T.I.M.E.

Triumphant Institute of
Management Education Pvt. Ltd

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INSTRUCTIONS

1. Read the instructions given at the beginning/end of each section or at the beginning of a group of questions very carefully.

2. This test has a total of 100 questions in three sections: (i) Verbal Ability and Reading Comprehension –34 Questions (ii) Data Interpretation and Logical Reasoning –32 Questions and (iii) Quantitative Ability –34 Questions. The total time available for the test is **180 minutes**. However, you will be allotted exactly 60 minutes for answering the questions in each section and you cannot switch from one section to another while answering the questions in a section.

3. All questions carry three marks each. Each wrong answer to any multiple-choice type question will attract a penalty of one mark. Wrong answers to any non multiple-choice type question will not attract any penalty.

SECTION – I
Number of Questions = 34

DIRECTIONS *for questions 1 to 5:* The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

In a world where the majority of analysts are bi- if not multi-lingual, the question of how language affects both the analytic process and analytic product is an important one. Emotion, language processing and cognitive biases aside, the intriguing question remains: Would you make the same decision in English as you would in, say, Chinese? Most analysts would likely answer yes to this question, but recent research led by Boaz Keysar suggests otherwise.

The study concludes that "people are not as risk-averse in a foreign language as they are in their native tongue." Being more willing to take on risk might sound like a dangerous characteristic to possess from an intelligence analyst's perspective. In this case, however, being less risk-averse means that people more systematically assessed the problem and came to a more rational conclusion. At the root of this finding is the conclusion that "people rely more on systematic processes...when making decisions in a foreign language." ... The ability to make decisions driven more by rational thought and less by emotion is a capability to which every analyst likely aspires.

...Keysar showed that while participants made different decisions based on how the problem was framed (as more or less risky), they made the same decision for both risk conditions when using their foreign language. The three groups of participants had English as a first language and Japanese as a second, Korean as a first language and English as a second or English as a first language and French as a second, indicating that this effect is replicable within and across language family boundaries.

So why, then, do we make more rational, less biased decisions in our second language than in our first? It largely has to do with the lack of "emotional resonance" that we derive from foreign language text... [P]eople perceive messages delivered in their second language as less emotional (and consequently less impactful) than messages delivered in their first language...

How we perceive emotion then ties directly to our internal cognitive processes. According to Daniel Kahneman, the most widely respected authority on these internal processes, we have two broad systems of thinking – System 1 and System 2. System 1 is automatic while System 2 is more deliberate and rational. Think of System 1 as the mechanism driving impulse buys and split-second decisions, whereas System 2 is more like making a grocery list in advance...

Cognitive biases originate in System 1 thinking along with our gut instincts, emotional reactions and a less credible substantiation for intelligence analysis, intuition. Consequently, it makes sense to pursue analysis derived from System 2 processes as it will likely be less biased, more rational and more systematically attained. The argument here is that conducting analysis within the domain of a second, third or fourth language will lead to an increased reliance on System 2 processes, thereby reducing bias and ultimately resulting in more systematically derived analysis.

[W]ith bilingualism now practically a pre-requisite for analysis work, the benefit of this argument to intelligence analysts is obvious. The traditional view is that an analyst is at an automatic disadvantage when operating in a non-native linguistic domain to conduct analysis, fearing the loss of meaning and context. The argument here, however, sheds new light on the quality of the analytic product obtained in a non-native language.

1. Which of the following agrees with the conclusion cited by Keysar's study?
   (A) people analyse more systematically in their native language than in a foreign language.
   (B) people are more rational when using their native language than when they are using a foreign language.
   (C) people cannot be trusted to make logical decisions in a foreign language.
   (D) people take a more logical and systematic method to make decisions in a foreign language.

2. It can be inferred from the fourth para ('So why...in their first language') that:
   (A) we associate more emotion and impact with our second language.
   (B) rationality and emotion don't go hand in hand.
   (C) bias and emotion don't go hand in hand.
   (D) messages are conveyed emotionally only in the first language.

3. Which of the following, if true, refutes the author's main point in the passage?
   (A) The quality of analytic product in the native tongue is below par.
   (B) Analysts are more rational when they are proficient in using a language, irrespective of whether it is their first or second language.

   (C) Analysts can't be competent unless they are bilingual.
   (D) The native language expertise is the most important parameter to recruit intelligence analysts.

4. The author is likely to agree with all the following with respect to intelligence analysts EXCEPT
   (A) cognitive biases correspond to System 1 thinking.
   (B) intuition, gut instincts and emotional reactions are not systematically derived.
   (C) System 2 processes result in more unbiased analysis.
   (D) analysis in native language relies more on System 2 thinking.

5. Which of the following best summarises the relationship between rationality and risk-taking appetite?
   (A) Rationality is affected by emotional connection to the language.
   (B) Greater willingness to take risk is an indicator of rationality.
   (C) Greater willingness to avoid risk is an indicator of rationality.
   (D) Risk-taking appetite influences how systematic one's thinking is.

DIRECTIONS *for questions 6 to 10:* The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

Livers and alcohol do not get on well together. That is well known. But precisely how alcohol destroys the liver of someone who drinks too much has been a mystery. Though alcohol (technically, ethanol which has two carbon atoms) wreaks some damage directly, experiments suggest this is by no means the whole explanation. The serious and irreversible harm of cirrhosis seems to have another cause, hitherto unknown. Now, though, perhaps it has been unmasked. For a team of medical researchers led by Bernd Schnabl of the University of California, San Diego suggests that the culprit is alcohol's effect on the gut, and the bacteria therein.

Fortunately for those who like a pint or a dram, the liver is a regenerative marvel. New cells constantly take the places of old ones. Indeed, huge chunks can be cut from the organ, only to grow back within days. This is just as well, for one of the liver's tasks is to deal with the stream of toxic chemicals people ingest as part of their food and drink. Ethanol is one of these. Though large quantities may induce a build-up of hepatic fat known as steatosis, abstinence will often reverse this. But even the liver can stand only so much. ....

One curiosity is that certain antibiotics seem to ameliorate alcohol's effect on the liver. The livers of mice that were given antibiotics which clear their intestines of bacteria before they are dosed with ethanol suffer far less damage than those of similar animals not dosed with antibiotics. Five years ago that knowledge prompted Dr Schnabl to start looking into the relationship between alcohol and gut bacteria. His latest findings have just been published in *Cell Host and Microbe*.

Over the course of his research, Dr Schnabl found that heavy consumption of alcohol hampers the intestine's antibacterial defence system. In particular, it suppresses production of two proteins called REG3B lectin and REG3G lectin. These keep the number of bacteria in the gut under control, so their sudden absence leads to a population explosion. And that, Dr Schnabl hypothesised, lets bacteria escape through the intestinal wall to the liver.

To test this idea he designed an experiment. For eight weeks, he and his colleagues fed ethanol both to ordinary mice and to mice genetically engineered to lack the two pertinent lectin molecules. They also engineered some of the rodents' gut bugs to make the bacteria in question fluoresce. This let them track these bugs, and see if any left the intestines.

