

Ref: AIMCAT1725

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

White collar crime refers to those offenses that are designed to produce financial gain using some form of deception. Perpetrators are typically involved in otherwise lawful businesses and may hold respectable positions in the community prior to the discovery of their fraudulent schemes. Without resorting to violence, by his wits alone, the criminal gets cash through a wide variety of criminal acts, such as: money laundering, tax evasion, embezzlement, healthcare fraud, identity theft, insider trading, counterfeiting, computer fraud, bribery, environmental law violations. Sociologist Edwin Sutherland referred to "white collar crime" as "a crime committed by a person of respectability and high social status in the course of his occupation". Criminologists now categorize these nonviolent crimes either by type of offense; by type of offender (those in positions of responsibility and trust); or by organizational culture (for example, organized crime).

Today, the FBI defines white collar crime as "... illegal acts which are characterized by deceit, concealment, or violation of trust and which are not dependent upon the application or threat of physical force or violence." For the layman, white collar crime simply means crimes committed by con artists, or scams. Money gets taken; no one gets hurt – physically. Indeed, the public seems somewhat fascinated by the white collar criminal: The Sting, Wall Street, Paper Moon, The Godfather, all involve aspects of white collar crime.

White collar crimes are difficult to prosecute since they involve intelligent perpetrators who hide their scams behind sophisticated shields (numerous companies, subsidiaries, and complex transactions). The white collar criminal can be notoriously organized, and his investigation can be burdensome and time-consuming. By the time prosecutions begin, white collar defendants include individuals involved in the transactions and several established corporations.

At the federal level, several agencies (FBI, Internal Revenue Service) work together to curtail white collar crimes across the country and once they reach a certain level of completion, the U.S. Department of Justice becomes involved, often with an investigatory grand jury being empanelled. Here, a group of 16 citizens, acting as a unit, investigate and ultimately issue indictments against white collar perpetrators. Working with an assistant U.S. Attorney, the grand jury reviews documents and hears testimonies from witnesses; subjects; and targets. "Targets" are individuals believed to be involved in the criminal act; "subjects" have undertaken suspicious behaviour but are not yet considered criminally culpable; and "witnesses" are individuals with information of interest to the grand jury. The grand jury will issue indictments and the Department of Justice will proceed to trial in federal district court against those individuals and corporations indicted by the grand jury.

The most common defense available to white collar crime defendants is the defense of entrapment. Entrapment occurs when law enforcement agents induce or persuade an individual to undertake a crime that he had no previous desire or intent to commit. Once the defense of entrapment is asserted, the burden of proving that the defendant was not the victim of entrapment must be shown by the government beyond a reasonable doubt. This puts yet another spoke in the wheel of fighting organized crime.

Punishment for white collar crime ranges from monetary fines, restitution of property taken, and reimbursement of the costs of prosecution, to various forms of incarceration. White collar criminals, due to their generally high socioeconomic status and lack of any threat of violence, may be kept under home detention and community confinement.

- Which of the following states the correct reason for which the author cites the names of movies in para 2 of the passage?
 - These movies primarily depict the evolution of white collar crimes in society.
 - These movies may show no violence or brute force and yet captivate the audience by focussing on the "cool" white collar criminal and other features of the crime.
 - The author wishes to state that white collar crime is much less a crime than crimes involving physical violence.
 - The movies downplay the severity of the crime and portray the white collar criminal as a hero.
- According to the passage, what is the difficulty involved in prosecuting white collar criminals?
 - The record-keeping does not adequately collect data on the socioeconomic status of offenders which, in turn, makes research and prosecution problematic.
 - White collar criminals retain a criminal defense attorney at the first indication of trouble and are able to considerably reduce their exposure to criminal liability, sometimes avoiding charges altogether.
 - White collar crimes are committed by intellectual persons who hide behind a veil of intricate and elaborate structures, processes and established institutions.
 - The federal agencies, with their limited resources, have a lot on their hands and the time-consuming white collar crime cases which involve no violence are not their first priority.
- Which of the following crimes do not fall under the umbrella of white collar crimes as discussed in the passage?
 - Corporate executives who benefit their company by overcharging or price fixing and misappropriation of funds.
 - Identity theft and breach of faith by a corporate C.E.O.
 - Organised transnational crime and environmental law violations.
 - Vandalism and shoplifting.
- In a major case of embezzlement in the U.S., a swindler "X" was involved in money laundering for about three years. "X" slyly exploited the confidence

