

Ref: AIMCAT1709

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: VERBAL ABILITY AND READING COMPREHENSION

SUB-SECTION: READING COMPREHENSION

Number of Questions = 24

DIRECTIONS for questions 1 to 6: The passage given below is followed by a set of six questions. Choose the best answer to each question.

If you're bookish and you don't know the name Tao Lin, you're probably over 30. Among 20-something readers, he's an established phenomenon, a kind of literary typhoon and tycoon. Not that Lin has made much money from his books (or so, at least, he reports). He seems to be writing for the best reason, the only reason – because he's a writer. He may well be one of those crazy, splendid people who, as Charles Bukowski put it, if marooned on a desert island would use a stick to scratch stories in the sand.

But it's the Internet age, and that's where Lin has made his mark. He's one of the kings of that empire of online bootstrappers. I should admit, though, that I don't know his work through the Web – I'm a middle-aged philosophy professor, someone who still buys books with paper pages – but I started following him through the irresistibly bland, almost silent, but oddly frightening miniatures he's been publishing in the literary journal Noon. When I read some of his longer fiction, like "Richard Yates" and "Shoplifting From American Apparel," I knew this guy was going to be somebody. His writing is weird, upsetting, memorable, honest – and it's only getting better.

But I didn't anticipate "Taipei," his latest, which is, to put it bluntly, a gigantic leap forward. Here we have a serious, first-rate novelist putting all his skills to work. "Taipei" is a love story, and although it's Lin's third novel, it's also, in a sense, a classic first novel: it's semi-autobiographical and it's a bildungsroman, a coming-of-age story about a young man who learns, through love, that life is larger than he thought it was.

As in most accounts of self-education, Lin's hero, Paul, is a traveler, moving from the debilitating boredom of Brooklyn – depicted, accurately or not, as the most bourgeois place on the planet – to Las Vegas (where he marries the love interest of the novel, Erin) and Toronto and Baton Rouge, to his parents' home in Taiwan and to many places in between. In fact, traveling is Paul's way of being, much more than his pill-popping (which is also nonstop, but doesn't seem to have much influence on his way of thinking).

Paul's existence depends on walking, sitting in cabs, flying on planes, riding in the backs of cars. Like his constant presence online – Lin shows us Paul and his friends G-chatting, e-mailing, tweeting, checking Facebook – he's always either somewhere other than where he just was, or on his way to somewhere else. Here Lin is reminding us of an interesting fact about contemporary life: physical travel has become almost as effortless and commonplace as cyber travel.

Travel has traditionally been a way for people to realize that their own perspectives are limited, that there's more to the world and other people than they'd assumed. Travel helps you to mature; thus the tradition of the "wander-year," on which this novel depends. And for a time we worry that nothing will break through the icy superficiality that characterizes the lives of Paul and his friends – not so dissimilar from the superficiality of Jake and his crowd in "The Sun Also Rises," but here Xanax and Ecstasy take the place of Burgundy, Champagne and gin. Yet by the time Paul and Erin are in Taipei, we notice that something different is happening to them. Rather than talking *about*, they start talking *to*. They start listening. During a long and intimate discussion of their lives, Paul finds himself focusing on their "conversation, which was producing its own, unmediated emotions."

Most of us take it for granted that we should focus on our conversations and the emotions they produce. But we take it for granted while sitting in a restaurant with a spouse, sending texts or checking Facebook or Googling the movie we're going to see. Slowly, without pretending to have any great breakthroughs, Paul and Erin start to love each other more; they start to become more involved, more aware, less superficial. They find themselves doing things, rather than merely watching things. For the aptly named Paul, a conversion is on its way: life is changing from the aesthetic to the ethical. Like Lin's simple but never flat prose, his characters have become authentic.

1. Which of the following can be inferred about Tao Lin from the last sentence of the first paragraph?
 - (A) He tends to use unconventional writing implements for writing his novels.
 - (B) He will keep writing novels irrespective of the hardships that he may face in his life.
 - (C) He is passionate about writing and adverse environment will not faze him.
 - (D) The style of his writing suggests the desperation of a man marooned on an island.
2. According to the passage, online bootstrappers are most probably
 - (A) authors who predominantly use the internet to publish their books.
 - (B) authors who publish books on topics which are not mainstream.
 - (C) authors who have a distinct writing style which is weird and memorable.
 - (D) people who use the internet to earn their livelihood.
3. Which of the following can be understood from the statement "he's always either somewhere other than where he just was, or on his way to somewhere else"?
 - (A) Paul always stays online to mentally remove himself from the place that he is physically present.
 - (B) Paul exists by virtue of travelling and never stays in the same place for long.
 - (C) Paul is always lost in his own thoughts and does not concentrate on the people around him.
 - (D) Paul is frequently running away from his parents' home to other cities.
4. From the passage, it can be understood that, in the novel Taipei, Paul
 - (A) falls in love with Erin in Taipei.
 - (B) consumes copious quantities of Burgundy, Champagne and gin.
 - (C) resolved to stop using Facebook and Google at the end of the novel.
 - (D) is portrayed as a superficial character at the beginning of the novel but towards the latter part of the novel, he becomes an authentic character.
5. Which of the following is true regarding the novel Taipei?
 - (A) Taipei is the first novel of Tao Lin to be made available as a book with paper pages.
 - (B) While Taipei is the third novel of Tao Lin, the style and setting of the novel gives the reader the impression that a well-written first novel would.
 - (C) Taipei is the third novel written by Tao Lin, but it is his first novel to be published.
 - (D) Taipei is the third novel of Tao Lin but the freshness of its writing indicates that the novel is the first to be written by its author.
6. Which of the following is not mentioned in the passage as a benefit of travelling?
 - (A) Travelling facilitates meeting new people.
 - (B) Travelling helps in realizing the limitations of one's perspectives.
 - (C) Travelling makes people more mature.
 - (D) Travelling challenges the assumptions that people hold.

DIRECTIONS for questions 7 to 9: The passage given below is followed by a set of three questions. Choose the best answer to each question.

Anxieties about burnout seem to be everywhere these days. A quick glance through the papers yields stories of young children burnt out by exams, teenagers by the never-ending cacophony of social media, women by the competing demands of work and motherhood, couples by a lack of time for each other and their family life.

But while it may seem to be a problem rooted in our cultural circumstances, burnout has a history stretching back many centuries. The condition of melancholic world-weariness was recognised across the ancient world – it is the voice that speaks out in the biblical book of Ecclesiastes ("All is vanity! What does a man gain by all the toil at which he toils under the sun?"), and diagnosed by the earliest Western medical authorities Hippocrates and Galen. It appears in medieval theology as *acedia*, a listless indifference to worldly life brought about by spiritual exhaustion. During the Renaissance, a period of relentless change, Albrecht Dürer's 1514 engraving "Melancholia I" was the most celebrated of many images depicting man despondent at the transience of life.

But it was not until the second half of the 19th century that writers began to link this condition to the specific stresses of modern life. In 1879, the American neurologist George Beard published "Neurasthenia: (nervous exhaustion) with remarks on treatment", identifying neurasthenia as an illness endemic to the pace and strain of modern industrial life. The fin-de-siècle neurasthenic, in whom exhaustion and innervation converge, uncannily anticipates the burnout of today. They have in common an overloaded and over stimulated nervous system. A culture of chronic overwork is prevalent within many professions, from banking and law to media and advertising, health, education and other public services. A 2012 study by the University of Southern California found that every one of the 24 entry-level bankers it followed developed a stress-related illness (such as insomnia, alcoholism or an eating disorder) within a decade on the job.