They did. As the mice were exposed to more and more alcohol, the glow-in-the-dark bacteria underwent population explosions that let them escape the intestines. Once out, they migrated to the liver, where they triggered strong immune reactions. These drew large numbers of white blood cells into the liver, causing inflammation. The white cells themselves engulf and consume bacteria, but prolonged inflammation also damages host tissue. Both groups of mice were affected, but the effect was more intense in the lectin-deficient animals. In both their livers and their intestines, their bacterial populations were 50% larger than those of the control mice. As a consequence, they ended up with livers that were much more badly damaged.

The researchers then tried things in reverse. They ran the experiment with mice engineered to produce more lectins than normal, and found these animals could endure extensive exposure to alcohol without developing large bacterial populations or showing any signs of liver damage.

All this suggests that tinkering with the gut bacteria of alcoholic people might help.

6. The passage outlines several hypotheses to arrive at the most convincing explanation that
   (A) suppressing the production of lectins is a key step in preventing hepatic cirrhosis.
   (B) antibiotics can exacerbate the effect of alcohol on the liver.
   (C) alcohol consumption causes the increased intestinal bacterial populations to escape to the liver, causing tissue damage.
   (D) alcohol consumption causes inflammation and tissue damage in the intestinal walls due to mass migration of bacteria from the liver.

7. What does the author imply when he says "But even the liver can stand only so much." (para 2)?
   (A) Abstinence from alcohol can enhance the regenerative quality of the liver.
   (B) Excessive alcohol consumption can lead to irreversible liver damage.
   (C) The liver functions normally in those individuals whose alcohol intake is limited to a pint or a dram.
   (D) Abstinence from alcohol can, to a small extent, reverse the process of infiltration of liver cells with fat but the liver eventually fails due to an overdose of antibiotics.

8. Of the following, which would add the least depth to the author's argument?
   (A) A comparative analysis of the bacterial populations in the intestines of alcoholics and non-alcoholics.
   (B) Preliminary results of experiments indicating that the mentioned research findings from mice apply to humans as well.
   (C) Assessment of the reaction of the rodent's antibacterial defence system in its gut to alcohol exposure.

   (D) A study citing a new way to boost production of REG3B and REG3G lectins in alcoholic people.

9. Which of the following choices correctly summarizes the consequence(s) of alcohol exposure in lectin-augmented mice as has been depicted in the passage?
   (A) They showed signs of liver damage even though there were no - large bacterial populations in their intestines.
   (B) They exhibited increased bacterial populations in their guts without any sign of liver damage.
   (C) Their livers had 50% greater bacterial populations and were more badly damaged than those of the control mice.
   (D) They could endure extensive exposure to alcohol without developing large bacterial populations or showing any signs of liver damage.

10. According to the passage, the awareness of which of the following formed the rationale for Dr Schnabl to begin his investigations into the relationship between alcohol and gut bacteria?
   (A) Livers and alcohol do not share a great relationship together.
   (B) The livers of mice that were given antibiotics before they are exposed to ethanol suffer far less damage than the livers of similar animals not dosed with antibiotics but exposed to ethanol.
   (C) Production of REG3B lectin and REG3G lectin falls with excessive alcohol consumption and this promotes an increase in the population of gut bacteria.
   (D) Tinkering with the gut bacteria of alcoholic people is possible.

DIRECTIONS *for questions 11 to 15:* The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

...During the Cold War, the tensions that defined the world were ideological and geopolitical...And policymakers who could combine an understanding of both...ascended to the top of the heap... Once the Cold War ended, however, geopolitical and ideological issues faded in significance, overshadowed by the rapidly expanding global market as formerly socialist countries joined the Western free trade system. All of a sudden, the most valuable intellectual training and practical experience became economics, which was seen as the secret sauce that could make and unmake nations.

In the three decades since the end of the Cold War, economics has enjoyed a kind of intellectual hegemony... Economists have been much sought after by businesses, governments, and society at large, their insights seen as useful in every sphere of life.

That hegemony is now over. Things started to change during the 2008 global financial crisis, which had a far greater impact on the discipline of economics than is commonly understood. As Paul Krugman noted in a September 2009 essay in the New York Times Magazine, "Few economists saw our current crisis coming, but this predictive failure was the least of the field's problems. More important was the profession's blindness to the very possibility of catastrophic failures in a market economy." ... In October 2008, Greenspan, a lifelong libertarian, admitted that "the whole intellectual edifice ... collapsed in the summer of last year."

For Krugman, the reason was clear: Economists had mistaken "beauty, clad in impressive-looking mathematics, for truth." In other words, they'd fallen in love with the supposed rigor that derives from the assumption that markets function perfectly. But the world had turned out to be more complex and unpredictable than the equations.

...Modern-day economics had been built on certain assumptions: that countries, companies, and people seek to maximize their income above all else, that human beings are rational actors, and that the system works efficiently. But over the last few decades, compelling new work by scholars such as Daniel Kahneman, Richard Thaler, and Robert Shiller has begun to show that human beings are not predictably rational; in fact, they're predictably irrational...

In the social sciences, it is generally understood that theoretical assumptions never mirror reality, but do provide a powerful way to understand and predict. What the behavioural economists showed is that the assumption of rationality actually produces misunderstandings and bad predictions. It is worth noting that one of the very few economists who predicted both the dot-com bubble that caused the crash of 2000 and the housing bubble that caused the crash of 2008 was Shiller, who won the Nobel Prize in 2013 for his work in behavioural economics.

... [I]n the heady days of post-Cold War globalization, when the world seemed to be dominated by markets and trade and wealth creation, it became the dominant discipline, the key to understanding modern life. That economics has since slipped from that pedestal is simply a testament to the fact that the world is messy. The social sciences differ from the hard sciences because "the subjects of our study think," said Herbert Simon, one of the few scholars who excelled in both. As we try to understand the world of the next three decades, we will desperately need economics but also political science, sociology, psychology, and perhaps even literature and philosophy.

11. The author's central argument is repudiated by which of the following counter-arguments?
    (A) In the long run, the markets always work efficiently.
    (B) The direction of the markets can always be predicted accurately over a long period.
    (C) Assumptions of human logic and rationality are misplaced in predicting markets.
    (D) Group decisions that affect the markets are usually rational and predictable.

12. The phrase 'the whole intellectual edifice' is:
    (A) an argument presented to show that the hegemony of economists is now over.
    (B) an accurate description of the current importance given to economics.
    (C) an analogy to explain how the 2008 financial crisis exposed the shortcomings of economists' assumptions.
    (D) a metaphor to explain the assumptions of economics in a market economy.

13. Economists became very important in the post-Cold War era because:
    (A) it was an era defined by ideological and geopolitical tensions.
    (B) the well-being of nations seemingly depended on their comprehension of economics.

(C) there were very few economists because of which they were sought after by businesses.
(D) the theoretical assumptions of economics provide a powerful way to understand and predict market behaviour.

14. All the following indicate the flaw in modern-day economists mistaking 'beauty, clad in impressive-looking mathematics, for truth', EXCEPT:
    (A) they believed that the system works efficiently.
    (B) they believed that world events could be predicted with flawless economics.
    (C) they assumed that people are driven by rational motives.
    (D) they assumed that maximising income has to be the predominant goal in any system.

