T 07	123	62	0.70	E
T 08	185	59	0.83	E
T 09	120	62	0.81	E
T 10	90	46	0.55	M
T 11	100	66	0.88	E
T 12	80	52	0.76	E
T 13	112	64	0.65	M
T 14	200	87	0.62	M
T 15	125	66	0.55	M
Total	1963			

Test 15 has a ratio of 0.55. A test would be ranked as tougher than test 15 if the ratio is less than 0.55. So, 3 tests, T01, T05 and T06 will be ranked tougher than T15.

QNo:- 45 ,Correct Answer:- B

Explanation:-

It is clear that we need to calculate the net score in order to compile the ratio. Also, for the last question, we need to find the total number of questions in each test. The calculations are not difficult, but there are too many of them. Consider Test 01. The 80 attempted questions are $53.33\% = 8/15$ of the total number of questions.

So the total number of question on this test is $(15/8) \times 80 = 150$. Of the 80 attempted questions, 53 were correct and $(80 \times 53) = 27$ were incorrect. So, the net score on this test was $53 \times (27/3) = 44$. The ratio is $44/108 = 0.41$. Since the ratio is less than $\frac{1}{2}$, this test will be classified as Difficult. Similar calculations will be needed for the remaining tests and we can then tabulate the information as shown below.

Test	Total Qns.	Net Score	Ratio	Diff. Level
T 01	150	44	0.41	D
T02	165	50	0.55	M
T 03	75	40	0.55	M
T 04	153	67	0.77	E
T 05	105	48	0.46	D
T 06	180	60	0.54	M
T 07	123	62	0.70	E
T 08	185	59	0.83	E
T 09	120	62	0.81	E
T 10	90	46	0.55	M
T 11	100	66	0.88	E
T 12	80	52	0.76	E
T 13	112	64	0.65	M
T 14	200	87	0.62	M
T 15	125	66	0.55	M
Total	1963			

Based on the ratios, there are 6 Easy, 7 Moderate and 2 Difficult tests.

QNo:- 46 ,Correct Answer:- 1963

Explanation:-

It is clear that we need to calculate the net score in order to compile the ratio. Also, for the last question, we need to find the total number of questions in each test. The calculations are not difficult, but there are too many of them. Consider Test 01. The 80 attempted questions are $53.33\% = 8/15$ of the total number of questions.

So the total number of question on this test is $(15/8) \times 80 = 150$. Of the 80 attempted questions, 53 were correct and $(80 \times 53) = 27$ were incorrect. So, the net score on this test was $53 \times (27/3) = 44$. The ratio is $44/108 = 0.41$. Since the ratio is less than $\frac{1}{2}$, this test will be classified as Difficult. Similar calculations will be needed for the remaining tests and we can then tabulate the information as shown below.

Test	Total Qns.	Net Score	Ratio	Diff. Level
T 01	150	44	0.41	D
T02	165	50	0.55	M

T 03	75	40	0.55	M
T 04	153	67	0.77	E
T 05	105	48	0.46	D
T 06	180	60	0.54	M
T 07	123	62	0.70	E
T 08	185	59	0.83	E
T 09	120	62	0.81	E
T 10	90	46	0.55	M
T 11	100	66	0.88	E
T 12	80	52	0.76	E
T 13	112	64	0.65	M
T 14	200	87	0.62	M
T 15	125	66	0.55	M
Total	1963			

The total number of questions in all 15 tests is 1963.

QNo:- 47 ,Correct Answer:- D

Explanation:-

Tubes could be a subset of strings.

So option 1 need not be true.

Strings could be a subset of tubes.

So option 2 need not be true.

The third option is false as there is a definite overlap between strings and tubes.

The best answer is option 4.

QNo:- 48 ,Correct Answer:- C

Explanation:-

Since R is loaded on the computer, U must be loaded on the computer. Since there are 2 browsers, there must be 2 databases.

Since R is loaded, we know that P is not loaded. So the 2nd database must be O. Thus, O and U must be loaded on the computer.

QNo:- 49 ,Correct Answer:- 3

Explanation:-

Since P is the only database installed on the computer, we know that 1 word processor and 1 browser must be loaded on the computer.

We know that P and T both cannot be loaded on the same computer.

So, the browser that is loaded could be either U or W.

We now need to load 1 word processor.

If we load F, then we must load O.

Since O is not loaded, we know that F is not loaded.

So the word processor that is loaded could be either G or H.

Thus, there are $2 \times 2 = 4$ combinations.

QNo:- 50 ,Correct Answer:- C

Explanation:-

Since T and P cannot both be loaded on a computer, option 3 cannot be true.

QNo:- 51 ,Correct Answer:- 4

Explanation:-

Since 2 browsers are loaded, 2 data bases must be loaded.

Since P and R both cannot be loaded on a computer, the 2 databases that can be loaded are either (O, P) or (O, R).

Case I: When (O, P) is loaded, T cannot be loaded and hence W, U are the browsers to be loaded.

Case II: When (O, R) is loaded, U should be loaded and hence either W or T is the browser to be loaded with U i.e. either (W, U) or (T, U).

In all the above possibilities, it can be checked that we do not have the browsers T and W together.

Thus, T and W cannot be the two browsers that are loaded on the computer.

QNo:- 52 ,Correct Answer:- B

Explanation:-

Since M is played first, we know that X is not played at the party.

So, Y must be played fifth.

Since M is played at the party, G cannot be played at the party.

The other item song must be O (it cannot be N because then O will also have to be played).

The two dance songs must be F and H as G cannot be played and the two pop songs must be W and Y as X cannot be played.