Some companies have sought to alleviate the strain by offering sessions in mindfulness. But the problem with scheduling meditation as part of the working day is that it becomes yet another task at which you can succeed or fail. Those who can't clear out their mind need to try harder – and the very exercises intended to ease anxiety can end up exacerbating it. Schemes cooked up by management theorists since the 1970s to alleviate the tedium and tension of the office through what might be called the David Brent effect – the chummy, backslapping banter, the paintballing away-days, the breakout rooms in bouncy castles – have simply blurred the lines between work and leisure, and so ended up screwing the physical and mental confines of the workplace even tighter.

7. Which of the following can be understood to be true according to the passage?
 - (A) Anxiety was attributed to stresses of modern life during the renaissance.
 - (B) The relation between anxiety and stresses of modern life was studied first in the 19th century.
 - (C) The link between stresses of modern life and anxiety was conclusively proven only in 2012.
 - (D) There is no study which conclusively proves the link between anxiety and stresses of modern life.
 8. Which of the following does the author imply when he talks about meditation as a way to alleviate stress in workplace?
 - (A) Meditation which is supposed to relieve the stress of employees has distorted the definition of workplace.
 - (B) Using meditation to ease the anxiety of employees is an outdated technique as it was cooked up in the 1970s by management theorists.
- DIRECTIONS for questions 10 to 12:** The passage given below is followed by a set of three questions. Choose the best answer to each question.
- If you see litter on the street, or encounter broken bridges, you are likely to just blame the local administration. Economists, however, will wager that there could be deeper forces at work, which hinder the provision of essential public goods such as roads and sanitation. The most influential thesis in political economy suggests that poor infrastructure in a locality could be because of social divisions.
- In his 1965 book, *The Logic of Collective Action: Public Goods and the Theory of Groups*, American economist Mancur Olson argued that heterogeneous and complex societies see the rise of sectional interests that aim to grab public resources to their advantage. Subsequent research by other economists showed that the provision of public goods tends to be lower in areas with high ethno-linguistic diversity or polarization because it is difficult for people to agree on the provision of public goods that benefit everyone. Historical or cultural conflicts may often prevent different sub-groups in a region or country from collectively demanding state services that cater to all rather than to special interests.
- Harvard University's Alberto Alesina was among the first group of economists to provide evidence that social heterogeneity negatively affects the provision of government services in US cities. Using a measure of heterogeneity, known as ethno-linguistic fractionalization index, they found that districts that are more heterogeneous spend less on education and infrastructure. However, what is not emphasized in the paper is that they also find that more heterogeneous districts spend more on law enforcement and health.
- It has now become generally accepted that social divisions tend to hinder the provision of public goods. A recent paper by Rachel Gisselquist, Stefan Leiderer and Miguel Nino-Zarazua of the United Nations University challenges this conventional wisdom. They compile rich data on government expenditure on education and health for districts in Zambia. They find that there is a positive association between ethnic diversity and public expenditure, underscoring the point that even though diversity negatively affects public goods provision at a national level, the effect may not be same at the state or district level.
- Therefore, context matters. The relationship between social divisions and public goods is linked via state capacity and the strength of institutions. Political scientists have long recognized these channels through which public goods provisioning works in different contexts. The response of the polity and of the state to social division determines collective action or the lack of it.
- A research by political scientist Prerna Singh of Brown University suggests that fragmentation may not necessarily lead to worse state performance if political elites are able to forge a common identity that bridges over social fault lines. Pointing to the contrasting examples of Kerala and Uttar Pradesh, both of which have very heterogeneous populations,
- (C) Meditation is intended to ease anxiety in employees but it ends up becoming an activity in which employees feel the need to succeed.
(D) Using meditation to reduce the anxiety of employees is not advisable as not many people can meditate efficiently.
9. Which of the following is the difference between acedia and Neurasthenia?
 - (A) The former refers to melancholic world weariness while the latter refers to burnout only in working professionals.
 - (B) The former was defined by Albrecht Dürer while the latter was defined by George Beard.
 - (C) The former refers to a general indifference to worldly life while the latter is confined only to modern industrial life.
 - (D) The former refers to the as burnout in life in the medieval age whereas the latter is considered concomitant with the modern industrial age.

Singh contended that Kerala managed to have better outcomes as its elites united under the banner of sub-nationalism from the 19th century onwards to demand public goods and greater spending on social welfare.

Olson also argued that heterogeneous societies with greater economic inequality may see better provision of a public good if the elite group benefits the most from its provision.

10. According to the passage, untidy roads and broken bridges in a state are possibly due to
 - (A) the lackadaisical attitude of the local administration and the callous nature of government officials.
 - (B) an undue pressure on state services to promote social diversity and to cater to everyone rather than to special interests.
 - (C) the lack of funds that hinder the provision of essential public goods like roads and infrastructure due to excessive spending on law enforcement and health.
 - (D) social stratification.
 11. According to Mancur Olson, which of the following is true about heterogeneous and complex societies?
 - (A) Public resources are seized and taken advantage of by sectional interests.
 - (B) It is difficult for people to agree on the provision of public goods that cater to all.
 - (C) The lower the differences in economic inequality
- between groups in a heterogeneous society, the better the provision of a public good.
- (D) These societies have a very high ethno-linguistic fractionalisation index and hence more historical and cultural conflicts are seen there.
 12. Which of the following can be understood from the research of Rachel Gisselquist, Stefan Leiderer et al?
 - (A) While subvention of public goods at the national level is poor, subvention of public goods at the state level need not be so.
 - (B) Provision of public goods is not necessarily inhibited by social divisions but is determined by state capacity and strength of institutions.
 - (C) Though diversity adversely affects public goods supply at the state or district level, the effect may not be the same at the national level.
 - (D) The positive relation between ethnic diversity and public expenditure can be enhanced if common principles extend over social fault lines.

DIRECTIONS for questions 13 to 18: The passage given below is followed by a set of six questions. Choose the best answer to each question.

Globalization has helped hundreds of millions of people attain higher standards of living, beyond what they, or most economists, thought imaginable but a short while ago. The globalization of the economy has benefited countries that took advantage of it by seeking new markets for their exports and by welcoming foreign investment. Even so, the countries that have benefited the most have been those that took charge of their own destiny and recognized the role government can play in development rather than relying on the notion of a self-regulated market that would fix its own problems.

But for millions of people globalization has not worked. Many have actually been made worse off, as they have seen their jobs destroyed and their lives become more insecure. They have felt increasingly powerless against forces beyond their control. They have seen their democracies undermined, their cultures eroded.

If globalization continues to be conducted in the way that it has been in the past, if we continue to fail to learn from our mistakes, globalization will not only not succeed in promoting development but will continue to create poverty and instability. Without reform, the backlash that has started will mount and discontent with globalization will grow.

If financial interests have dominated thinking at the International Monetary Fund, commercial interests have had an equally dominant role at the World Trade Organization. Just as the IMF gives short shrift to the concerns of the poor -- there are billions available to bail out banks, but not the paltry sums to provide food subsidies for those thrown out of work as a result of IMF programs -- the WTO puts trade over all else. Environmentalists seeking to prohibit the importation of goods that are made using techniques that harm the environment -- with nets that kill an endangered species, or electricity produced by generators that pollute the air -- are told that this is not allowed: there would be unwarranted interventions in the market.

While the institutions seem to pursue commercial and financial interests above all else, they do not see matters that way. They genuinely believe the agenda that they are pursuing is in the general interest. In spite of the evidence to the contrary, many trade and finance ministers, and even some political leaders, believe that everyone will eventually benefit from trade and capital market liberalization. Many believe this so strongly that they support forcing countries to accept these 'reforms,' through whatever means they can, even if there is little popular support for these measures.

The greatest challenge is not just in the institutions themselves but in mind-set: Caring about the environment, making sure the poor have a say in decisions that affect them, promoting democracy and fair trade are necessary if the potential benefits of globalization are to be achieved. The problem is that the typical central bank governor begins his day worrying about inflation statistics, not poverty statistics; the trade minister worries about export numbers, not pollution indices.