of an organization "C". "Y" did not participate in the illegal activities but was present right from the start and knows the entire story. "Z" was rumoured to be a part of the initial planning circle of "X" and he worked with "X" for about a year. The grand jury is reviewing the testimonies of X, Y, Z and C.

On the basis of the information given above and in para 4 of the passage, which of the following classifications is correct?

- X – Target, Y – Subject, Z – Witness
- X – Witness, Y – Target, Z – Subject
- X – Target, Y – Witness, Z – Subject
- X – Target, Y – Victim, Z – Witness

5. Consider the following situations:

Situation 1: The opposition party wants to mar the reputation of a government official, X. So they, conduct a sting operation in collaboration with the local police. The official is lured to a hotel, manipulated into accepting a bribe and is secretly caught on videotape. He is later arrested by the police on the basis of that evidence.

Situation 2: A corrupt official, Y, who was actively involved in taking bribes, is caught on videotape on one occasion, while taking a bribe, and then charged against it by the police.

In which of the above two situations can a tenable 'defense of entrapment' be made by the defendant involved?

- Only Situation 1
- Only Situation 2
- Both Situation 1 and Situation 2
- Neither Situation 1 nor Situation 2

6. Which of the following statements is correct as per the passage?

- The 'defense of entrapment' is not available to perpetrators of blue collar crime.
- In white collar crime, the goal of the criminal is to achieve financial gain for himself.
- White collar criminals are mostly imprisoned in a more secure facility than the general federal prison population without any attention paid to their social backgrounds.
- More personnel should be deployed to fight crimes of violence than to analyse the transactions of persons and corporations implicated in white collar crimes.

DIRECTIONS for questions 7 to 12: The passage given below is followed by a set of six questions. Choose the best answer to each question.

Tipping in America carries with it such a strong psychological pull that many consumers are unwilling to abandon it, and in light of recent estimates that 58 percent of a server's income comes from tips, it seems as though there are considerable economic issues to untangle before tipping can be abolished.

The basic idea behind tipping, of course, is that service workers are getting rewarded for doing a good job, but the science simply doesn't back this up. There's decades' worth of consumer-psychology research demonstrating that tipping hardly improves service at all. Michael Lynn, a Cornell University professor and one of the nation's leading experts on the psychology of tipping, has studied this at length. Lynn wrote in a paper published in *Cornell HRA Quarterly*, "Service ratings explained an average of less than two percent of the variation in a restaurant's tip percentages."

Better service did indeed translate to a better tip, in other words, but the correlation was minuscule. Another study, published in 2001 in the journal *American Demographics*, suggested that many people pretty much just tip what they're going to tip, no matter what happens during their dining experience. That research found that about a quarter of Americans always tip the same percentage, regardless of service. And although research in the previous decade

suggested that servers could improve their tips by scrawling a little "thank you" or a smiley face on the bill, the latest studies are now showing the opposite – that when servers do this, their customers tend to leave *lower* tips.

Servers can race around the restaurant at a break-neck pace in hopes of pleasing their tables, and yet the research suggests that they ultimately have very little control over the gratuity they earn. But even more pernicious than that, one study published last summer in the journal *Sociological Inquiry* found a racial component inherent to tipping. White servers were tipped higher on average than black servers, when the quality of service provided is the same. And, in another study of Lynn's that will surprise absolutely no one, researchers found that female servers with good looks and blonde hair received higher tips; in contrast, the larger a female server's body size, the smaller her average gratuity.