Since W must be played immediately before H, W and H could be played second and third respectively or third and fourth respectively.

Thus option 2 could be true.

QNo:- 53 ,Correct Answer:- C

Explanation:-

Two of the three item songs must be played at the party.

Possible pairs are M and N, M and O and N and O.

M and N cannot be played since O must be played if N is played.

So, the two item songs that are played could be M and O or N and O.

In either case, O must be played at the party.

QNo:- 54 ,Correct Answer:- D

Explanation:-

Two item songs must be played at the party.

Since M is played, the other item song must be O.

The other item song cannot be N since O will also have to be played.

Thus, N cannot be played at the party.

QNo:- 55 ,Correct Answer:- C

Explanation:-

Out of six relatives of Monika, two are surely males and remaining four have to be females. (Do not count Monika herself here)

Since C and D are either both males or both females, we can conclude that both of them must be females, otherwise neither A nor B could be males.

We then have the following possibilities for males and females.

Males	Females
A, E	B, C, D, F

A, F	B, C, D, E
B, E	A, C, D, F
B, F	A, C, D, E
A, B	C, D, E, F

We can now answer the questions on the basis of this table.
 Since C and D are both females, D cannot be Monika's son

QNo:- 56 ,Correct Answer:- 4

Explanation:-

Out of six relatives of Monika, two are surely males and remaining four have to be females. (Do not count Monika herself here)
 Since C and D are either both males or both females, we can conclude that both of them must be females, otherwise neither A nor B could be males.

We then have the following possibilities for males and females.

Males	Females
A, E	B, C, D, F
A, F	B, C, D, E
B, E	A, C, D, F
B, F	A, C, D, E
A, B	C, D, E, F

We can now answer the questions on the basis of this table.

If A is D's grandson, then A is a male and D could be Monika's mother or aunt.
 So option 1 can be true.

If D is A's niece, then D is a female, who is either Monika's daughter or sister.
 Accordingly, A will be Monika's sister or aunt.

So option 2 can be true.

If A is B's nephew, then A is a male and is Monika's son and B is Monika's sister.
 So option 3 can be true.

If F is E's son, then F is a male and Monika's son and E must then be Monika's husband.
 Since E and F both cannot be males, option 4 must be false.

QNo:- 57 ,Correct Answer:- B

Explanation:-

Out of six relatives of Monika, two are surely males and remaining four have to be females. (Do not count Monika herself here)
 Since C and D are either both males or both females, we can conclude that both of them must be females, otherwise neither A nor B could be males.

We then have the following possibilities for males and females.

Males	Females
A, E	B, C, D, F
A, F	B, C, D, E
B, E	A, C, D, F
B, F	A, C, D, E
A, B	C, D, E, F

We can now answer the questions on the basis of this table.

If A is E's sister, then A and E represent Monika's mother and aunt or Monika's daughter and son.

If A and E are Monika's mother and aunt, i.e., both are female, then from the analysis above, we see that F must be a male.
 So, in this case, F cannot be Monika's daughter.

If A and E are Monika's daughter and son, then F cannot be Monika's daughter.

QNo:- 58 ,Correct Answer:- D

Explanation:-

From the given information, it is possible to allocate the batches as follows.

Student	Case I	Case II
Akash	C251210	C251211
Shreya	C251212	C251210
Subahu	C251213	C251214
Apoorva	C251211	C251213
Minoti	C251214	C251212

Thus, each of the students will be enrolled in a batch of his or her choice.

QNo:- 59 ,Correct Answer:- 3

Explanation:-

Shreya prefers batches C251210 or C251212. So, if Akash and Minoti are allocated to C251210 and C251212 respectively, Shreya will be allocated to the Week-end batch.

QNo:- 60 ,Correct Answer:- 1

Explanation:-

Since each of the remaining 4 students gets a batch of his or her choice, there is 1 batch with 1 seat vacant. This batch can additionally be allocated to one of the students. Thus, at most 1 student can get both batches of his or her choice.

QNo:- 61 ,Correct Answer:- C

Explanation:-

From the given information we can make the following table.

The code to each person has been assigned as the first letter of their name , For example Amrinder is coded as A.

	Tu	Wed	Th	Fr	Sa
A	Cherries				
B	Mangoes			Pineapple	
C	Pineapple	Cherries	Mangoes	Apple	Grapes
D	Apple	Pineapple			
I	Grapes	Mangoes	Apple	Cherries	Pineapple

The only correct combination is Chidambaram eating Grapes on Saturday
Hence 3rd option is the answer.

QNo:- 62 ,Correct Answer:- D

Explanation:-

From the given information we can make the following table.

The code to each person has been assigned as the first letter of their name , For example Amrinder is coded as A.

	Tu	Wed	Th	Fr	Sa
A	Cherries				
B	Mangoes			Pineapple	
C	Pineapple	Cherries	Mangoes	Apple	Grapes
D	Apple	Pineapple			
I	Grapes	Mangoes	Apple		

Clearly, on Tuesday, Bishambar eats Mangoes.