There needs to be a change in mind-set so as to ensure that globalization works. But the mind-set of an institution is inevitably linked to who it is directly accountable. Voting rights matter, and who has a seat at the table -- even with limited voting rights -- matters. It determines whose voices get heard. The IMF is not just concerned with technical arrangements among bankers, such as how to make bank check-clearing systems more efficient. The IMF's actions affect the lives and livelihoods of billions throughout the developing world; yet they have little say in its actions.

Governance at the WTO is more complicated. Just as at the IMF it is finance ministers that are heard, at the WTO it is the trade ministers. No wonder, then, that little attention is paid to concerns about the environment. Yet while the voting arrangements at the IMF ensure that the rich countries predominate, at the WTO each country has a single vote, and decisions are largely by consensus. But in practice, the United States, Europe, and Japan have dominated in the past.

Fundamental changes that are required to make globalization work in the way that it should are a change in governance of international institutions like the IMF and the WTO and an increase in openness and transparency in their working. As of now, their leaders are not elected directly and though they are public institutions, there is no direct accountability to the public. The developed world needs to do its part to reform the international institutions that govern globalization.

13. "If globalization continues to be conducted in the way that has been in the past" in para 3 implies that
- (A) Globalization has been successful in raising the standards of living of billions of people.
 - (B) Globalization is not good for the economy and can be a severe threat.
 - (C) By and large, economies have not implemented globalisation in a manner that would capitalise on its positive aspects.
 - (D) Globalization has been a big success in some economies but has impeded growth by being a bottleneck in other economies.
14. What is the "backlash" referred to in the last sentence of para 3?
- (A) Globalization will succeed in promoting development and will alleviate poverty and instability.
 - (B) Democracies are being undermined, cultures eroded, environments degraded, jobs destroyed and, generally, lives rendered more insecure.
 - (C) On one hand, globalization will promote development but on the other hand, it will create poverty and instability.
 - (D) People will continue to fail to learn from their mistakes.
15. What does the author mean when he says "The typical central bank governor begins his day worrying about inflation statistics not pollution indices." (para 6)?
- (A) Institutions do not necessarily reflect the mindsets of those to whom they are accountable.
 - (B) WTO should only influence decisions related to trade in different parts of the world.
 - (C) While the citizen's mindset may be limited to daily occupation, institutions and the people who man them should be more responsive to the poor, to the environment, to the broader political and social concerns.
 - (D) Inflation statistics and export numbers are the only points of concern for institutions.
16. What does the author imply by saying "The IMF is not just concerned with technical arrangements among bankers such as how to make bank check-clearing systems more efficient its actions" (para 7)?
- (A) The IMF mainly deals with world-wide financial institutions.
 - (B) The IMF should work for the welfare of the common people and not just bankers.
 - (C) The IMF considers the welfare of the common people before taking decisions which impact financial systems.
 - (D) The IMF determines whose voting rights matter and whose voices should be heard.
17. The greatest challenge that has been discussed in the passage can be overcome in all of the following ways EXCEPT?
- (A) By replacing the parent institutions with new ones.
 - (B) By changing the mindset of the institutions and incorporating suitable reforms.
 - (C) By worrying about the needs of the common people and not just the institutions that one is held accountable to.
 - (D) Increasing openness and transparency and opting for a change in governance.
18. What can be inferred from the statement "They genuinely believe the agenda that they are pursuing is in the general interest" (para 5)?
- (A) The financial institutions and the government truly act in the best interest of the people.
 - (B) The financial institutions mistakenly believe that their activities benefit the common man and that trade and capital market liberalisation would help bring about the desired benefit.
 - (C) The financial institutions should focus on reform measures, trade, export markets and capital market liberalization and should improve the economic status of countries in the developing world.
 - (D) The financial institutions has billions of dollars to bail out banks but paltry sums to provide food subsidies in developing countries.

DIRECTIONS for questions 19 to 24: The passage given below is followed by a set of six questions. Choose the best answer to each question.

Throughout his life, but especially toward its end in 1883, that lion of early modernism, Edouard Manet, loved to paint still lifes. Even in his portraits, his arrangements of things – books, bottles, crockery, flowers, food – are given a prominence that nearly puts them on a par with people. His art wasn't dominated by still life, as Cubism would be; but

the inanimate has a large and vital presence in his work. That much is evident from the beautiful show at the Walters Art Museum in Baltimore, curated by George Maunet, "Manet: The Still-Life Paintings."

Manet's paintings rarely sold (luckily, he had some money of his own). For most of his short career – he was 51 when he died – he was ferociously assailed by nearly every critic and journalist in Paris. (Some of them actually liked his still lifes and reserved their scorn for his portraits and figures.) His greatest paintings, Olympia and Le Dejeuner sur l'Herbe, which today are among the unquestioned masterpieces of the 19th century and are seen by many as the twin pillars that mark and hold up the entrance to modernism, were pilloried by every man of taste and jeered at by spectators.

There were a few exceptions to this honor roll of stupidity, mainly other painters. Impressionists such as Claude Monet, younger than he, saw Manet as their hero and leader--although he never exhibited with their group. Charles Baudelaire was his friend; Emile Zola famously defended him in 1866 and partially based the implausible chief character of his novel L'Oeuvre (The Masterpiece) on Manet--though, less famously, he changed his mind after Manet's death and called him "not a very great painter...an incomplete talent."

All in all, Manet had much to be bitter about. He died of tertiary syphilis, which he may have inherited from his eminently respectable father, who wanted him to do something more respectable than painting. His death, hastened by gangrene of the leg, was horrific and preceded by a long, slow descent into agony.

And what did he paint as expressive consolation to himself during those final years? One last great painting, of a terminally bored barmaid surrounded by a maze of mirror reflections, A Bar at the Folies Bergere. And flowers: many of them exquisite little watercolors (a briar rose, a snail on a leaf) done with rapid, sketchy delicacy, with notes to their recipients, mainly his women friends, written on the same page. Nothing indicates how he was suffering. His love of life and of style was too strong. In their sweet, private brevity, these tiny notes combining script and image are among the most "Japanese" images to come out of a time when 'japonisme' was all the rage – and all the more authentically so for not copying Japanese mannerisms.

In his larger oils of flowers, often painted from bouquets that friends had brought him in his illness, there are darker notes – sometimes literally so, in the enveloping blackness of their backgrounds, against which the voluptuous white petals of a peony stand out like the skirts of a dying ballerina. In a late painting of lilac blossoms in a vase, you can feel the thick darkness – the darkness of Goya, whose work Manet adored – closing implacably on the fragile white blooms.

What were Manet's influences? He paid particular attention to Spanish painters – Velazquez, Goya – whose work he mainly knew from prints, until he made the journey to Spain in 1865. Clearly he was much taken by the Spanish still-life painter Sanchez Cotan, and by the tradition of the 'vanitas' – images of objects gathered together to symbolize the transience of pleasure and earthly life. And then, there was Chardin, the 18th century French master of still life, whose benign and composed presence is palpable in Manets like the Bunch of Asparagus, 1880, which was sold to a collector named Charles Ephrussi.

On occasion, Manet would show his full ordering skill in a composition that anticipates what Cezanne came to in the 1880s. Still Life with Salmon, 1866, is such a painting, a wonderful balance between stability and its opposite: you can feel the weight of the fish and the density of the white tablecloth, but the knife in the foreground is precariously balanced, and the blue bowl with a lemon in it has been tipped, self-consciously and for no very apparent reason, toward your eye.