From the consumer perspective, on the other hand, tipping does provide at least the *illusion* of control. One economist characterized restaurant tipping as a "risk sharing" relationship the customer and server enter into. At the outset, you're agreeing to a price without being sure of the quality of either the food or the service you're going to pay for. Tipping is a way of mitigating this risk, theorized Luther College economics professor Steven J. Holland, ensuring that when "the service quality is below what the customer expected, she can leave a smaller tip and pay a price that is closer to the service's true value." The customer, in other words, gets to hold most of the power here, and that's not a feeling people are eager to let go of.

7. Which of the following is the most likely reason for consumers unwilling to abandon tipping in America?
 - (A) Consumers are aware that tipping constitutes more than half the income of a waiter and abandoning tipping would impact the waiters' earnings adversely.
 - (B) Tipping ensures better service in restaurants and consumers are willing to pay for this better service.
 - (C) Consumers believe that, when tipping, they are in control of deciding the actual worth of the service received.
 - (D) Consumers prefer waiters to have certain characteristics and tipping is a way to reward waiters with those characteristics.
8. In the last paragraph, why does the author refer to the control that tipping provides to the consumer as an *illusion*?
 - (A) Customers value racial profile of the waiter more than the service quality.
 - (B) The listed price in the menu already includes the tips that the waiter receives.
 - (C) Waiters tend to demand higher tips if they feel they are not satisfied with the tips they received.
 - (D) Quality of service in a restaurant is usually not dependent on the tips that the waiters receive.
9. Which of the following could be a reason for the reversal in correlation found between tipping and drawing smiley faces on bills?
 - (A) The customer's propensity to tip depends on a multitude of factors but waiters drawing smiley faces on bills is not one of them.
 - (B) Customers have realized that waiters are psychologically manipulating them into providing higher tips by drawing smiley faces.
 - (C) Waiters are drawing smiley faces on bills only when they expect higher tips.
 - (D) Customers have stopped looking at the bills before paying and therefore, have stopped noticing the smiley faces on the bills.
10. Which of the following statements does not follow from any of the studies/researches mentioned in the passage?
 - (A) Better service does not necessarily result in better tips.
 - (B) Better tips do not necessarily lead to better service.
 - (C) More often than not, tips are independent of the service provided.
 - (D) Tips are dependent on the characteristics of the waiter.
11. According to the passage, which of the following factors does not influence tipping by a consumer?
 - (A) Racial features of the waiter
 - (B) Gender of the waiter
 - (C) Better service
 - (D) None of the above
12. Which of the following excerpts taken from the passage most weakens the views of Steven J. Holland mentioned in the passage?
 - (A) "...many people pretty much just tip what they're going to tip, no matter what happens during their dining experience."
 - (B) "White servers were tipped higher on average than black servers."
 - (C) "...although the research in the previous decade suggested that servers could improve their tips by scrawling a little "thank you" or a smiley face on the bill, the latest studies are now showing the opposite – that when servers do this, their customers tend to leave *lower* tips."
 - (D) "Tipping in America carries with it such a strong psychological pull that many consumers are unwilling to abandon it"

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.

One of the peculiarities which distinguish the present age is the multiplication of books. Every day brings new advertisements of literary undertakings, and we are flattered with repeated promises of growing wise on easier terms than our progenitors.

How much either happiness or knowledge is advanced by this multitude of authors, it is not very easy to decide. He that teaches us anything which we knew not before, is undoubtedly to be reverenced as a master. He that conveys

knowledge by more pleasing ways, may very properly be loved as a benefactor; and he that supplies life with innocent amusement will be certainly caressed as a pleasing companion. But few of those who fill the world with books have any pretensions to the hope either of pleasing or instructing. They have often no other task than to lay two books before them, out of which they compile a third, without any new materials of their own, and with very little application of judgment to those which former authors have supplied.