15. According to Herbert Simon, the basic difference between hard sciences and social sciences is that:
    (A) social sciences involve subjects which help understand unpredictability.
    (B) hard sciences are a lot more rigorous with assumptions than social sciences.
    (C) social sciences are irrational whereas hard sciences are rational.
    (D) social sciences deal with unpredictable subjects unlike in case of hard sciences.

DIRECTIONS for questions 16 to 19: The passage given below is accompanied by a set of four questions. Choose the best answer to each question.

A striking new study has raised eyebrows this week with its alarming conclusions about a possible consequence of future climate change. Under an extreme climate change scenario, the study found that huge tracts of stratocumulus clouds in the Earth's atmosphere — which help to reflect sunlight away from the planet and cool the climate — could disintegrate.

If that happens, global temperatures could skyrocket by 8 degrees Celsius, or more than 14 degrees Fahrenheit, the study suggests. And that's on top of the global warming that would have already occurred by that point...

Still, there are a few important caveats. First, the circumstances required to cause such an event are fairly extreme as far as climate scenarios go — although not impossible. The study finds that the cloud breakup would probably start to occur once atmospheric carbon dioxide levels reach about 1,200 parts per million, or triple their current levels.

But scientists generally suggest that under a business-as-usual climate scenario, in which no action is taken to curb global greenhouse gas emissions in the future, CO_2 levels will probably be approaching 1,000 ppm around the end of the century.

...Scientists increasingly suggest that clouds may be among the most important — although also some of the most complex — regulators of the global climate. Depending on local conditions, clouds may enhance warming by trapping heat, or they may help cool the climate by reflecting sunlight back into space...But clouds are notoriously difficult to model, even on a small scale. There are many factors that affect where and when they form and how big they grow — and it's especially hard to simulate their behaviour all over the globe.

It's even more difficult to project their responses to future climate change...So finding better ways to capture clouds in climate models is one of the fastest-growing priorities among climate scientists. The new study represents one approach to the problem, using a technique known as a "large-eddy simulation." It models the behaviour of tiny particles and other fine details that affect the formation of individual clouds, which regular climate models have difficulty capturing. The study conducted an eddy simulation, modelling the formation of clouds over one specific patch of the ocean, and then extrapolated those results up to a global scale.

Large-eddy simulations are currently one of the most useful ways to model the physics of individual clouds. But while they're improving, scientists can still only run the models at relatively small scales. They can't reproduce these fine physics in a global-scale model. So, scientists are working to develop even more cutting-edge approaches. And the use of artificial intelligence may be leading the way.

... Scientists from Columbia University, the University of California, Irvine, and the Ludwig Maximilian University of Munich are working on using deep learning — a kind of machine learning method — to try to better represent clouds in large-scale climate models. The "Cloud Brain," as they call their project, involves a neural network that learns to predict the outcomes of models that specifically simulate clouds. This technique can then be used to represent cloud behaviour in larger-scale models, the researchers say...

16. Which of the following studies is the author most likely to approve of in the immediate context of the arguments presented in the passage?
(A) A study about the possible temperature spikes that could be caused by disintegration of clouds.
(B) A study about the feasibility of large-eddy simulations to understand cloud behaviour.
(C) A study about feasibility of deep learning methods to better represent clouds in large-scale climate models.
(D) A study about how clouds would respond to climate change on a large scale.

17. The author calls clouds important regulators of climate because:
(A) they lower and raise the temperature based on conditions.
(B) they are notoriously difficult to simulate and study.
(C) there isn't complete clarity over how they form or grow.
(D) their behaviour across the globe isn't consistent.

18. The main drawback of large-eddy simulation, according to the author, is that:
(A) it is difficult to project cloud responses to future climate change.
(B) the models for formation of clouds aren't accurate when extrapolated to a global scale.
(C) cloud behaviour in global-scale models cannot be generated.
(D) fine details that affect formation of individual clouds cannot be reproduced.

19. Which of the following is a caveat mentioned in the third para?
(A) The chances of global temperatures skyrocketing by 8 degrees Celsius are low.
(B) Disintegration of stratocumulus clouds can only take place in extreme climate scenarios.
(C) The damage caused by global warming will precede the cloud disintegration.
(D) Atmospheric carbon dioxide levels can never reach 1200 parts per million.

DIRECTIONS *for questions 20 to 24:* The passage given below is accompanied by a set of five questions. Choose the best answer to each question.

There is a longstanding debate among social scientists about what ultimately drives human behaviour. Do ideals, symbols and beliefs lead people to act as they do? Or are the wellsprings of action and the drivers of history less ethereal: money, fear, the thirst for power, circumstance and opportunity, with culture as an afterthought?

Scholars in the first camp are culturalists; in the second, materialists. And the disagreement between them is not merely academic. It spills over into heated policy debates about crime, poverty, immigration, economic development and everything in between.

In "Rule Makers, Rule Breakers," the psychologist Michele Gelfand sides with the culturalists. ... [She aims to] draw attention to one aspect she believes has been ignored: the social norms — or the informal rules of conduct, the dos and don'ts, the sources of raised eyebrows — that emerge whenever people band together.

Gelfand's thesis is that mapping the tightness or looseness of the cultures of various groups — nations, regions, social classes, companies, friendship circles — helps explain things that might otherwise be puzzling.

Take authoritarianism: Why did Egyptians vote overwhelmingly for Abdel Fattah el-Sisi in that country's 2014 presidential election, choosing to be led by an autocrat just a few years after the democratic hopefulness of the Arab Spring?

Gelfand argues that whatever a country's baseline level of constraint (Egypt's religious conservatism would put it near the tight end of the spectrum), it can adjust in response to shifting conditions. Perceived threats, including social instability, produce tightening. So, it was in Egypt, she claims. The ouster of Hosni Mubarak and the political chaos that ensued sent Egypt's society into a tailspin, leaving voters yearning for a strongman who could assert control and bring back order.

Although Gelfand can occasionally come across as too much of a salesperson for her big idea, she's generally an engaging writer with real intellectual range. She sparkles most when diving into evolutionary anthropology to make sense of long-term patterns in cultural tightness and looseness. Humans have evolved to be strikingly sensitive to norms, which provide a major evolutionary advantage as a way of facilitating cooperation. The evidence Gelfand reviews suggests that tighter cultures tend to form in the face of ecological challenges, high population density and threats from other groups...

The problem is that — in spite of the context she provides for how norms developed in the first place — Gelfand routinely ignores materialist explanations for the various phenomena she considers. Sure, would-be strongmen can and do exploit voters' fears of instability and change. But another crucial element in explaining why Sisi, Egypt's former minister of defence, won 96 percent of the vote is that the military, determined to maintain its grip on the country and to keep billions of dollars in foreign aid flowing, banned the main opposition, the Muslim Brotherhood, after deposing Mohamed Morsi, the inept but democratically-elected Islamist president who followed Mubarak in office.