19. According to the passage, who organized the show at the Walters Art Museum in Baltimore?
 - (A) Edouard Manet
 - (B) George Maunet
 - (C) Claude Monet
 - (D) Miltos Manetas
20. According to the passage, which of the following were **definitely** produced by Manet in the final years of his life?
 - (i) The Masterpiece
 - (ii) A Bar at the Folies Bergere
 - (iii) Pieces focused on flowers
 - (iv) Olympia and Le Dejeuner sur l'Herbe
 - (v) Still Life with Salmon
 - (A) (ii), (iv) and (v)
 - (B) (i) and (v)
 - (C) (ii) and (iii)
 - (D) (i) and (ii)
21. From the sentence "luckily, he had some money of his own" in the second paragraph of the passage, we can infer that:
 - (A) Painting was not Manet's primary source of income.
 - (B) Manet was the lion of early modernism and did not want to mix great art with money or profit motives.
 - (C) Manet inherited a lot of wealth from his eminently respectable father.
 - (D) But for his inheritance, Manet would not have been able to continue painting and deal with his terminal illnesses.
22. What can be inferred about the term 'japonisme' as it has been used in the passage?
 - (A) It refers to the Japanese influence on Western art.
 - (B) It refers to a specific French style which mainly found expression in the fine arts during the 1800s.
 - (C) It refers to images of Japanese flowers and authentically reflects Japanese mannerisms in the works of art.
 - (D) The meaning of the term cannot be deduced from the passage.

23. Match the words in column A with their correct meanings in column B and then choose the correct option.

Column A	Column B
a) pilloried	i) lacking in stability
b) implausible	ii) provocative and alluring, especially through shapeliness or fullness
c) precariously	iii) to expose to ridicule and abuse.
d) voluptuous	iv) (an image of) symbolic representation
e) allegory	v) provoking disbelief; unlikely
(A) a – v, b – i, c – iv, d – ii, e – iii	
(B) a – iii, b – v, c – ii, d – iv, e – i	
(C) a – ii, b – iv, c – iii, d – i, e – v	
(D) a – iii, b – v, c – i, d – ii, e – iv	

24. Which of the following **can** be understood from the passage?

Identify all that apply and enter the corresponding number in the input box given below. You must enter your answer in increasing order only. For example, if you think (1) and (2) apply, then enter 12 (but not 21) in the input box.

- (1) Manet was greatly influenced by Velazquez, Goya, Sanchez, Chardin and Ephrussi.
- (2) On occasions Manet was modest about his works of art which can be classified as medieval.
- (3) Charles Baudelaire and Emile Zola were loyalists of Eduoard Manet.
- (4) Still life, especially the paintings of flowers, served as an expressive consolation to Manet in his last years.
- (5) Some of Manet's oils of flowers seem to capture the darkness of his illness.

SUB-SECTION: VERBAL ABILITY

Number of Questions = 10

DIRECTIONS for questions 1 to 5: The sentences given in each of the following questions, when properly sequenced, form a coherent paragraph. Each sentence is labeled with a number (1, 2, 3, 4 or 5). Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

1. (1) Trust was gone, and business dwindled to almost nothing and even previously loyal customers realized that there was no more goose to produce the golden egg.
 (2) Then the business was sold and the new owner focussed on golden eggs – he decided to water down the chowder.
 (3) The new owner tried desperately to reclaim the business, but he had neglected the customers, violated their trust and lost the asset of customer loyalty.
 (4) I know of a restaurant that served a fantastic clam chowder and was packed with customers every day at lunchtime.
 (5) For about a month, with costs down and revenues constant, profits zoomed but little by little, the customers began to disappear.

2. (1) Unable to pay the fare to get into the system, we had to enter through a slam gate being held open by a scruffy-looking character with his hand out; having disabled the turnstiles, he was now demanding that riders give him their tokens.
 (2) It was the transit version of Dante's Inferno.
 (3) Most people were too intimidated to take these guys on and handed over their tokens while other citizens were going over, under, or through the stiles for free.
 (4) Meanwhile, one of his cohorts had his mouth on the coin slots, sucking out the jammed coins and leaving his slobber.
 (5) After waiting in a seemingly endless line to buy a token for a ride in the New York subway, I tried to put a coin into a turnstile and found that it had been purposely jammed.

3. (1) But in fact they are invariably the beneficiaries of hidden advantages and extraordinary opportunities and cultural legacies that allow them to learn and work hard and make sense of the world in ways others cannot.
 (2) People don't arise from nothing – we do owe something to parentage and patronage.
 (3) Therefore, it's not enough to ask what successful people are like, it's only by asking where they are from that we can unravel the logic behind who succeeds and who doesn't.
 (4) The people who stand before kings may look like they did it all by themselves.
 (5) The culture we belong to and the legacies passed down by our forebears shape the patterns of our achievements in ways we cannot begin to imagine.

4. (1) The fourth level of your personality determined by your expectations is your attitude.
 (2) For example, if your value is that this is a good world to live in and your belief is that you are going to be very successful in life, you will expect that everything that happens to you is helping you in some way.
 (3) Your attitude will be an outward manifestation or reflection of your values, beliefs and expectations.
 (4) This is why a positive mental attitude goes hand in hand with great success in every walk of life.
 (5) As a result, you will have a positive mental attitude towards other people and they will respond positively towards you, helping you to be more successful.

5. (1) In a way, Milgram was asking the question "How does an idea or a trend or a piece of news – the British are coming – travel through a population?"
 (2) Do we all belong to separate worlds, operating simultaneously but autonomously, so that the

links between any two people, anywhere in the world, are few and distant?

- (3) In the late 1960s, the psychologist Stanley Milgram conducted an experiment to find an answer to what is known as the small-world problem.
- (4) Or are we all bound up together in a grand, interlocking web?
- (5) The problem is this: how are human beings connected?

DIRECTIONS for questions 6 and 7: Five sentences related to a topic are given in each question. Four of the sentences 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.

- 6.
- (1) They argue that the positive results speak for themselves even though researchers say there is little hard scientific evidence to show that people respond positively to birds singing.
 - (2) Far too often noise can make it hard to concentrate, be it a loud television, loud traffic or loud people but audio experts say certain sounds like birdsongs can make it easier to focus.
 - (3) Can a nightingale's song help you pass an exam or a blackbird's twittering encourage you to open a bank account?
 - (4) Most support for the theory is anecdotal.
 - (5) Sound experts claim that a bird's singing helps one to do both.

- 7.
- (1) The complexity and sheer size of the Ming wall outdid all of its predecessors – not only did the dynasty add length, it also added double and triple walls in some places to reinforce previously built structures and confuse attackers.
 - (2) The building of the Great Wall took a long time – substantial additions were made to the wall, as the Ming Dynasty had to contend with a great number of attacks by minority tribes.
 - (3) If that were true, major highways would also be visible from space -- many are much larger than the Great Wall.
 - (4) It wasn't until the rise of the Ming Dynasty in 1368 that the Great Wall of China as we know it today was brought to fruition.
 - (5) In fact, in many places the wall is wide enough on top for someone to drive a car on it, averaging an impressive 22 feet (6.7 meters).

DIRECTIONS for questions 8 to 10: Five sentences are given with a blank in each question. Four words are also given below the sentences. The blank in each sentence can be filled by one or more of the four words given. Each word can go into any number of sentences. Note that the sentence can change contexts depending on the use of different words which can be appropriate. **Identify the number of sentences each word can go into and enter the maximum number of sentences that any**

word can fit in. For example, if you think that a word goes into a maximum of two sentences, then enter 2 in the input box given below the question.