QNo:- 63 ,Correct Answer:- C

Explanation:-

The expenses of PQR Ltd. are Rs. 432 crores. So profits are $432/6 = \text{Rs. } 72$ crores and sales are $432 + 72 = \text{Rs. } 504$ crores. Since the profits of XYZ Ltd. are also Rs. 72 crores, its sales are $72 \times 5 = \text{Rs. } 360$ crores and expenses are $360 - 72 = \text{Rs. } 288$ crores. Since the sales of JV Ltd. are also Rs. 504 crores, its profits are Rs. 126 crores and expenses are Rs. 378 crores..Profits of ABC Ltd.,are $0.15 \times 432 = \text{Rs. } 64.8$ crores
According the auditor, the sales of ABC Ltd. are only 90% of actual. So actual sales of ABC Ltd. are $432/0.9 = \text{Rs. } 480$ crores. Actual expenses of ABC Ltd. are $367.2/1.2 = \text{Rs. } 306$ crores and actual profits are $480 - 306 = \text{Rs. } 174$ crores.
Similarly, the actual sales of JV Ltd. are $504/0.9 = \text{Rs. } 560$ crores. The actual expenses of JV Ltd. are $378/1.2 = \text{Rs. } 315$ crores and its profits are $560 - 315 = \text{Rs. } 245$ crores.
The actual expenses of PQR Ltd. are $432/1.2 = \text{Rs. } 360$ crores. The actual profits of PQR Ltd. are $72/0.8 = \text{Rs. } 90$ crores and its actual sales are $360 + 90 = \text{Rs. } 450$ crores.
The actual sales of XYZ Ltd. are $360/0.8 = \text{Rs. } 450$ crores. The actual expenses of XYZ Ltd. are $288/1.25 = \text{Rs. } 230.4$ crores and its actual profits are $450 - 230.4 = \text{Rs. } 219.6$ crores.
Based on these calculations, we can make the following table.

	Reported Values				Actual Values			
	ABC Ltd.	JV Ltd.	PQR Ltd.	XYZ Ltd.	ABC Ltd.	JV Ltd.	PQR Ltd.	XYZ Ltd.
Sales	432	504	504	360	480	560	450	450
Expenses	367.2	378	432	288	306	315	360	230.4
Profits	64.8	126	72	72	174	245	90	219.6
Taxes	25.92	50.4	28.8	28.8	69.6	98	36	87.84

The total profits reported by ABC Ltd. and JV Ltd. together are $64.8 + 126 = \text{Rs. } 190.8$ crores while their actual profits are $174 + 245 = \text{Rs. } 419$ crores. The required difference is Rs. 228.2 crores.

QNo:- 64 ,Correct Answer:- B

Explanation:-

The expenses of PQR Ltd. are Rs. 432 crores. So profits are $432/6 = \text{Rs. } 72$ crores and sales are $432 + 72 = \text{Rs. } 504$ crores. Since the profits of XYZ Ltd. are also Rs. 72 crores, its sales are $72 \times 5 = \text{Rs. } 360$ crores and expenses are $360 - 72 = \text{Rs. } 288$ crores. Since the sales of JV Ltd. are also Rs. 504 crores, its profits are Rs. 126 crores and expenses are Rs. 378 crores..Profits of ABC Ltd.,are $0.15 \times 432 = \text{Rs. } 64.8$ crores
According the auditor, the sales of ABC Ltd. are only 90% of actual. So actual sales of ABC Ltd. are $432/0.9 = \text{Rs. } 480$ crores. Actual expenses of ABC Ltd. are $367.2/1.2 = \text{Rs. } 306$ crores and actual profits are $480 - 306 = \text{Rs. } 174$ crores.
Similarly, the actual sales of JV Ltd. are $504/0.9 = \text{Rs. } 560$ crores. The actual expenses of JV Ltd. are $378/1.2 = \text{Rs. } 315$ crores and its profits are $560 - 315 = \text{Rs. } 245$ crores.
The actual expenses of PQR Ltd. are $432/1.2 = \text{Rs. } 360$ crores. The actual profits of PQR Ltd. are $72/0.8 = \text{Rs. } 90$ crores and its

actual sales are $360 + 90 = \text{Rs. } 450$ crores.

The actual sales of XYZ Ltd. are $360/0.8 = \text{Rs. } 450$ crores. The actual expenses of XYZ Ltd. are $288/1.25 = \text{Rs. } 230.4$ crores and its actual profits are $450 - 230.4 = \text{Rs. } 219.6$ crores.

Based on these calculations, we can make the following table.

	Reported Values				Actual Values			
	ABC Ltd.	JV Ltd.	PQR Ltd.	XYZ Ltd.	ABC Ltd.	JV Ltd.	PQR Ltd.	XYZ Ltd.
Sales	432	504	504	360	480	560	450	450
Expenses	367.2	378	432	288	306	315	360	230.4
Profits	64.8	126	72	72	174	245	90	219.6
Taxes	25.92	50.4	28.8	28.8	69.6	98	36	87.84

JV Ltd. and XYZ Ltd. have together paid taxes of $50.4 + 28.8 = \text{Rs. } 79.2$ crores while their actual taxes are $98 + 87.84 = \text{Rs. } 185.84$ crores. The difference is $\text{Rs. } 106.64$ crores. Thus the penalty is $\text{Rs. } 1066.4$ crores.

QNo:- 65 ,Correct Answer:- A

Explanation:-

The expenses of PQR Ltd. are $\text{Rs. } 432$ crores. So profits are $432/6 = \text{Rs. } 72$ crores and sales are $432 + 72 = \text{Rs. } 504$ crores.

Since the profits of XYZ Ltd. are also $\text{Rs. } 72$ crores, its sales are $72 \times 5 = \text{Rs. } 360$ crores and expenses are $360 - 72 = \text{Rs. } 288$ crores.

Since the sales of JV Ltd. are also $\text{Rs. } 504$ crores, its profits are $\text{Rs. } 126$ crores and expenses are $\text{Rs. } 378$ crores..Profits of ABC Ltd.,are $0.15 \times 432 = \text{Rs. } 64.8$ crores

According the auditor, the sales of ABC Ltd. are only 90% of actual. So actual sales of ABC Ltd. are $432/0.9 = \text{Rs. } 480$ crores. Actual expenses of ABC Ltd. are $367.2/1.2 = \text{Rs. } 306$ crores and actual profits are $480 - 306 = \text{Rs. } 174$ crores.