Other examples are even more glaring, as when Gelfand accounts for limited upward mobility in the United States by pointing to the ostensibly tight culture of the working class, incapable of the flexibility needed to find a place in the new economy. She writes as though the hoarding of resources and opportunities by the wealthy was not a huge part of the story...

20. Michele Gelfand's work suggests that the formation of tighter cultures is caused by:
(A) economic challenges.
(B) social classes.
(C) population explosion.
(D) foreign and environmental threats.

21. The difference between materialists and culturalists is that:
(A) the former believe money, opportunity, and power are stronger driving forces of human behaviour than culture.
(B) the former believe culture is a by-product of money and power.
(C) the latter believe culture drives people towards money and power.
(D) the latter believe culture is a consequence of money, fear and power.

22. According to the author, the chief drawback in Gelfand's observations is that:
(A) she is a materialist who suspects culture to be the chief trouble-maker.
(B) she is a culturalist who only considers phenomena untouched by materialism.
(C) she is myopic as far as the effects of culture on human behaviour are concerned.
(D) she pegs cultural reasons and not material ones as being pivotal behind puzzling phenomena.

23. Which of the following has been mentioned by the author to substantiate his/her chief contention against Gelfand's interpretation of Egypt's reverting to autocracy?
(A) Strongmen can exploit voters' fears of instability and change.
(B) The military intervened in order to keep foreign aid flowing.
(C) The democratically elected Islamist president was inept for the office he held.

(D) Egypt's former minister of defence won a massive mandate.

24. Gelfand will approve of all the following explanations of everyday social activities EXCEPT:
(A) people avoid car-pooling despite its benefits because they are not used to commuting with strangers and mere acquaintances.
(B) people throw birthday parties despite the expenses to socialise with near and dear ones.
(C) people buy homes more to save on taxes than to enjoy a sense of accomplishment in society.
(D) people take vacations based on what their families would enjoy most and not on the basis of the cost.

DIRECTIONS *for question 25*: The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.

25. (1) We all know that successful people come from hardy seeds.
(2) Biologists often talk about the "ecology" of an organism.
(3) But do we know enough about the sunlight that warmed them, the soil in which they put down their roots, and the rabbits and lumberjacks they were lucky enough to avoid?
(4) The tallest oak in the forest is the tallest not just because it grew from the hardiest acorn; it is the tallest also because no other trees blocked its sunlight, the sun around it was deep and rich, no rabbit chewed through its bark as a sapling, and no lumberjack cut it down before it matured.

DIRECTIONS *for question 26:* The paragraph given below is followed by four summaries. Choose the option that best captures the essence of the paragraph.

26. Catharsis is the purgation of negative emotions resulting in renewal and restoration. Aristotle used it as a metaphor in the *Poetics*. We suffer through aversive experiences because of the positive payoff at the end – the release of fear, anxiety or sadness. But catharsis is a poor theory of the emotions. People neither leave horror movies feeling mellow nor walk out of tragedies feeling giddy. The aggression catharsis hypothesis, which establishes that "venting" aggression by watching media violence or playing violent video games can be a method of reducing aggressive behaviours, is flawed. Although Aristotle used 'catharsis' with relation to violent media (plays and poetry), he did not mean that viewing media violence can purge the viewer of aggressive feelings. Furthermore, he offers several detailed requirements of plot and character for achieving his type of catharsis, and modern media violence does not meet these requirements. The empirical support is also not only lacking, a large empirical base contradicts the catharsis hypothesis. Human neuroscience also contradicts the catharsis hypothesis.

(A) Catharsis is a poor theory of the emotions, one that has no scientific support. Aristotle argues in the *Poetics* that it is not true that emotional experiences have a purging effect.

(B) Certain catharthic events initiate a psychological purging process, through which fear and anxiety are released, and we feel better, calmer and purified afterward. But the aggression catharsis hypothesis put forward by Aristotle is flawed.

(C) Catharsis is the purgation of negative emotions, through which anxiety and sadness are released, but neuroscience and empirical data contradict the catharsis hypothesis. Aristotle who metaphorically employed the term 'catharsis' was not of the opinion that media violence, which lacks the rudiments for achieving catharsis, reduces aggressive feelings.

(D) Aristotle compared the effects of tragedy on the mind of a spectator to the effect of a cathartic on the body, but he outlined several factors for achieving catharsis which are unmet by media violence.

DIRECTIONS *for question 27:* The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.

27. (1) Einstein explained there is every reason to believe that planets like Mars are inhabited.
    (2) Einstein hypothesized, however, that the signals were due either to atmospheric disturbances or to secret experimentation of other systems of wireless telegraphy.
    (3) Prompted by "mysterious wireless signals" received from an unknown source in both London and New York, a London correspondent contacted Einstein for an explanation.
    (4) But Martians would be more likely to communicate via light rays than through the wireless, he added.

DIRECTIONS *for question 28:* Five sentences related to a topic are given in the question below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

28. (1) ... ... have also prised a share of the market from the country's five leading winemakers.
    (2) As a result, a wine industry that had seemed on the verge of a breakthrough is now plateauing.
    (3) Wine producers, having invested in new technology and outside consultants, have begun to win awards in international competitions.
    (4) The good news for Turkish wines is that quality has improved markedly in the past decade.
    (5) "The new boutique companies have pushed the big ones to make better wine," says Sabiha Apaydin, a sommelier at one of Istanbul's leading restaurant.

DIRECTIONS *for question 29:* The sentences given in the question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Decide on the proper order for the four sentences and key in the sequence of four numbers as your answer, in the input box given below the question.

29. (1) To science we owe dramatic changes in our smug self-image.
    (2) Now archaeology is demolishing another sacred belief: that human history over the past million years has been a long tale of progress.
    (3) Astronomy taught us that our earth isn't the center of the universe and from biology we learned that we weren't specially created by God but evolved along with millions of other species.
    (4) In particular, recent discoveries suggest that the adoption of agriculture, supposedly our most decisive step toward a better life, was a catastrophe from which we have never recovered.

30. (1) The new Phoenix Hotline will make it easier to report suspected phoenix behaviour directly to the ATO so they can take timely action against companies and their directors, and safeguard employee entitlements like wages and superannuation.

(2) Last financial year, the Australian Tax Office sent out tax bills totalling more than $270 million from more than 340 reviews and audits of businesses involved in phoenix activity.

(3) Phoenixing – the liquidation of a business to avoid liabilities and to continue the operation under another guise – is costing Australia between $2.85 billion and $5.13 billion a year.

(4) The ATO says illegal phoenix activity is prevalent in building and construction, labour hire, payroll, childcare and security services, computer consulting, cafés and restaurants.

(5) Phoenix companies arise from the ashes of a collapse, usually with the same people operating the business, leaving behind a trail of avoided outstanding payments to tax authorities, creditors, businesses, customers and employees.

31. (1) Perhaps, that is how I became a poet – perhaps I longed for a space in which I could not fail, or more importantly, in which it was fine to fail.

(2) Mores of grammar, syntax and logic could be smudged without explanation or excuse, and there was beauty in that chaos and blur.

(3) Poetry as a medium delivers affective responses in ways traditional narrative prose may not.