- 8.
- (i) The authors of *The Biotech Century* _____ that we are looking ahead to the possibility of cloning or replicating a baby, rather than reproducing one in the old-fashioned ways.
 - (ii) Meteorologists _____ an active hurricane season because of warmer ocean-surface temperatures.
 - (iii) Some molecular biologists _____ that a cure for AIDS is just around the corner.
 - (iv) The disabled artists who paint with their mouth, hands and feet _____ that their intricate artwork will sell for a handsome amount.
 - (v) Members of the Republican party acknowledge, _____ and defend the law-abiding citizen's God-given right of self-defense and uphold the right of individuals to keep and bear arms.
- (A) say (B) portray
(C) support (D) predict

- 9.
- (i) Just because the ruling party in power has been given a _____ by the people does not mean that they should immediately start abusing it.
 - (ii) The results of the study show that, within illness categories, higher than average rates of _____ are associated with fewer hospital admissions.
 - (iii) Being prime minister of the nation makes you the most _____ figure in the land.
 - (iv) Now, the Samajwadi party members are back with more of a _____ to govern.
 - (v) The new principal of the college thought it necessary to _____ regular tests for students.
- (A) mandatory (B) regulated
(C) prescription (D) mandate

- 10.
- (i) The college students who were creating a scene became more _____ when they were threatened with severe punishment.
 - (ii) The prime minister of the country realized that the people became more _____ when they thought there was a definite threat of war.
 - (iii) The prisoner of war became _____ after he was given a sedative.
 - (iv) I have always found dogs very _____ when treated with loving kindness.
 - (v) The natives could be easily managed because of an intelligent _____ disposition.
- (A) tractable (B) kind
(C) calm (D) gentle

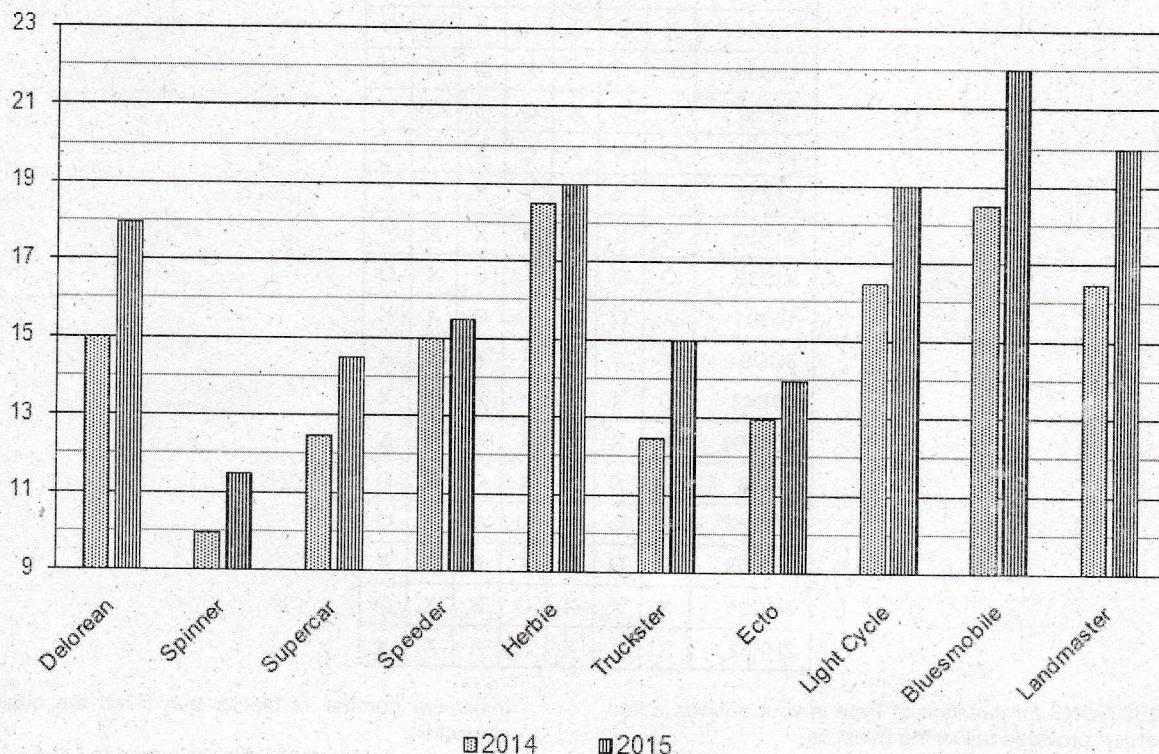
SECTION II: DATA INTERPRETATION AND LOGICAL REASONING

SUB-SECTION: DATA INTERPRETATION

Number of Questions = 16

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

The bar graph below provides the number of trucks sold (in '000) by ten different companies in each year, for a period of two years – 2014 and 2015.



DIRECTIONS for questions 1 to 4: Select the correct alternative from the given choices.

1. The highest percentage increase in the number of trucks sold by any company from 2014 to 2015 is
(A) 18.9%. (B) 20%.
(C) 21.2%. (D) 22.4%.
2. The percentage increase in the number of trucks sold by all the ten companies combined from 2014 to 2015 is
(A) 14.5%. (B) 12.75%.
(C) 15.35%. (D) 13.85%.
3. If the revenues earned from selling trucks by all the ten companies combined in the years 2014 and 2015 are ₹222 bn and ₹421.25 bn respectively, what is the percentage increase in the average price of a truck sold in 2015 as compared to that in 2014?
(A) 66.67% (B) 73.33%
(C) 51.25% (D) 83.33%
4. If, for each company, the percentage increase in the number of trucks sold from 2013 to 2014 is the same as that from 2014 to 2015, what is the approximate total number of trucks sold by the ten companies combined in 2013?
(A) 125,500 (B) 130,500
(C) 135,500 (D) 140,500

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

Tarun is a quality inspector in a factory that manufactures building blocks for kids. Each block that is manufactured in the factory has a unique Block ID and Tarun inspects each block on seven different parameters – Weight (W), Length (L), Breadth (B), Height (H), Finish (F), Colour (C) and Logo (G). For each block that he inspects, Tarun records whether or not the block passed the quality inspection on each parameter.

On a particular day, Tarun inspected twenty blocks and the table below provides the results of the quality inspection for each block and on each parameter. In each cell of the table, an 'X' mark indicates that the block has passed the quality inspection on the corresponding parameter, while an 'O' mark indicates that it has failed the quality inspection on the corresponding parameter.

Block ID	Parameter						
	W	L	B	H	F	C	G
2AA23	X	X	X	X	O	X	O
3SD34	X	X	X	O	O	X	O
2GF12	X	O	X	O	X	X	X
1CB43	X	X	O	X	X	O	X
1FD64	X	O	O	X	X	O	O
1JG89	X	O	X	X	O	O	O
4FF32	X	O	X	O	O	O	X
4JF05	O	X	X	O	X	O	X
9JS37	O	X	X	X	X	X	X
0KS93	X	X	O	X	X	X	O
3JS39	O	O	O	X	O	X	O
1IW91	X	O	X	O	O	X	X
3OD94	X	X	O	X	X	X	X
2SS48	O	X	X	X	X	O	X
0OW03	X	X	X	X	X	X	X
8IS43	O	X	X	X	O	X	O
1SD29	X	O	X	O	O	X	O
2FM93	O	O	O	X	X	O	X
5NC05	X	X	X	O	X	X	O
2HF82	X	X	X	X	X	X	X

DIRECTIONS for question 5: Type in your answer in the input box provided below the question.

5. A block was certified 'OK', if it passed the quality inspection on at least six parameters. What percentage of blocks on the given day were certified 'OK'?

 %

DIRECTIONS for questions 6 and 7: Select the correct alternative from the given choices.