That all compilations are useless I do not assert. Particles of science are often very widely scattered. Writers of extensive comprehension have incidental remarks upon topics very remote from the principal subject, which are often more valuable than formal treatises, and which yet are not known because they are not promised in the title. He that collects those under proper heads is very laudably employed, for, though he exerts no great abilities in the work, he facilitates the progress of others, and, by making that easy of attainment which is already written, may give some mind, more vigorous or more adventurous than his own, leisure for new thoughts and original designs. But the collections poured lately from the press have been seldom made at any great expense of time or inquiry, and therefore only serve to distract choice without supplying any real want. It is observed that "a corrupt society has many laws," and I know not whether it is not equally true that an ignorant age has many books. When the treasures of ancient knowledge lie unexamined, and original authors are neglected and forgotten, compilers and plagiaries are encouraged, who give us again what we had before, and grow great by setting before us what our own sloth had hidden from our view.

Yet are not even these writers to be indiscriminately censured and rejected. Truth, like beauty, varies its fashions, and is best recommended by different dresses to different minds; and he that recalls the attention of mankind to any part of learning which time has left behind it, may be truly said to advance the literature of his own age. As the manners of nations vary, new topics of persuasion become necessary, and new combinations of imagery are produced; and he that can accommodate himself to the reigning taste may always have readers who perhaps would not have looked upon better performances. To exact of every man who writes that he should say something new would be to reduce authors to a small number; to oblige the most fertile genius to say only what is new would be to contract his volumes to a few pages. Yet surely there ought to be some bounds to repetition. Libraries ought no more to be heaped forever with the same thoughts differently expressed, than with the same books differently decorated.

13. Which of the following roles does a writer need not assume according to the passage?
 - (A) A pedagogue who teaches novel concepts
 - (B) A story teller with amusing anecdotes
 - (C) A friend who finds new ways to help understand old concepts
 - (D) A companion who pieces together already existing information
14. What does the author imply when he says that "particles of science are often very widely scattered"?
 - (A) Deep insights on issues are often hidden in unforeseen places.
 - (B) Writers with extensive comprehension are few and far between.
 - (C) Remarks on topics not related to the principal subject of a work are uncommon.
 - (D) A voluminous book will contain various remarks on unrelated topics.
15. What can be inferred from the passage when the author states that "truth... is best recommended by different dresses to different minds"?
 - (A) Even though some compilations do not have any new material, knowledge is often found in such works.
 - (B) Information needs to be presented from a different perspective from time to time.
 - (C) The perception of facts varies from person to person and each person has his version of knowledge.
 - (D) The same information can be reproduced so that it does not fade away from readers' minds.
16. According to the passage, which of the following will most likely render compilations which do not have any new materials pointless to readers?
 - (A) Writers take care not to include information unrelated to the principal subject in their work.
17. Who among the following can be censured or rejected according to the passage?
 - (A) A writer who manages to bring to light information in existing works which faded away with time.
 - (B) A writer who compiles existing information from obscure sources to further facilitate original ideas.
 - (C) A writer who writes childish stories from which no knowledge can be gained.
 - (D) A writer who faithfully reproduces existing knowledge, exercising little prudence over the same.
18. According to the passage, which of the following can be inferred regarding the repetition of material across various books?
 - (A) A writer must be confined to write only new material without repeating any old material.
 - (B) To reduce repetition of material, every writer must include at least some original content in his works.
 - (C) Books which repeat existing information without adding anything new are as effective as presenting the same book in different designs.
 - (D) Any repetition of material in the form of compilations helps make researching new topics easier.

DIRECTIONS for questions 19 to 21: The passage given below is followed by a set of three questions. Choose the best answer to each question.