Similarly, the actual sales of JV Ltd. are $504/0.9 = \text{Rs. } 560$ crores. The actual expenses of JV Ltd. are $378/1.2 = \text{Rs. } 315$ crores and its profits are $560 - 315 = \text{Rs. } 245$ crores.

The actual expenses of PQR Ltd. are $432/1.2 = \text{Rs. } 360$ crores. The actual profits of PQR Ltd. are $72/0.8 = \text{Rs. } 90$ crores and its actual sales are $360 + 90 = \text{Rs. } 450$ crores.

The actual sales of XYZ Ltd. are $360/0.8 = \text{Rs. } 450$ crores. The actual expenses of XYZ Ltd. are $288/1.25 = \text{Rs. } 230.4$ crores and its actual profits are $450 - 230.4 = \text{Rs. } 219.6$ crores.

Based on these calculations, we can make the following table.

	Reported Values				Actual Values			
	ABC Ltd.	JV Ltd.	PQR Ltd.	XYZ Ltd.	ABC Ltd.	JV Ltd.	PQR Ltd.	XYZ Ltd.
Sales	432	504	504	360	480	560	450	450
Expenses	367.2	378	432	288	306	315	360	230.4
Profits	64.8	126	72	72	174	245	90	219.6
Taxes	25.92	50.4	28.8	28.8	69.6	98	36	87.84

From the table, the actual total profits of the 4 companies are $174 + 245 + 90 + 219.6 = \text{Rs. } 728.6$ crores and their actual total sales are $480 + 560 + 450 + 450 = \text{Rs. } 1940$ crores. The required percentage is 37.55%.

QNo:- 66 ,Correct Answer:- B

Explanation:-

The expenses of PQR Ltd. are $\text{Rs. } 432$ crores. So profits are $432/6 = \text{Rs. } 72$ crores and sales are $432 + 72 = \text{Rs. } 504$ crores.

Since the profits of XYZ Ltd. are also $\text{Rs. } 72$ crores, its sales are $72 \times 5 = \text{Rs. } 360$ crores and expenses are $360 - 72 = \text{Rs. } 288$ crores.

Since the sales of JV Ltd. are also $\text{Rs. } 504$ crores, its profits are $\text{Rs. } 126$ crores and expenses are $\text{Rs. } 378$ crores..Profits of ABC Ltd.,are $0.15 \times 432 = \text{Rs. } 64.8$ crores

According the auditor, the sales of ABC Ltd. are only 90% of actual. So actual sales of ABC Ltd. are $432/0.9 = \text{Rs. } 480$ crores. Actual

expenses of ABC Ltd. are $367.2/1.2 = \text{Rs. } 306$ crores and actual profits are $480 - 306 = \text{Rs. } 174$ crores.

Similarly, the actual sales of JV Ltd. are $504/0.9 = \text{Rs. } 560$ crores. The actual expenses of JV Ltd. are $378/1.2 = \text{Rs. } 315$ crores and its profits are $560 - 315 = \text{Rs. } 245$ crores.

The actual expenses of PQR Ltd. are $432/1.2 = \text{Rs. } 360$ crores. The actual profits of PQR Ltd. are $72/0.8 = \text{Rs. } 90$ crores and its actual sales are $360 + 90 = \text{Rs. } 450$ crores.

The actual sales of XYZ Ltd. are $360/0.8 = \text{Rs. } 450$ crores. The actual expenses of XYZ Ltd. are $288/1.25 = \text{Rs. } 230.4$ crores and its actual profits are $450 - 230.4 = \text{Rs. } 219.6$ crores.

Based on these calculations, we can make the following table.

	Reported Values				Actual Values			
	ABC Ltd.	JV Ltd.	PQR Ltd.	XYZ Ltd.	ABC Ltd.	JV Ltd.	PQR Ltd.	XYZ Ltd.
Sales	432	504	504	360	480	560	450	450
Expenses	367.2	378	432	288	306	315	360	230.4
Profits	64.8	126	72	72	174	245	90	219.6
Taxes	25.92	50.4	28.8	28.8	69.6	98	36	87.84

The actual profitability of ABC Ltd. is $174/306 = 56.86\%$ while that of XYZ Ltd. is $219.6/230.4 = 95.31\%$. The required difference is 38.45.

QNo:- 67 ,Correct Answer:- D

Explanation:-

Weight is directly proportional to density, diameter, thickness and length.

First pipe weight = $k \times 8 \times 3 \times 2 \times L_1$

Second pipe weight = $k \times 5 \times 4 \times 3 \times L_2$

Since both weight the same,

$k \times 8 \times 3 \times 2 \times L_1 = k \times 5 \times 4 \times 3 \times L_2$

So $L_1/L_2 = (5 \times 4 \times 3)/(8 \times 3 \times 2) = 5/4 = 1.25$

Since, none of the given option matches with the correct answer, thus the right option is D.

QNo:- 68 ,Correct Answer:- B

Explanation:-

Let us take a few cases to explore:

Case 1: $x = y = z, A = 1/9$

Case 2: $x : y : z = 1 : 1 : 100$, in this case the value of the expression becomes very close to 0 (slightly more than it), without reaching 0.

So the value will be between 0 and $1/9$, inclusive.

QNo:- 69 ,Correct Answer:- D

Explanation:-

We do not know whether it is an increasing AP or a decreasing AP.