(4) In writing, however, my language could be perfect.

(5) In poetry, I realised again and again that 'failures' were, in fact, openings to more possibilities.

32. (1) In the past few years, the self-styled capital of the north has become renowned for its residential boom with thousands of new flats crowding into the Victorian gridlines of its city centre.

(2) At street level, the piles of sleeping bags come into sight the moment you emerge from the city's Piccadilly or Victoria stations.

(3) It is the great Manchester paradox.

(4) But it has also become notorious for a serious homelessness problem.

33. One of the signs of passing youth is the birth of a sense of fellowship with other human beings as we take our place among them. We certainly take more interest in the writings of our contemporaries and pardon their lack of inspiration for the sake of something that brings them nearer to us. It is even arguable that we get more from the living, although they may be much inferior, than from the dead. In the first place there can be no secret vanity in reading our contemporaries, and the kind of admiration which they inspire is extremely warm and genuine, because to give way to our belief in them, we have to often sacrifice some very respectable prejudice which does us credit.

(A) The writings of our contemporaries start appealing to us over superior work by the dead as old age brings us closer to other humans.

(B) The writings of the living are more inspiring than the writings of the dead because of genuinely warm admiration we have for our contemporaries.

(C) It is prejudice that leads us to believe that the writings of the dead are superior to those of the living which lack inspiration.

(D) We overlook the lack of inspiration in the writings of our contemporaries, even though they are inferior to those of the dead, for the sense of fellowship that we develop post-youth.

34. The history of chess is a history of metaphors and moral lessons. It emerged in fifth-century India, and wherever it has gone since has been a ludic mirror-image of the world around it. Until the 19th century, when the set was standardised – becoming the Staunton version we play with today – the mirror's reflections were preserved in pieces, which show chess's extraordinary ability to adapt to new places and people. In ancient India, there were no bishops, castles or queens, but elephants, chariots and ministers of war. In the world of early Islam, there could be no images of beast or man, so the game was played with elegant cylinders and conicals in ivory or stone, the pawns lined up like a battalion of salt-shakers. And in 12th-century Norway, the kings were bearded brutes with lustrous hair, flanked by crazy, shield-biting berserkers – the world of the Lewis chess set, now held in the British Museum.

(A) Chess has managed to adapt over the centuries, reflecting in its pieces the mirror-image of the world around it.

(B) The history of chess starts with India as the game evolved over the centuries to eventually reach its present-day version largely influenced by Islam and 12th century Norway.

(C) It is not until the 19th century that someone was able to standardise all the variations in chess, a game which emerged in fifth-century India and played around the world.

(D) Chess is an extraordinary game that has survived despite the changes brought to it by different places and people to fit their needs.

DIRECTIONS *for questions 1 to 4:* Answer the questions on the basis of the information given below.

Mohan collected coins and notes of four different currencies – Senzu, Lingot, Urmi and Tristan. It is known that, in each of these four currencies, there are only two denominations – one denomination in the form of a coin and the other in the form of a note. In each currency, one coin represents one unit of that currency. For example, the value of one coin in Senzu currency is equal to 1 Senzu. Further, in each currency, the value of each note is an even multiple of the value of each coin in that currency. Mohan had at least three notes of each currency. The following information is also known:

(i) The value of three Senzus is same as the value of two Lingots and the value of two Urmis is same as the value of three Tristans.
(ii) The total value of the coins and notes that he had of each currency was the same for all four currencies.
(iii) He had eight Lingot notes and seven Tristan notes. The number of Urmi notes that he had was not more than five.
(iv) He had a total of 66 coins with him. The number of Lingot coins he had was same as the number of Urmi coins he had and the number of Tristan coins he had was ten more than the number of Senzu coins he had.
(v) The total amounts of Senzus and Urmis he had with him are 72 Senzus and 52 Urmis respectively.
(vi) He had a total of 28 notes. The value of a Tristan note is eight times that of a Tristan coin.

DIRECTIONS *for questions 1 to 4:* Type in your answer in the input box provided below the question.

1. How many Senzu notes did Mohan have with him?

2. The value of how many Senzu coins is equal to that of 13 Urmi notes?

3. The value of all the Lingot coins that Mohan had is equal to that of how many Senzu notes?

4. If Mohan exchanged 13 Tristan coins for Lingot notes with one of his friends, what would be the sum of the number of Urmi notes and the number of Lingot notes with him?

DIRECTIONS *for questions 5 to 8:* Answer the questions on the basis of the information given below.

Eight persons – A to H – are seated in eight equally spaced chairs around a circular table, facing the center. Three among the eight are adults and the remaining are children. They are seated around the table as follows:

(i) Each child is sitting adjacent to at least one adult.
(ii) F is sitting opposite G.
(iii) C is sitting four places away from the person who sits to the right of D.
(iv) E is sitting two places to the left of H.
(v) Both A and D are sitting opposite adults and there is exactly one person in between them when counted from A in the clockwise direction.
(iv) G is sitting second to the left of C.

DIRECTIONS *for questions 5 to 8:* Select the correct alternative from the given choices.

5. How many children are sitting adjacent to D?
   (A) 1   (B) 2
   (C) 0   (D) Cannot be determined

6. Who among the following is not sitting adjacent to an adult?
   (A) D   (B) A
   (C) B   (D) C

7. Who is sitting second to the left of E?
   (A) G   (B) H
   (C) A   (D) C

8. Who among the following can exchange places with B such that even after exchanging the places, each child is still adjacent to at least one adult?
   (A) F   (B) D
   (C) A   (D) H

DIRECTIONS *for questions 9 to 12:* Answer the questions on the basis of the information given below.

Amit invested a total of ₹7,40,000 in four different types of assets – Stocks, Land, Fixed Deposits (FD) and Mutual Funds (MF) – by the end of 2016. During 2017, he invested an equal amount in each of these four types of assets and also invested a certain amount in Gold, which was ₹20,000 more than what he invested in the above four types of assets combined in 2017.

The following pie charts provide the percentage breakup of Amit's total investments at the end of the year 2016 and at the end of the year 2017:

2016

Stocks 15%
MF 30%
Land 20%
FD 35%

2017

Gold 14.0%
Stocks 14.1%
Land 17.8%
MF 25.2%
FD 28.9%

DIRECTIONS *for questions 9 to 12:* Select the correct alternative from the given choices.

9. What is the total amount invested by Amit in 2017?
   (A) ₹2,60,000   (B) ₹3,80,000
   (C) ₹10,00,000   (D) ₹12,50,000

10. What is the difference between the amount that he had invested in FD until 2016 and the amount that he invested in Stocks until 2017?
    (A) ₹1,18,000   (B) ₹1,08,000
    (C) ₹1,36,000   (D) ₹1,54,000

11. The amount invested in MF in 2017 as a percentage of the amount invested in MF until 2016 is
    (A) 12.42%.   (B) 11.64%.
    (C) 13.51%.   (D) 14.75%.

12. The total amount invested in Gold until 2017 as a percentage of the total amount invested in FD until 2016 is
    (A) 51.23%.   (B) 52.47%.
    (C) 53.67%.   (D) 54.05%.