Imagine a landscape on the seafloor, half a mile below sea level, where the sweep of normal marine sediment – calm, flat, expansive – is interrupted by an ecosystem of astonishing diversity. Like the nighttime view from an airplane looking down on a city's lights, you see the unmistakable signs of life: white and orange microbial mats coat the seafloor, and crabs, mussels, clams, and fish dot the area. Bubbles of methane gas emerge, swirling upward into the overlying water. The landscape is cracked and mottled, the surrounding mud giving way to a varied and rocky topography.

This is a marine methane seep, a common ecosystem along the tectonic margins of most of Earth's continents, but one that went unseen by human eyes until the 1980s.

During the last five years of my research career, marine methane seeps have captured my attention for two principle reasons. These ecosystems host a rich diversity of seafloor life, and, perhaps counter intuitively, they represent an important link between biology and Earth's climate.

Organisms at methane seeps must contend not only with near-freezing temperatures and crushing pressures, but also with frequent landscape change caused by geological forces. Over time – estimates range from months to tens of thousands of years – seeps stop, start, and move location on the seafloor. Essentially, methane seeps "turn on" and "turn off." With methane serving as the base carbon source for a complex, interwoven food web, biological communities must adjust as previously calm areas of the seafloor begin actively venting methane, and formerly active regions become dormant. Scientists do not yet fully grasp how biological communities handle such changes in environmental conditions; it's an important problem, since similar scenes play out all over the world where environmental conditions can change rapidly. At what rate do species respond to changing circumstances? Are some species more sensitive than others? And how do we, as scientists, perform experiments on these systems without having to wait thousands of years for the methane switch to be flipped? A PhD is only supposed to take five years, after all.

One answer, it turns out, is to swap time for space. Our new study, published this month in *mBio*, has done just that. Rather than wait for geological forces to modify the seep's underlying plumbing, we collected samples from the seafloor and transplanted them. Some samples went from an actively venting seep region to a dormant area; others experienced the opposite change. These transplant experiments simulated the activation and quiescence of a marine methane seep, allowing us to track the response and behavior of microorganisms over tractable timescales.

We made two remarkable discoveries. First, we found that marine methane seeps host even more diverse microbial populations than previously realized, due largely to the revelation that different microbial species populate rocks than populate the surrounding muddy sediments. Sediments have historically received the bulk of scientific attention, but it turns out that rocks make up the vast majority of the available habitat in methane seep ecosystems. The microbes inhabiting rocks in seep settings are not only different than our traditional interpretation of seep microbiology, but they also happen to be the volumetrically dominant fraction of life in these habitats.

Our second discovery came from our novel transplantation experiments, using space as a substitute for time. We found that in general, microbial communities are recalcitrant to seep quiescence (they don't die right away when the methane supply is "turned off") but responsive to seep activation (they change quickly when methane supply is "turned on"). These findings have major ecological implications: as conditions become less favorable, methane-fueled microbial communities may be well-adapted to wait for a return to better times. On the other hand, if seep activity is dialed up, these same organisms may be able respond quickly to consume the extra supply.

19. What in the author's opinion could be counterintuitive about methane seeps representing "an important link between biology and the Earth's climate"?
- (A) That ecosystems lying sequestered at such great depths could influence the Earth's atmosphere above sea level
 - (B) That such barren reclusive seeps should influence the biological balance of the Earth at a planetary level
 - (C) That something that has been discovered so recently could be involved in the climatological issues plaguing the Earth for decades.
 - (D) That microorganisms as small as bacteria could influence the climate at a global level.
20. Which of the following pairs of words would closely parallel the observed behavior of microorganisms in a methane seep as the seep goes from active to dormant and vice versa respectively?
- (A) Build and Bury
 - (B) Flounder and Flourish
 - (C) Hibernate and Hoard
 - (D) Extinguish and Emancipate
21. Which of the following is not a finding from the new study that the author was involved in?
- (A) Rocks host more microbial species than sediment.
 - (B) Seeps stop, start, and move locations on the seafloor.
 - (C) Microbes are resilient to nutrition throttling.
 - (D) The heterogeneity of microbial life in methane seeps was traditionally underestimated.