What we can say with surety though is that

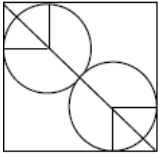
$1/a - 1/b = 1/c - 1/d$

So $(b - a)/ab = (d - c)/cd$

We cannot be sure if $b - a = d - c$, hence the answer is option 4.

QNo:- 70 ,Correct Answer:- C

Explanation:-



Let the radius be r

The centers of the two circles will be on the diagonal

So the length of the diagonal in terms of r can be written as $2(r + r\sqrt{2})$.

We know that this is equal to $\sqrt{2}$

So $2(r + r\sqrt{2}) = \sqrt{2}$

$r = \frac{1}{\sqrt{2}}(1 + \sqrt{2}) = \frac{1}{2 + \sqrt{2}}$

QNo:- 71 ,Correct Answer:- 4

Explanation:-

Let us use the table to judge

Time	A	B	C
9:00	A_0	-	-
9:05	$A_0/2$	$A_0/2$	-
9:10	$A_0/4$	$3A_0/2$	$A_0/4$

So min value of A_0 is 4.

The question is not clear about whether the half that move at 9:10 are from room A or room B. But it does not matter.

QNo:- 72 ,Correct Answer:- 324

Explanation:-

Solution: Let us assume that their CPs are x, y & z respectively.

According to the given condition $1.08x = 0.9y = 1.05z$

$\rightarrow x : y = 5 : 6$ & $y : z = 7 : 6$

$\rightarrow x : y : z = 35 : 42 : 36$

Hence the CP of the article sold at 5 % gain is

$z = \frac{36}{113} \times 1017 = 324$.

QNo:- 73 ,Correct Answer:- D

Explanation:-

The roots of $x^2 + 3x - 4 = 0$ are -4 and 1.

We know that the root is positive

Substituting $x = 1$ in the first equation we get

$1 + b + c = 0$

So, $c = -b - 1$.

If b is negative and less than -1, then c is positive.

If b is negative and lies between 0 and -1, then c is negative.

If b is positive, then c is negative.

Since no conclusion can be drawn, the best answer is option 4.

QNo:- 74 ,Correct Answer:- D

Explanation:-

$$\begin{aligned} & \log_3 27\sqrt{3} + \log_5 125 + \log_9 81 \\ &= \log_3 3^{3.5} + \log_5 5^3 + \log_9 9^2 \\ &= 3.5 + 3 + 2 \\ &= 8.5 \end{aligned}$$

QNo:- 75 ,Correct Answer:- 18

Explanation:-

$$\begin{aligned} & \log (x + y)^2 = \log \{(k - 14) \times xy\} \\ & \text{So } (x + y)^2 = (k - 14) \times xy \\ & x^2 + y^2 = (k - 16) \times xy \end{aligned}$$

Given that logs exist only of positive numbers, we know that xy is positive and $x + y$ is positive.

So we can infer that both x and y are positive.

Log of 0 is not defined, so k cannot be 16.

What comes to mind now is that probably the minimum value of k is 17.

However let us try with a few real numbers to check

If $x = y$, we get solution as $k = 18$

If $2x = y$, we get solution as $k = 16 + 5/2 = 18.5$

Hence, we can say that the minimum is at $k = 18$

Alternate Solution:

Since $\log a$ is defined, if $a > 0$. So, $x + y > 0$ & $xy > 0$

$\Rightarrow x$ & y should be positive always. ($x, y \neq 0$)

Now $(x + y)^2 = xy(k - 14)$

$\Rightarrow x^2 + y^2 = (k - 16)xy$

Since sum of square should be positive.

So, $k > 16$

Let $k = 17$.

$\Rightarrow x^2 + y^2 = xy$

$\Rightarrow x^2 + y^2 - xy = 0$

$$\Rightarrow \left(\frac{x}{y}\right)^2 - \frac{x}{y} + 1 = 0$$

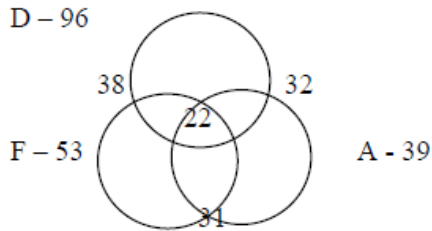
No real Solution.

$\therefore D < 0$

So, $k = 17$ not possible.

QNo:- 76 ,Correct Answer:- D

Explanation:-



People taking all 3 courses are: 22

People taking only 2 courses are:

$$D \& F: 38 - 22 = 16$$

$$F \& A: 31 - 22 = 9$$

$$D \& A: 32 - 22 = 10$$

People taking only 1 course are:

$$D: 96 - (16 + 10 + 22) = 48$$

$$F: 53 - (9 + 16 + 22) = 6$$

$$A: 39 - (9 + 10 + 22) = -2 \text{ (not possible).}$$

Thus the answer is option D.

QNo:- 77 ,Correct Answer:- 37

Explanation:-

The above term can be re-written as: $10^{38} + 10^{15} \times 2048^2$

We can see that there are two sub-problems to this:

One is what is the highest power of 2 that divides 10^{38} completely?

Two is what is the highest power of 2 that divides $10^{15} \times 2048^2$ completely?

Let us solve each sub-problem independently.

In the first problem, the answer will be 38

In the second problem, the answer will be 15 for the 10^{15} component.

Now 2048 is 2^{11} . So 2048^2 will be 2^{22} .

So for the second problem, the answer will be $15 + 22 = 37$.

Now we have to choose the smaller of the two, since the division has to be complete.