6. On which parameter did the maximum number of blocks fail the quality inspection on the given day?
 (A) Length (B) Height
 (C) Finish (D) Logo
7. If the leftmost character of the Block ID represents the Lot to which the block belongs to, then the

maximum number of blocks that failed the quality inspection

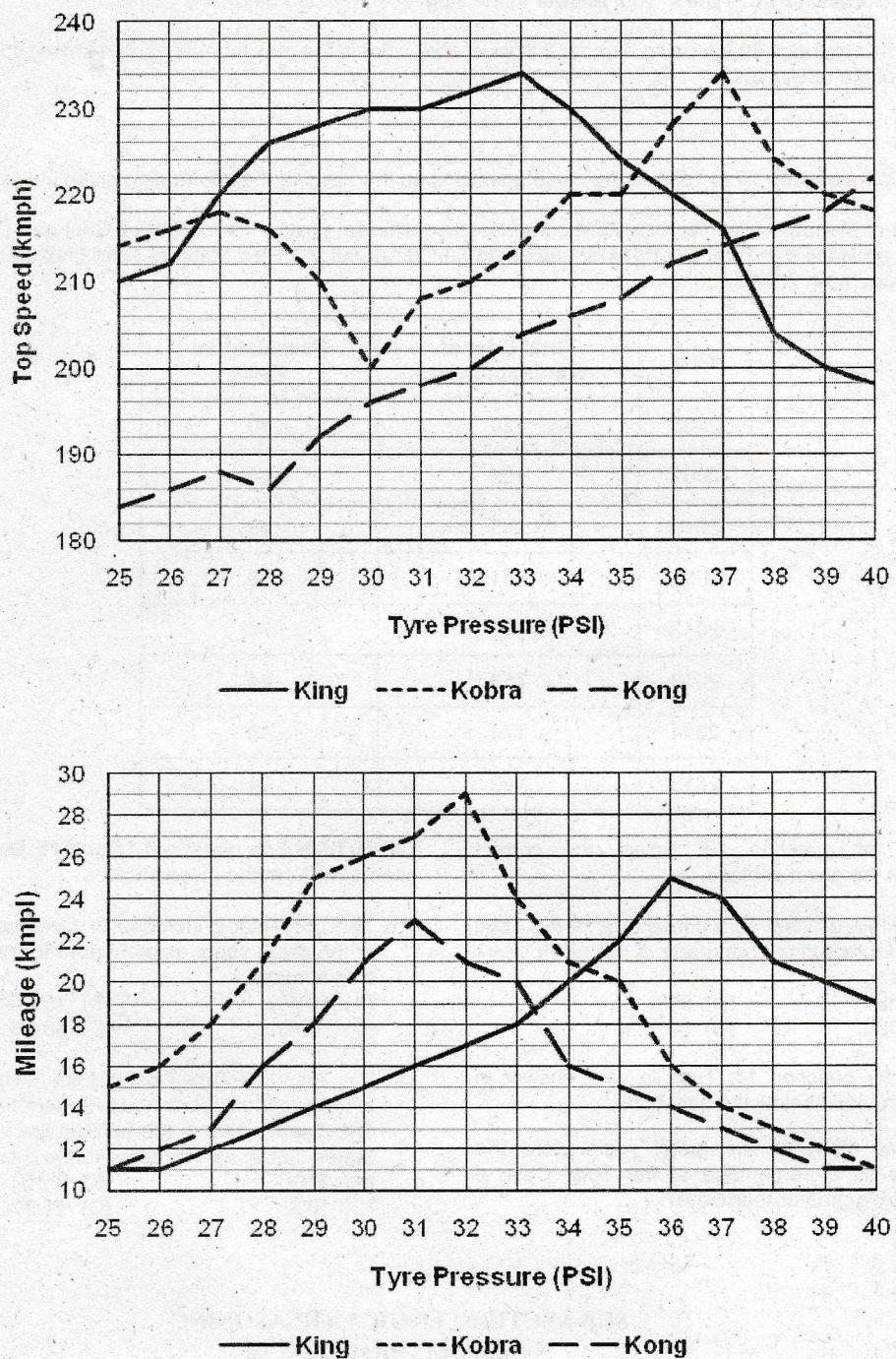
- (A) on the parameter 'Width' belonged to Lot 4.
 (B) on the parameter 'Length' belonged to Lot 2.
 (C) on the parameter 'Finish' belonged to Lot 1.
 (D) on the parameter 'Logo' belonged to Lot 3.

DIRECTIONS for question 8: Type in your answer in the input box provided below the question.

8. How many blocks failed the quality inspection on exactly one parameter among Weight, Breadth and Finish but passed the quality inspection on at least one parameter among Length, Colour and Logo?

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

Lewis owns three cars – King, Kobra and Kong. One day, he was studying the effect of tyre pressures (PSI) of his cars on the top speed (kmph) that each car can reach and the mileage (kmpl) (mileage is the distance that a car can travel using one litre of fuel) of each car. The tyre pressure of any car should be at least 25 PSI and at most 40 PSI. The first graph below provides the top speed that each car can reach for different tyre pressures and the second graph provides the mileage of each car for different tyre pressures.



DIRECTIONS for questions 9 to 11: Select the correct alternative from the given choices.

9. Lewis wants to set the same tyre pressure on all his cars. If he wants all his cars to be able to reach a top speed of at least 200 kmph and have a mileage of at least 16 kmpf, which of the following can be the tyre pressure of his cars?
 - (A) 32 PSI
 - (B) 35 PSI
 - (C) 30 PSI
 - (D) 31 PSI
10. If Lewis wants to reach a top speed of at least 220 kmph and wants to travel 50 km using at most

2 litres of fuel, which of the following combinations of car and tyre pressure must he use?

- (A) Kobra, 37 PSI
- (B) Kobra, 32 PSI
- (C) Kong, 40 PSI
- (D) King, 36 PSI

11. If, during a journey in his Kobra, Lewis plans to maintain an average speed of 215 kmph for a period two hours, what is the minimum fuel that his car would consume during the two hours?
Assume that the Lewis can set the Tyre Pressure (in PSI) accurately up to two decimal places.
 - (A) 18.3 litres
 - (B) 19.4 litres
 - (C) 20.5 litres
 - (D) 21.9 litres

DIRECTIONS for question 12: Type in your answer in the input box provided below the question.

12. If Lewis wants to travel 40 km using at most 2 litres of fuel, what is the maximum speed (in kmph) that he can reach using any of the three cars?

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

The Total Cost of Manufacturing for Product X comprises two different costs – Raw Material Cost and Overheads. The following table provides the Total Cost of Manufacturing (in ₹'000) and the Raw Material Cost (in ₹'000) for Product X during eight years, from 2008 to 2015:

Year	Total Cost of Manufacturing	Raw Material Cost
2008	120	60
2009	131	64
2010	145	69
2011	151	70
2012	162	77
2013	156	84
2014	174	89
2015	190	94

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

13. The Raw Material Cost as a percentage of the Total Cost of Manufacturing during any of the given years was at most
(A) 49.47%. (B) 50%.
(C) 53.85%. (D) 54.12%.

DIRECTIONS for question 14: Type in your answer in the input box provided below the question.

14. During how many of the given years were the Overheads as a percentage of the Total Cost of Manufacturing greater than 50%?

DIRECTIONS for questions 15 and 16: Select the correct alternative from the given choices.

15. The percentage increase in Overheads during any of the given years as compared to the previous year was at most
(A) 13.4%. (B) 15.3%.
(C) 16.8%. (D) 18.1%.
16. If in 2016, the Total Cost of Manufacturing increased by 10% and the Raw Material Cost became equal to Overheads, what is the percentage increase in Raw Material Cost as compared to the previous year?
(A) 8.8% (B) 9.2%
(C) 10% (D) 11.2%

SUB-SECTION: LOGICAL REASONING

Number of Questions = 16

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

During the annual day celebrations at a school, five children – Amar, Bob, Carl, Devon and Himesh – and their fathers – Pavan, Ramesh, Sravan, Tarak and Utsav – not necessarily in the same order, were invited on to the stage. On the stage, the children stood next to each other in one row with their fathers standing behind them in another row such that each child stood exactly in front of his father. Further, the children and their fathers were all facing the same direction. The following information is

known about the positions of the children and their fathers:

- (i) Pavan is not standing behind Himesh but is standing to the right of Ramesh.
- (ii) Carl's father is Sravan and Himesh is standing to the right of Amar.
- (iii) Neither Ramesh nor Bob are standing at any of the ends.
- (iv) Himesh is standing to the left of Carl, who, in turn, is standing to the right of Bob.
- (v) Utsav is not standing next to Carl's father but his son is standing to the immediate right of Devon.