DIRECTIONS *for questions 13 to 16:* Answer the questions on the basis of the information given below.

Ten persons, A through J, trade in cashews. Among the ten persons, seven persons are retailers and three are wholesalers. The retailers buy the cashews from the wholesalers and sell it to individual customers. Each retailer buys cashews from only one wholesaler and always from the same wholesaler. The three wholesalers sell only to the seven retailers. The revenue of any trader comprises only the revenue from the sale of cashews, while the cost of any trader comprises only the cost of purchasing cashews.

The table below provides the revenue and the profit of the ten traders during the month of March. Each of the ten traders had no cashews left in their inventory either at the beginning of the month or at the end of the month. Further, it is known that, during the month of March, the profit of each wholesaler was equal to the sum of the profits of all the retailers who purchased from him.

Trader	Revenue (in ₹'000)	Profit (in ₹'000)
A	450	225
B	100	50
C	700	200
D	450	100
E	400	200
F	250	75
G	400	300
H	600	350
I	600	150
J	300	50

13. Who among the following is a wholesaler?
(A) A
(B) I
(C) D
(D) H

14. What is the highest profit (in ₹'00Q) made by any retailer?
(A) 350
(B) 300
(C) 225
(D) 200

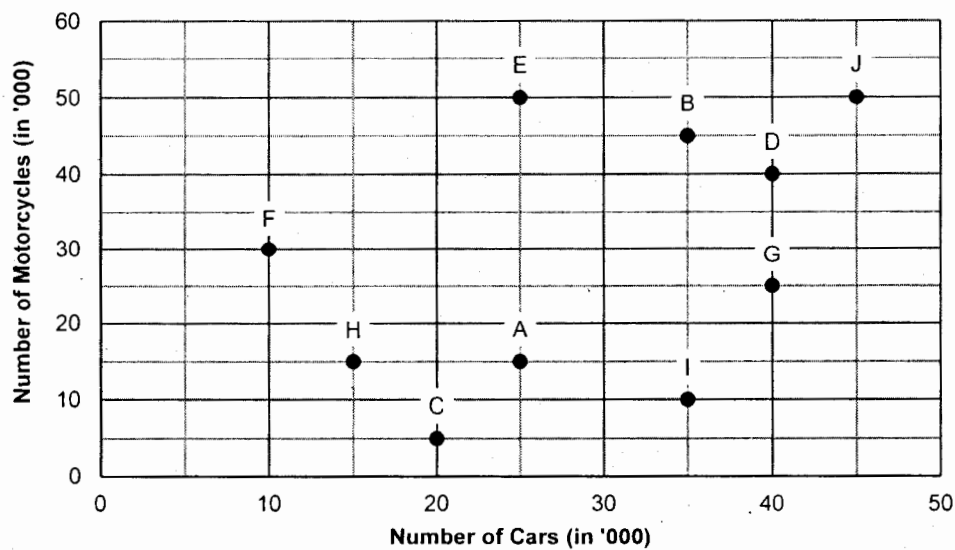**15.** What is the total revenue (in ₹'000) of all the retailers who buy from the wholesaler with the second lowest profit?
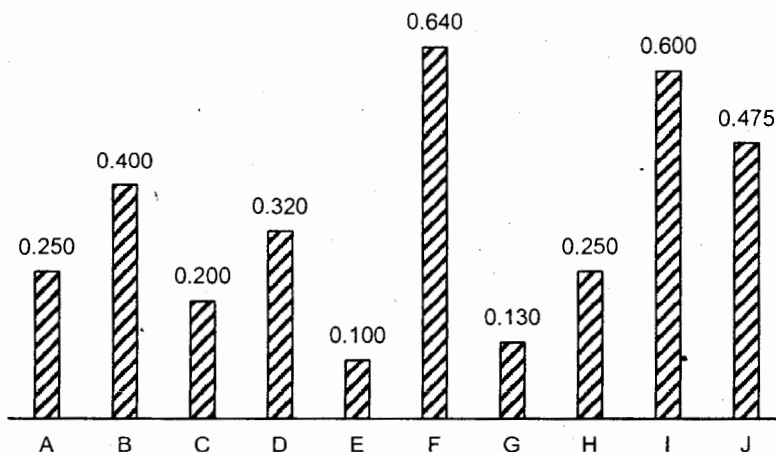
16. What is the minimum difference (in ₹'000) between the cost of a wholesaler and the sum of the costs of all the retailers who buy from him?

In a country, there are ten states, A through J. In each of the ten states, the only vehicles that any citizen can own are cars and motorcycles. The following scatter plot provides the total number of cars and motorcycles owned by the citizens in each of the ten states and the bar graph provides the number of vehicles per capita for each of the ten states:

Number of Vehicles per capita

17. Which state has the highest population?
(A) B   (B) D   (C) E   (D) G

18. What is the total population (in '000) of the all the states in which the number of cars is greater than the number of motorcycles?
(A) 800   (B) 820   (C) 780   (D) 860

19. In nine of the ten states, each citizen can own at most one vehicle, whereas in the other state, there is no such restriction.

If the number of people who do not own a vehicle is not the same for any two states, which state has the sixth highest number of people who do not own a vehicle?
(A) B
(B) C
(C) J
(D) Cannot be determined

20. In nine of the ten states, each citizen can own at most one vehicle, whereas in the other state, there is no such restriction.

If the number of people who do not own a vehicle is exactly 100,000 for exactly two states, in which state is it possible for a person to own more than one vehicle?
(A) C   (B) H   (C) B   (D) I

DIRECTIONS *for questions 21 to 24:* Answer the questions on the basis of the information given below.

Ravi placed six cylindrical containers in a line, from left to right. The volume of each of the six containers is distinct among 100 ml, 250 ml, 350 ml, 600 ml, 900 ml and 1200 ml, not necessarily in any specific order. Exactly three of the six containers are empty, while the other three are filled to the brim with water. Ravi labelled these three filled containers as F1, F2 and F3, from left to right, in that order. Further, F1 is to the immediate right of an empty container and the last empty container from the right is to the immediate left of a filled container.

Ravi redistributed the water in the containers in the following manner:

- He took F1 and poured water from it into the first empty container from the right until F1 was half empty.
- He then took F2 and poured water from it into the second empty container from the right until F2 was half empty.
- He then took F3 and poured water from it into the third empty container from the right until F3 was half empty.

During this process, no water spilled out from any of the containers. Further, after Ravi finished redistributing the water between the six containers, the volumes of water in the first container from the left and the fourth container from the left are 300 ml and 450 ml, respectively. Also, the second container from the left has more quantity of water than the fifth container from the left.

DIRECTIONS *for questions 21 and 22:* Select the correct alternative from the given choices.

21. What is the total quantity of water (in ml) in all the containers after Ravi finished redistributing the water between the six containers?
(A) 2700   (B) 1750   (C) 1850   (D) 1600

22. What is the capacity (in ml) of the third container from the left?
(A) 100
(B) 250
(C) 350
(D) Cannot be determined

DIRECTIONS *for questions 23 and 24:* Type in your answer in the input box provided below the question.