Hence the answer is 37.

QNo:- 78 ,Correct Answer:- C

Explanation:-

Truth Table

x	y	Output
0	0	0
1	1	0
0	1	1
1	0	1

This is nothing but the XOR function.

QNo:- 79 ,Correct Answer:- D

Explanation:-

Let us take the example of a few equations whose roots are real and positive:

Case 1: $x^2 - 2x + 1 = 0$

Here $c = 1$ and either of $k = 2, b = 2$ or $k = 3, b = 1$

Case 2: $x^2 - x + 1/4 = 0$

Here $c = 1/4$ and either of $k = 0, b = -1$ or $k = 2, b = 1$

Hence, none of these.

Alternative Solution:

Since the roots are real and positive, thus $D \geq 0$

$$(k - 1)^2 b^2 - 4c \geq 0$$

$$\text{Or, } (k - 1)^2 b^2 \geq 4c$$

Also since the roots are positive, thus their sum as well as product is also positive.

Hence, $(k - 1)b > 0$ and $c > 0$.

Now, assuming $c = 1, k = 2$, we have $b^2 \geq 4$.

Let us assume $b = 2$, thus $b > c$ and now checking the answer options, none of the option satisfies. Hence, the correct option is 4.

QNo:- 80 ,Correct Answer:- C

Explanation:-

Basically the question states that $x \approx (\sqrt{x})$

As x gets larger, (\sqrt{x}) gets much larger.

By Trial and error we find that the number is 24.

Its square root is 4.89, and it is divisible by 4, 3, 2 and 1.

Hence the answer is third option.

QNo:- 81 ,Correct Answer:- 1

Explanation:-

Area of the screen = length \times width

We know that the product of two numbers is maximum when they are equal.

So for maximizing the area, length = width.

Alternate explanation:

In general, the closer the dimensions are to each other, the higher will be the area.

Just to reconfirm, we will calculate the areas for two of the options.

Option 1: $20/\sqrt{2}$ and $20/\sqrt{2}$. So area will be 200 sq inch

Option 3: it will be 16 by 12 inch. So area is 192 sq inch.

QNo:- 82 ,Correct Answer:- 9

Explanation:-

Let us factorise $216 = 2^3 \times 3^3$

$$3 \times 6 \times 12$$

$$2 \times 6 \times 18$$

$$1 \times 12 \times 18$$

If we have a simultaneous AP and GP it is likely that the common ratio of the GP is negative.

So the solution is:

-6, 3, 12

This is an AP with common difference 9

Also 3, -6, 12 is a GP with common ratio -2

QNo:- 83 ,Correct Answer:- B

Explanation:-

We have to make an assumption that there were other products which were introduced in 2009, for the sale to increase.

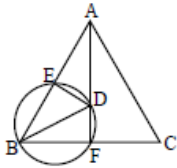
We can answer using the following table

Year	Total	A	B
2008	100	40	60
2009	125	$40 - 8 + 18 = 50$	$60 + 8 - 18 = 50$

So % of sales volume accounted for by Product A is $\frac{50}{125} = \frac{2}{5} = 40\%$

QNo:- 84 ,Correct Answer:- 2

Explanation:-



Since ΔABC has side 24, we know that $BF = 12$, $DE = DF = 4\sqrt{3}$ and $BD = 8\sqrt{3}$. As DE is the in-radius, we know that $\angle DEB = 90^\circ \Rightarrow BD$ is the diameter of the circle \Rightarrow radius of the circle is $4\sqrt{3}$. Now, $\Delta DEB \cong \Delta DFB$. So, the sum of their areas is $2 \times \frac{1}{2} \times 12 \times 4\sqrt{3} = 48\sqrt{3}$. So, the area of the circle not covered by $\square BEDF$

$= \pi(4\sqrt{3})^2 - 48\sqrt{3} = 48(\pi - \sqrt{3})$. Thus the required ratio is $\frac{48(\pi - \sqrt{3})}{48\pi} = \frac{\pi - \sqrt{3}}{\pi}$

QNo:- 85 ,Correct Answer:- B

Explanation:-

The total distance to be covered by one train to completely overtake the other = Sum of the lengths of the 2 trains = $120 + 120 = 240$ metres
 Let the speed of the faster train be x m/s and that of the slower train y m/s.
 In the first case, Relative Speed = $x - y$ (Since both are moving in the same direction)

$$\text{Relative speed} = \frac{\text{Distance}}{\text{Time taken}}$$

$$\therefore x - y = \frac{240}{15} = 16 \text{ m/s}$$

In the second case, the slower train moves at half its speed.
 Relative Speed = $x - 0.5y$ (since both are moving in the same direction)

$$\text{Relative speed} = \frac{\text{Distance}}{\text{Time taken}}$$

$$\therefore x - 0.5y = \frac{240}{10} = 24 \text{ m/s.}$$

Solving $x - y = 16$ and $x - 0.5y = 24$.

$$x = 32$$

$$\text{and } y = 16$$

\therefore The speeds of the faster and slower trains are 32 m/s and 16 m/s respectively.

Hence 2nd option.

QNo:- 86 ,Correct Answer:- 11

Explanation:-

$$A = \frac{101^8 + 101^6 \times 100^2 - 100^6 \times 101^2 - 100^8 - 101^8 + 100^8}{101^2 + 100^2}$$

$$= \frac{101^6 \times 100^2 - 100^6 \times 101^2}{101^2 + 100^2} = \frac{100^2 \times 101^2 (101^4 - 100^4)}{101^2 + 100^2}$$

$$= \frac{100^2 \times 101^2 (101^2 - 100^2)(101^2 + 100^2)}{101^2 + 100^2}$$

$= 100^2 \times 101^2 \times 201 \approx 201 \times 10^8$. Thus there will be total 11 digits in the value of A. Alternately, $A = 201 \times 101^2 \times 100^2 = 20,504,010,000$ and has 11 digits.