DIRECTIONS for questions 1 to 4: Select the correct alternative from the given choices.

1. Who is the father of Bob?
(A) Pavan
(B) Ramesh
(C) Tarak
(D) Cannot be determined
2. Who among the following is definitely standing to the left of Utsav?
(A) Ramesh (B) Pavan
(C) Tarak (D) Sravan
3. Who is the son of Utsav?
(A) Himesh
(B) Amar
(C) Bob
(D) Cannot be determined
4. If Ramesh is standing in the middle of the row, who is the son of Tarak?
(A) Amar (B) Devon
(C) Himesh (D) Bob

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

Five cities – City A through City E – are present in a country, such that, when observed on a map, City A, City B, City C, City D and City E, in that order, form the five vertices of a regular pentagon (i.e., with five equal sides). Some of the five cities are connected directly to each other by road. There is no other means of transport, other than road, connecting any two cities and any person can switch between two roads only at one of the five cities. The following information is known about the roads connecting the five cities:

- (i) City A is connected directly to exactly two cities but is not connected to City B.
- (ii) The total number of roads connecting any two cities directly is seven.
- (iii) City E is connected directly to all the other cities except one, while City D is connected directly to all the other cities.
- (iv) City C is connected directly to all the other cities except one among City B and City E.

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

5. Which of the following cities is connected directly to City A?
(A) City E
(B) City C
(C) City D
(D) More than one of the above

DIRECTIONS for questions 6 and 7: Type in your answer in the input box provided below the question.

6. What is the minimum number of cities that a person has to pass through, if he has to travel from City A to City B?

7. In how many ways can a person go from City B to City C without passing through any city twice?

DIRECTIONS for question 8: Select the correct alternative from the given choices.

8. How many cities are connected directly to City B?
(A) 1
(B) 2
(C) 3
(D) Cannot be determined

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

Each of fifteen children, A through O, are sitting around a circular table, in that order, in the clockwise direction, to play a game. A has n ($n > 1$) marbles with him and every other child has one marble more than the number of marbles with the child on his right. Each child, during his turn, checks the number of marbles with him and if it is not a prime number, gives one marble to the child on his left. If the number of marbles with him is a prime number, he does not give any marbles to the child on his left, and thereby skips his turn. The turn, then, passes to the child on his left. After receiving the marble, if any, the child on the left checks the number of marbles with him and plays his turn in exactly the same manner as described above. Each round in the game starts with A's turn and proceeds until O's turn is finished. After O's turn, the next round of the game begins again with A's turn.

DIRECTIONS for question 9: Type in your answer in the input box provided below the question.

9. If $n = 10$, how many children would have skipped their turn in the first round?

DIRECTIONS for question 10: Select the correct alternative from the given choices.

10. In the first round of the game, if exactly five children skipped their turn, which of the following can be a value of n ?
(A) 60 (B) 61
(C) 30 (D) 2

DIRECTIONS for questions 11 and 12: Type in your answer in the input box provided below the question.

11. If $n = 8$, how many marbles will I have after six rounds?

12. If the total number of marbles with the fifteen children was 345, for how many children will the number of marbles with them be a prime number after the first round?

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

Five professors – Abbott, Bell, Charles, Daniel and Evan – met at a conference and were planning to discuss their ideas with each other. Each professor speaks exactly two languages among English, French, Russian, Chinese and Hindi. Further, any two professors can discuss their ideas with each other only if they speak at least one language in common. It is also known that no two professors speak the same set of two languages and each language is spoken by exactly two professors. Further, it is also known that

- (i) Abbott can discuss his ideas with Charles.
- (ii) Bell, who speaks English, can discuss his ideas with Evan.
- (iii) One of the professors who speaks Russian can discuss his ideas with one of the professors who speaks French.
- (iv) One of the languages that Charles speaks is Chinese and he can discuss his ideas with Evan.
- (v) Daniel speaks Hindi but not English, while Evan speaks French.

DIRECTIONS for questions 13 to 16: Select the correct alternative from the given choices.

13. Who among the following speaks Hindi?
 (A) Abbott (B) Charles
 (C) Bell (D) Cannot be determined

SECTION III: QUANTITATIVE ABILITY

Number of Questions = 34

DIRECTIONS for questions 1, to 3: Select the correct alternative from the given choices.

1. The cost of an eraser is one-twelfth that of a pen and two-thirds that of a pencil. If the cost of two pens is ₹33 more than the cost of five pencils, then find the cost of one pen, two pencils and three erasers.
 (A) ₹30 (B) ₹36
 (C) ₹48 (D) ₹33
2. Find the distance (in cm) between two parallel chords, drawn one on each side of the centre of a circle of radius 65 cm, if the lengths of the two chords are 104 cm and 120 cm respectively.
 (A) 14 (B) 30
 (C) 60 (D) 64
3. The number of parrots and mainas in an aviary is in the ratio of 5 : 8. If 21 birds of each type are added to the existing lot, then the ratio would change to 4 : 5. How many parrots and mainas are there in the aviary?
 (A) 26 (B) 39
 (C) 52 (D) 65

DIRECTIONS for question 4: Type in your answer in the input box provided below the question.

4. Find the sum upto 30 terms of the series
 $S = 2 + 6 + 12 + 20 + 30 + \dots$

14. With which of the following professors is it possible for Daniel to discuss his ideas?
 (A) Abbott
 (B) Charles
 (C) Evan
 (D) More than one of the above
15. Which of the following languages does Charles speak?
 (A) Russian
 (B) French
 (C) English
 (D) Hindi
16. Which of the following statements is definitely true?
 (A) One of the professors who speaks Russian speaks the same language as Charles.
 (B) Daniel speaks the same language as one of the professors who speaks English.
 (C) One of the professors who speaks Hindi speaks the same language as Evan.
 (D) One of the professors who speaks Chinese speaks the same language as Bell.

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

5. Which of the following is true regarding a, b, c and d ,
 $\frac{1}{a} = \frac{1}{2^3}, \frac{1}{b} = \frac{1}{3^4}, \frac{1}{c} = \frac{1}{4^5}$ and $\frac{1}{d} = \frac{1}{5^6}$?
 (A) $c > a > d > b$ (B) $c > b > d > a$
 (C) $c > b > a > d$ (D) $c > d > b > a$

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

6. Find the area (in sq. units) enclosed by the curves
 $f(x) = |x - 1| - 1$ and $g(x) = 1 - |x - 1|$.

DIRECTIONS for questions 7 to 9: Select the correct alternative from the given choices.

7. If a leap year is chosen at random, what is the probability that there are exactly 52 Sundays in it?
 (A) $\frac{1}{7}$ (B) $\frac{2}{7}$
 (C) $\frac{5}{7}$ (D) $\frac{6}{7}$
8. There are two variants of detergents – A and B. Detergent A contains 75% soap and 25% bleach, while Detergent B contains 85% soap and 15% bleach. In what ratio should the detergents A and B be mixed, so that the resultant mixture contains 79% soap in it?
 (A) 2 : 3 (B) 3 : 4
 (C) 5 : 4 (D) 3 : 2

9. The distance between two cities, A and B, is partly uphill, partly on level ground and partly downhill. It took three hours for a bus to go from A to B, whereas it took 40 minutes more to make the return journey. Find the distance (in km) between A and B, if the uphill speed, the downhill speed and that on the level ground of the bus are 40 km/hr, 60 km/hr and 48 km/hr respectively?
- (A) 240
(B) 160
(C) 200
(D) Cannot be determined

DIRECTIONS for questions 10 and 11: Type in your answer in the input box provided below the question.