23. What is the total quantity (in ml) of water that is present in the second, fourth and fifth containers from the left, after Ravi finished redistributing the water between the six containers?

24. What is the maximum quantity (in ml) of water that can be further poured into any of the six containers, after Ravi finished redistributing the water between the six containers?

DIRECTIONS *for questions 25 to 28:* Answer the questions on the basis of the information given below.

In a playschool, as a part of an assignment, each of fifteen children, A through O, was given a distinct integer, from 1 to 15, and was asked to write down the number of letters in the integer (when written as a word) that he was given (for example, 1, when written as a word as 'one', has three letters; 2, when written as a word as 'two', has three letters...). The following table gives the numbers written down by the fifteen children:

Child	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Number	6	4	5	7	8	3	4	3	5	6	3	3	5	4	8

Further, it is also known that

(i) the integer with B is higher than that with each of I and C.
(ii) the sum of the integers with M and H is the same as the sum of the integers with E and I.
(iii) the integers with A and G add up to a prime number which is less than the sum of the integers with F, H and K.

25. What is the difference between the number with C and the number with O?
(A) 5   (B) 10   (C) 6   (D) 4

26. How many children have a number less that with F?
(A) 0
(B) 1
(C) 5
(D) Cannot be determined

27. Which student has the number 1?
(A) F
(B) H
(C) L
(D) K

28. The sum of the numbers with which of the following pairs of children is definitely a prime number?
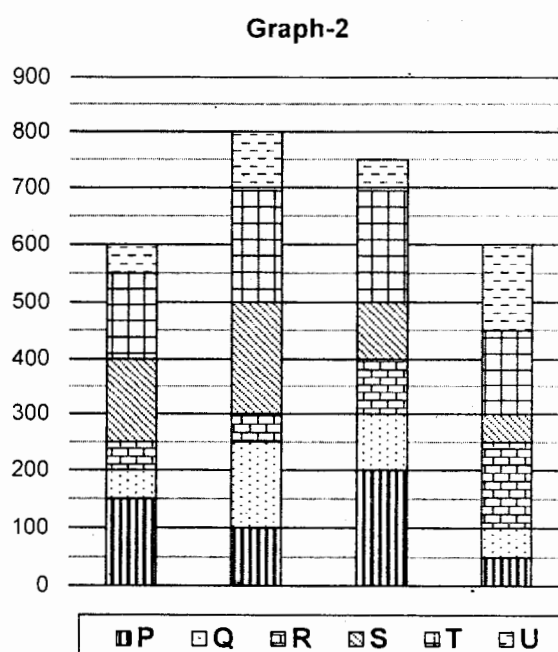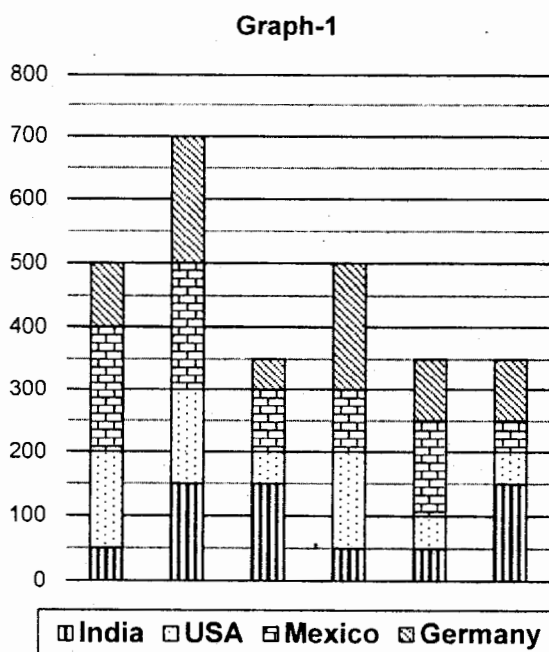(A) A, B
(B) B, L
(C) I, K
(D) F, J

Each of six companies, P through U, has employees from four different countries – India, USA, Mexico and Germany.

In the first bar graph below, titled Graph-1, each bar represents the employees in a company and provides the breakup of the number of employees from each country in that company. However, the labels of the companies have been omitted in this graph.

In the second bar graph below, titled Graph-2, each bar represents the employees from a country and provides the breakup of the number of employees in each company from that country. However, the labels of the countries have been omitted in this graph.

Graph-1

⊞India ▢USA ⊟Mexico ◩Germany

Graph-2

▥P   ▢Q   ▤R   ◩S   ▥T   ▢U

29. How many employees in P are from Mexico?
(A) 50
(B) 150
(C) 100
(D) Cannot be determined

30. What percentage of employees in Q are from USA?
(A) 14.29%
(B) 28.57%
(C) 30%
(D) 21.43%

31. In which of the following companies is the number of employees from India as a percentage of the total number of employees in the company the highest?
(A) U
(B) P
(C) Q
(D) T

32. In which of the following companies is the number of employees from Germany less than that from USA?
(A) P
(B) Q
(C) R
(D) S

DIRECTIONS *for question 1:* Type in your answer in the input box provided below the question.

1. Find the number of pairs (x, y) satisfying 5x − 19y = 2 and x ≤ 1000, where x and y are both positive integers.

DIRECTIONS *for questions 2 to 4:* Select the correct alternative from the given choices.

2. Fresh coconut contains 80% water by weight whereas dry coconut contains 10% water by weight. What is the weight of dry coconut that can be obtained from 20 kg of fresh coconut?
   (A) 4 kg   (B) 4.12 kg
   (C) 4.44 kg   (D) 4.54 kg

3. In a 200 m race, A beats B by 4 m and B beats C by 10 m. In a 200 m race, if C and A should finish the race at the same time, what head start should A give C?
   (A) 10 m   (B) 14 m   (C) 14.8 m   (D) 13.8 m

4. A three-digit number when reversed becomes three-eighths of the original number. How many such three-digit numbers are there?
   (A) 0   (B) 1
   (C) 2   (D) More than 2

DIRECTIONS *for questions 5 and 6:* These questions are based on the following data.

In a class of 128 students, 100 passed Mathematics, 96 passed Physics, 99 passed Chemistry, 90 passed Biology while 40 passed all the four subjects.

DIRECTIONS *for question 5:* Select the correct alternative from the given choices.

5. What could be the maximum number of students who failed in all the four subjects?
   (A) 25   (B) 28   (C) 13   (D) 12

DIRECTIONS *for question 6:* Type in your answer in the input box provided below the question.

6. What could be the minimum number of students who passed exactly two subjects?

DIRECTIONS *for questions 7 to 10:* Select the correct alternative from the given choices.