QNo:- 87 ,Correct Answer:- 4

Explanation:-

The given condition can be mathematically written as $96 + P^2 = Q^2 = (P + x)^2$

Where Q is obviously greater than P and thus written as $Q = P + x$ Thus, $96 = x(x + 2P)$

Now factorize 96 and by Hit-and-Trial, it can be seen that the factors should be both even or both odd to satisfy the above condition.

Both odd factors are not possible.

96 can be written as $(1 \times 96, 2 \times 48, 3 \times 32, 4 \times 24, 6 \times 16 \text{ and } 8 \times 12)$.

Note: The 4 distinct values of P are: 2, 5, 10 and 23. The best answer is option 4.

Alternate solution:

$$\text{Suppose } P^2 + 96 = X^2$$

$$\Rightarrow X^2 - P^2 = 96$$

$$\Rightarrow (X - P)(X + P) = 96.$$

Now, the product of 2 numbers is 96 means that each of the numbers represents a factor of 96.

We can rewrite 96 as (1×96) , (2×48) , (3×32) ,
 (4×24) , (6×16) and (8×12) .

One of the factors represents $(X + P)$ and the other represents $(X - P)$. If we add $(X + P)$ and $(X - P)$, we get $2X$.

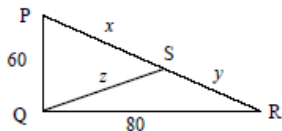
So, the sum of the factors must be an even number. This is possible only in 4 cases.

Thus P can take 4 different values.

The best answer is option 4.

QNo:- 88 ,Correct Answer:- B

Explanation:-



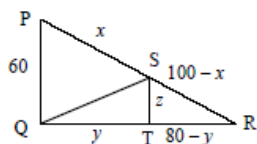
Let us assume $PS = x$, $SR = y$ and $QS = z$ such that $x + y = 100$.

Thus, $60 + z + x = 80 + z + y$ or, $x - y = 20$. Solving the above equations simultaneously, we get

$x = 60$ and $y = 40$. Now in ΔPQR , $\cos R = 80/100$. In ΔQSR , $\cos R = (80^2 + 40^2 - z^2)/(2 \times 80 \times 40)$

Solving, we get $z^2 = 2880$ or $z = 53.66$ (approx.)

Alternate solution:



Since QS is a side common to ΔPQS and ΔSQR , and their perimeters are equal, we have $60 + x = 80 + 100 - x$

$\Rightarrow x = 60$ cm. Drop $ST \perp QR$ so that $\Delta RTS \approx \Delta RQP$. Then, $\frac{PS}{PR} = \frac{QT}{QR} \Rightarrow \frac{60}{100} = \frac{y}{80} \Rightarrow y = 48$. Also,

$\frac{RS}{PR} = \frac{ST}{PQ} \Rightarrow \frac{40}{100} = \frac{z}{60} \Rightarrow z = 24$. Now, in ΔQST , $QS^2 = 24^2 + 48^2 = 2880$. So, $QS = \sqrt{2880}$, which lies

between $50^2 = 2500$ and $55^2 = 3025$. From the answer choices, the best answer is option 2.

QNo:- 89 ,Correct Answer:- D

Explanation:-

Assuming the original number to be of the form xy , the difference between the number itself and the number formed on reversing its digits = $9(x - y)$. Since difference has to be a perfect square, so $9(x - y) = 9, 36$, or 81 .

Number of two digit numbers for which $9(x - y) = 9$ or $x - y = 1$ are 98, 87, 76,... and their reverse values, a total of 17 values.

Number of two digit numbers for which $9(x - y) = 36$ or $x - y = 4$ are 95, 84, 73,... and their reverse values, a total of 11 values.

There is only one two digit number for which $9(x - y) = 81$ or $x - y = 9$ and it is 90. Therefore, the total number of two digit numbers satisfying the criteria = $17 + 11 + 1 = 29$.

QNo:- 90 ,Correct Answer:- 1

Explanation:-

Here we have $f(x + 1) - 4f(x) + 15 = -9x$

$f(x + 1) = 4f(x) - 9x - 15$

Putting $x = 1$, we get,

$f(1 + 1) = 4f(1) - 9(1) - 15$

$f(1) = 13$, so $f(2) = 4(13) - 9 - 15$

$f(2) = 52 - 24$

$f(2) = 28$

All the options contain one term in some or the other power of 4 and the second term in multiples of 3, we have to modify the

above results accordingly.

$$f(2) = 16 + 12 \quad f(2) = 4^2 + 3(1 + 3) \quad \dots (i)$$

$$\text{For } x = 2, \quad f(3) = 4f(2) - 9(2) - 15$$

$$f(3) = 4(28) - 18 - 15$$

$$f(3) = 112 - 33$$

$$f(3) = 79$$

$$f(3) = 64 + 15$$

$$f(3) = 4^3 + 3(2 + 3) \quad \dots (ii)$$

From (i) and (ii) we can conclude that, the following formula fits for the two values of x .