10. Find the smallest natural number which can be expressed both as a sum of 7 consecutive numbers and as a sum of 9 consecutive numbers.

11. Find the remainder when 123123123123.... upto 300 digits is divided by 1001.

DIRECTIONS for questions 12 and 13: Select the correct alternative from the given choices.

12. Find the range of x such that $x^3 - 1$ is less than $x^2 - x$.
- (A) $(-\infty, 1)$ (B) $(-3, 2)$
(C) $(0, \infty)$ (D) $(1, \infty)$

13. If it takes 50% more time to row a boat upstream over a certain distance than what it takes to row the boat downstream over the same distance, then how many times the speed of the stream is the speed of the boat upstream?

- (A) 4 (B) 3
(C) $\frac{3}{2}$ (D) 5

DIRECTIONS for question 14: Type in your answer in the input box provided below the question.

14. In how many ways can 144 be divided into two parts, such that one part when divided by 5 leaves a remainder of 4, whereas the other part when divided by 8 leaves a remainder of 2?

DIRECTIONS for question 15: Select the correct alternative from the given choices.

15. In a town with 12000 voters, two persons, A and B, contested for the position of the mayor, which ultimately was won by A. Had 50% of the voters who voted for B changed their minds and voted for A instead, then A would have won by a majority 1.5 times that with which he actually won. If A and B were the only contestants for the position, and all the eligible voters voted, how many votes were cast in favour of B?
- (A) 3000 (B) 4000
(C) 1500 (D) 4000

DIRECTIONS for questions 16 and 17: Type in your answer in the input box provided below the question.

16. If $(x - y)(x^2 + y^2) = 965$ and $(x + y)(x^2 - y^2) = 1805$, where x and y are positive integers, find the value of xy .

17. When Chinna enquired with his Maths teacher as to the number of members in his family, the teacher told him that the answer to his question was the solution to the equation

$$\sqrt{2x^2 - x + 36} + \sqrt{2x^2 - x - 36} = 36. \text{ What is the number of members in the teacher's family?}$$

DIRECTIONS for question 18: Select the correct alternative from the given choices.

18. A and B served in a government organization and after their retirement, each of them received pension for his service. A served for eight years more than B and received ₹36,000 as his monthly pension. The pension amount is directly proportional to the square root of their length of service in years. Had A served for $13\frac{1}{3}$ years more than B, then their pension amounts would have been in the ratio 11 : 9. For how long did A serve in the organisation?
- (A) 27 years
(B) 35 years
(C) $40\frac{1}{3}$
(D) Cannot be determined

DIRECTIONS for questions 19 and 20: Type in your answer in the input box provided below the question.

19. Find the value of $\sin^2 A + \sin^2 B + \sin^2 C$, if A, B and C are the angles of a right angled triangle.

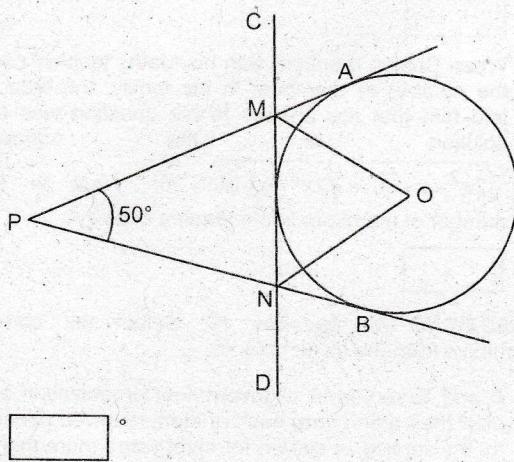
20. In a country, if every citizen has an unique identification code (UIC) which is a five-digit hexadecimal number, and no UIC starts with a zero, then what is the maximum possible population of that country?

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

21. Mathews sold a television set at a profit of 10%. Had he sold it for ₹1200 more, he would have made a profit of 25%. Which of the following is the cost price of the television set?
- (A) ₹6000 (B) ₹7500
(C) ₹8000 (D) ₹9000
22. If the value of a two-digit number is six times the difference between the number and its reverse, the sum of the digits of the number is
- (A) 6 (B) 7.
(C) 8. (D) 9.

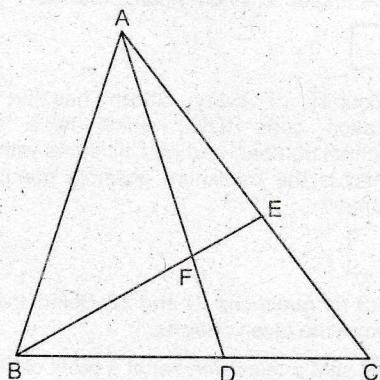
DIRECTIONS for question 23: Type in your answer in the input box provided below the question.

23. In the figure below, PA, PB and CD are tangents to the circle with centre at O. Find the measure (in degrees) of $\angle MON$, if $\angle APB = 50^\circ$.



DIRECTIONS for questions 24 to 27: Select the correct alternative from the given choices.

24. The unit's digit of 723^{327} is
 (A) 1. (B) 3.
 (C) 7. (D) 9.
25. Find the equation of the circle that touches the coordinate axes at the points (3, 0) and (0, 3).
 (A) $x^2 + y^2 = 3^2$
 (B) $x^2 + y^2 + 6x + 6y - 9 = 0$
 (C) $x^2 + y^2 = 6(x + y)$
 (D) $x^2 + y^2 - 6x - 6y + 9 = 0$
26. In the figure below, if AF : FD = 3:2 and BF : FE = 9 : 4, then the percentage by which the area of triangle BFD is more than that of triangle AFE is



- (A) 20%. (B) $33\frac{1}{3}\%$.
 (C) 50%. (D) $55\frac{5}{9}\%$.

27. How many natural numbers divide exactly two among 84, 120 and 210?
 (A) 6 (B) 8
 (C) 10 (D) 12

DIRECTIONS for question 28: Type in your answer in the input box provided below the question.

28. In triangle PQR, if PQ = 18, QR = 21 and the length of the altitude drawn to PR measures 13.5 units, find the area (in sq. units) of the circle circumscribing the triangle. Take $\pi = \frac{22}{7}$.

DIRECTIONS for questions 29 and 30: Select the correct alternative from the given choices.

29. If $x^2 + y^2 + z^2 = 4$, where x, y, z are real numbers, find the range of $(xy + yz + zx)$.
 (A) $[-2, 2]$ (B) $[-2, 2]$
 (C) $[-1, 5]$ (D) $[-2, 4]$
30. A conical tent is 3 m high and the radius of its base is 4 m. Find the cost of canvas required to make the tent, if every square metre of canvas costs ₹140.
 (A) ₹7040 (B) ₹8030
 (C) ₹8800 (D) ₹9130

DIRECTIONS for question 31: Type in your answer in the input box provided below the question.

31. Find the minimum value of $\frac{(a+b)(b+c)(c+a)}{abc}$, if a, b and c are positive real numbers.

DIRECTIONS for question 32: Select the correct alternative from the given choices.

32. If $10^{48} = x$, $10^{60} = y$ and $x^z = y^4$, then the value of z is
 (A) 4. (B) 5.
 (C) 6. (D) 10.

DIRECTIONS for questions 33 and 34: Type in your answer in the input box provided below the question.

33. In a class of 120 students, each student took three tests – Maths, English and Humanities. The number of students who passed in the three tests were 60, 90 and 80 respectively. If none of the students failed in all three subjects and the number of students who passed in at least one subject was 25% more than those who passed in at least two subjects, then how many students passed in all three subjects?

34. Find the sum of the coefficients of all the terms in the expansion of $(2x^2 + 3x + 1)^4$.