7. What values of x satisfy the relationship $|x - \frac{1}{2}| > 3$, where x is real?
   (A) $-\frac{5}{2} < x < \frac{7}{2}$
   (B) $x < -\frac{7}{2}$ or $x > \frac{7}{2}$
   (C) $x < -\frac{5}{2}$ or $x > \frac{7}{2}$
   (D) $-\frac{7}{2} < x < \frac{5}{2}$

8. Nitish was to get a 50% hike in his pay but the computer operator wrongly keyed in the figure as 80% and printed the new pay slip. He received salary at this level for three months before the company realized the mistake. What percentage of his correct new salary will he get in the fourth month, if the excess salary paid to him in the previous three months is deducted in the fourth month?
   (A) 20%   (B) 25%   (C) 40%   (D) 33¹/₃%

9. A 16 cm long thread is cut into three parts. The length (in cm) of each part is an integer. The three parts thus obtained are used to construct a triangle, with each part taken as one side. How many such triangles can be constructed?
   (A) 6   (B) 4   (C) 3   (D) 5

10. In a triangle whose angles are in the ratio 1 : 2 : 1, the length of the perpendicular drawn to the longest side is 10 cm. What is radius (in cm) of the circle that can be inscribed in the triangle?
    (A) $10 - 5\sqrt{2}$ (B) $10\left(\sqrt{2} - 1\right)$
    (C) $\frac{10 + 5\sqrt{2}}{2}$ (D) $10\left(\sqrt{2} + 1\right)$

DIRECTIONS *for questions 11 and 12:* Answer the questions on the basis of the information given below.

$2^{100} - 2^{99} - 2^{98} \ldots\ldots\ldots - 2^{50} = k \times 2^n$ where k and n are natural numbers.

DIRECTIONS *for question 11:* Type in your answer in the input box provided below the question.

11. What is the greatest possible value of n?

DIRECTIONS *for question 12:* Select the correct alternative from the given choices.

12. How many distinct values of (k + n) are possible?
    (A) 50   (B) 52   (C) 51   (D) 49

DIRECTIONS *for question 13:* Select the correct alternative from the given choices.

13. If $-2 < a < 1$, $-3 < b < -\frac{1}{3}$, $-3 < c < -\frac{1}{3}$ and $d = \frac{ab}{c}$, which of the following is necessarily true?
    (A) $-\frac{2}{9} < d < 18$
    (B) $-18 < d < \frac{2}{9}$
    (C) $-18 < d < 1$
    (D) $-18 < d < 9$

DIRECTIONS *for questions 14 and 15:* Type in your answer in the input box provided below the question.

14. How many pairs of non-negative integers (m, n) are there such that mn = m + n + 1?

15. If all the words formed using all the letters of the word SONIC are arranged as listed in a dictionary, then how many words would be there before the word ICONS?

[   ]

16. The compound interest on a certain sum at a certain rate of interest for the 4th year is ₹2,420 and for the 5th year is ₹2,662. Find the compound interest for the 2nd year.
(A) ₹1811   (B) ₹2000   (C) ₹2100   (D) ₹2200

17. Let m be a positive integer greater than 4 and $n = m^2 - m$. Then $n^3 - 6n^2 + 8n$ is always divisible by
(A) 48.   (B) 6.   (C) 12.   (D) 124.

18. If the line joining the points $(4, k)$ and $(3, \frac{3}{2})$ is parallel to the line joining the points $(\frac{16}{5}, 8)$ and $(\frac{6}{5}, 2)$, find the value of k.

(A) $\frac{1}{2}$ (B) 1   (C) 4   (D) $\frac{9}{2}$

19. Among all the four-digit natural numbers divisible by 24, in how many numbers does the number 24 appear?

[   ]

20. Ram and Sita had a son named Bala. The sum of the present ages of Ram and Bala is 120 years. When Ram was as old as Sita is, Sita was twice as old as Bala. Find the present age of Bala (in years).
(A) 35   (B) 30   (C) 40   (D) 20

21. Consider the following two curves in the xy plane: $y = x^4 + x^2 + 5$ and $y = x^2 + x + 6$. If the two curves intersect at n points, which of the following is true?
(A) n = 0   (B) n = 1
(C) n = 2   (D) n = 3

22. If x is a real number such that $g(x) = min(7 - 3x, 3 + 5x)$, then the maximum possible value of $g(x)$ is

(A) $\frac{5}{2}$.   (B) $\frac{7}{2}$.

(C) $\frac{11}{2}$.   (D) $\frac{13}{2}$.

23. The units digit in the expansion of $[(999)^{999}]^{999}$ is

[   ]

24. The production of wheat in a country is increased by 20% in a certain year over the previous year. If the production of food grains increased by 50% during the same period and the production of wheat as a percentage of the food grain production decreased by 5 percentage points, what is the percentage change in the production of food grains other than wheat for the given period?
(A) 60% increase
(B) 25% increase
(C) 25% increase
(D) 10% decrease

25. Twenty men were employed to do some work in a certain time. It was found that, after one-third of the scheduled time, only one-quarter of the total work was completed. How many more men should now be employed to complete the work in $3/4^{th}$ of the originally scheduled time?

[   ]

26. A number has 28 factors. If *n* of these are perfect squares, *n* cannot be
(A) 4.   (B) 6.   (C) 7.   (D) 8.

27. P, Q and R are distinct positive real numbers.
$$\frac{P^4(Q^2+R^2)+Q^4(P^2+R^2)+R^4(P^2+Q^2)}{(PQR)^2}$$ must be more than
(A) 8.   (B) 7.   (C) 6.   (D) 5.

28. Which of the following is not a perfect square?
(A) $(171)_8$
(B) $(14,641)_8$
(C) $(61)_8$
(D) $(58)_8$

29. Two stations, A and B, are 220 km apart. A train starts at A at 9 a.m and goes towards B at 65 km/hr without stopping in between. Another train starts at B at 10 a.m and goes towards A at 52 km/hr but stops for ten minutes at station C, which lies between A and B at a distance of 65 km from B. Ignoring the length of the trains, how far (in km) from A do the two trains cross each other?

[   ]

30. What is the minimum number of integers from 7 to 77 (both inclusive) that must be chosen so that at least one multiple of 3 is included?
(A) 3   (B) 58   (C) 59   (D) 49

DIRECTIONS *for questions 31 and 32:* Type in your answer in the input box provided below the question.

DIRECTIONS *for questions 33 and 34:* Select the correct alternative from the given choices.

31. A transport agency has five carriers, each of capacity ten tonnes. The carriers are scheduled such that the first carrier makes a trip every day, the second carrier makes a trip every second day, the third makes a trip every third day and so on. Find the maximum number of times in a year that it is possible to dispatch a total shipment of 50 tonnes in a single day. The operations start on the 7th of January and continue till the end of the year, i.e., 31st of December, without any holidays.

32. In a chess tournament, every person played one game with every other person participating in the tournament. The total number of games that men played between themselves exceeded those played by men with women by 18. If there were 4 women in the tournament, how many games in total were played in the tournament?

33. If a trader sells two articles at the same price, one at a loss of 30% and the other at a profit of 20%, then the trader makes approximately
(A) 11.58% profit.
(B) 10% loss.
(C) 6% loss.
(D) 11.58% loss.

34. The number of bacteria in a laboratory doubles every 20 minutes. If the number of bacteria is 364 at 8 a.m., which of the following is the earliest time at which the number of bacteria will be 10,000 or more?
(A) 9:00 a.m.
(B) 9:20 a.m.
(C) 9:40 a.m.
(D) 10:00 a.m.