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

$$f(101) = 4^{101} + 309.$$

QNo:- 91 ,Correct Answer:- 3

Explanation:-

$$t_1 = 1$$

$$t_2 = 4(1) + 8$$

$$t_3 = 4\{4(1) + 8\} + 8$$

$$= 4^2(1) + 4 \times 8 + 8$$

$$t_4 = 4\{4^2(1) + 4 \times 8 + 8\} + 8$$

$$= 4^3(1) + 4^2 \times 8 + 4 \times 8 + 8$$

$$\dots \dots \dots$$
$$t_n = 4^{n-1}(1) + 8 \{1 + 4 + 4^2 + \dots + (n-1) \text{ time}\}$$

$$= 2^{2(n-1)} + 2^3 \left\{ \frac{4^{n-1} - 1}{3} \right\}$$

$$\text{So, } t_{99} = 2^{196} + 2^3 \left(\frac{4^{98} - 1}{3} \right)$$

QNo:- 92 ,Correct Answer:- B

Explanation:-

Suppose the time taken to read a caselet is R and the time taken to answer 1 question is Q . Then, $12Q = R$. Since there are 27 questions and 4 caselets, the total time taken would be $27Q + 4R = 75Q$. Suppose the time taken to read a caselet at the new

reading speed is X . Then, the total time taken would be $27Q + 4X = 75Q - 7.5Q = 67.5Q \Rightarrow 4X = 40.5Q \Rightarrow X = 10.125Q$. Since

reading speed and time are inversely related, the new reading speed is $12Q/10.125Q = 1.185$ times the earlier reading speed. Thus, the reading speed should increase by 18.5%.

QNo:- 93 ,Correct Answer:- C

Explanation:-

If the cost of the cake is C and that of the pastry is P , then $1.25C + 1.2P = 564$ and $1.2C + 1.25P = 563$.

Adding the equations, we get $2.45C + 2.45P = 1127 \Rightarrow C + P = 1127/2.45$.

Subtracting the equations, we get $0.05C - 0.05P = 1 \Rightarrow C - P = 1/0.05$.

$$\text{Thus, the required ratio is } \frac{C-P}{C+P} = \frac{1}{0.05} \times \frac{2.45}{1127} = \frac{1}{23}$$

QNo:- 94 ,Correct Answer:- 7

Explanation:-

Two digit number representing yy should have maximum number of factors so that we can express yy as a product of two

numbers, maximum number of times. But $dd \leq 31$, $mm \leq 12$. One can see that 60, 72, 84, 90, 96 are those two digit numbers which have maximum number of factors = 12. Out of these 60 has 7 possible cases for (dd, mm) , which are $(30,2), (20,3), (15,4), (5,12), (12,5), (10,6), (6,10)$

QNo:- 95 ,Correct Answer:- 1

Explanation:-

16, 25, 36, 49, 64 and 81 are the only 2-digit perfect squares. So, the total number of integers that can be formed by using 2 of these will be $6 \times 5 = 30$. If these numbers are written in the form $abcd$, then each of the 6 numbers will appear 5 times as ab and 5 times as cd . So, the sum of all these will be $5 \times 100 (16 + 25 + 36 + 49 + 64 + 81) + 5 \times (16 + 25 + 36 + 49 + 64 + 81) = 505 \times 271 = 136,855$.

QNo:- 96 ,Correct Answer:- 4

Explanation:-

Let A borrowed Rs. x from B, therefore Rs. $(1200-x)$ from C respectively
Now applying the conditions we have

$$172 = \frac{x \times 14 \times 1}{100} + \frac{(1200-x) \times 15 \times 1}{100} \Rightarrow x = \text{Rs. } 800$$

Therefore A borrowed Rs. 800 from B.

QNo:- 97 ,Correct Answer:- B

Explanation:-

The final ratio of glycerine to the total quantity is-

$$\frac{G}{3} = \left(1 - \frac{1}{3}\right)^2 = \frac{4}{9}$$

Thus the ratio of water to glycerine in the final mixture will be 5 : 4.

QNo:- 98 ,Correct Answer:- 47

Explanation:-

Let the weights of Madhu, Shilpa and Mehr be M_1, S and M_2 respectively. Also let the total weight of the rest be k kgs.

$$\text{Then } M_1 + S + M_2 + K = 47.9 \times 10 = 479$$

Let average weight of M_1, S and M_2 be x then average weight of other 7 girls = $x - 3$.

$$\therefore 3x + 7(x-3) = 479$$

$$\Rightarrow x = 50.$$

So average weight of rest of the girls = $50 - 3 = 47$

QNo:- 99 ,Correct Answer:- D

Explanation:-

Area of a regular hexagon of side $a = 6 \times \frac{\sqrt{3}}{4} a^2$

Area of a square of side $b = b^2$

Now according to the question, $6 \times \frac{\sqrt{3}}{4} a^2 = b^2 \Rightarrow \frac{b^2}{a^2} = \frac{3\sqrt{3}}{2} \frac{b}{a} = \frac{3^{3/4}}{\sqrt{2}}$

Required Ratio $= \frac{4b}{6a} = \frac{4 \times 3^{3/4}}{6 \times \sqrt{2}} = \frac{\sqrt{2}}{\sqrt[4]{3}} = \left(\frac{4}{3}\right)^{1/4}$

QNo:- 100 ,Correct Answer:- D

Explanation:-

The digits in the 1st, 3rd, 5th, 7th and 9th places are to be even or zero. The digits in the 2nd, 4th, 6th, 8th and 10th places are odd and can be placed in 5! Ways.

The digit in the 1st place can be selected in 4 ways, as zero cannot appear in the 1st place.

The digits in the 3rd, 5th, 7th and 9th places can be selected in 4, 3, 2 and 1 ways respectively.

Therefore the total no of ways is $5! \times 4 \times 4! = 11,520$

Hence the answer is option D