DIRECTIONS for questions 22 to 24: The passage given below is followed by a set of three questions. Choose the best answer to each question.

In the century since the First World War began, there have been bloodier conflicts. There have been wars that seem more pointless and less conclusive. But the First World War remains distinctively stupefying.

An ambitious exhibition at the Harry Ransom Centre, "The World at War, 1914-1918," gives us a sense of why. There is more than can be easily grasped. The war resulted in 10 million military deaths. But as you explore the 470 artifacts – diaries, letters, manuscripts, memoirs, poems, novels, propaganda posters, photographs and diagrams of the trenches – gathered by the curators, you also begin to understand something about the cultural effects of the war and its still-lengthening shadow. The exhibition, we are told, illuminates "the experience of the war from the point of view of its participants"; it "seeks to recover the deeply personal experience of the war."

This emphasis is in keeping with our culture's current preoccupation with personal experience rather than larger historical understanding. So, this exhibition, while immensely rich and suggestive, can occlude the larger picture by not offering a fuller sense of context or an interpretation of the war's origins and effects.

Before 1914, wars were not typically considered pointless, gratuitously violent enterprises; they could be foolish or misguided, but they were generally considered instrumental exercises of political power. Before 1914, wars were also not typically presumed to be suspect before proven necessary. Now, with few exceptions, they often are. Of course, nuclear weaponry contributed to this change. And other qualifications are needed: Some wars will inspire widespread support; some will even be broadly seen as necessary. But the premises have shifted, particularly in cultural life. What about this particular war contributed to the shift? It wasn't just the experience of trauma and death. Large-scale brutality is not a novelty in warfare's history. The new attitudes seem to have arisen out of a growing sense of the war's purposelessness, leading to broad disenchantment.

Much of this impression really did come from personal experience like the gruesome trench battles. This is history written from "below" – through the lens of ordinary participants, not political leaders or military strategists. Now, World War I tends to be thought about as if it were the product of an out-of-control mechanism for which all governments were responsible, at the cost of the human victims. This is also the dominant literary interpretation that we see emerging in these manuscripts. As the critic Paul Fussell has pointed out, this was a war that, at least for its English-speaking participants, had an unusual connection to the British literary tradition. That tradition shaped interpretations, phrases and ideas, not just for the educated officers who became known for antiwar writings, but for ordinary soldiers; the quantity of English poetry inspired by the war is astounding. A 1918 Canadian lithograph depicts a mourning soldier in a field of flowers and it alludes to the wartime poem that begins, "In Flanders fields the poppies blow".

Has there been another war in which so great a portion of a culture's artistic creators shared experience of the conflict? If history is said to be told by the victors, here, history was told by disenchanted writers and artists. The antiwar influence remains potent even today as a cultural force and an influence on historical thinking.

Still, this vision has its limitations. If "deeply personal experience" becomes the measure of things, we might be missing a broader historical perspective. Such a history might confirm the verdict of experience, but it might also transform it. We might now say: Death in the war was horrible but necessary. Circumstances matter; history affects our assessment.

22. What is the author's opinion about the exhibition at the Harry Ransom Centre?
- (A) The exhibition helps one to view World War I through the prism of the personal as well as to focus on its purposeless nature and complicated consequences.
 - (B) The exhibition was immensely rich and suggestive and corroborated our penchant for personal experience.
 - (C) The exhibition emphasizes on personal experience of World War I but this masks our understanding of the war's origin and effects.
 - (D) The exhibition puts the cultural effects of the First World War in a limelight while relegating the personal experience of its participants and observers to the fringes.
23. Why does the author set off the phrase "seeks to recover the deeply personal experience of the war" in quotes in the passage (para 2)?
- (A) To show his own contempt and sarcasm for this attribute of the war.
 - (B) To draw our attention to that part of the text.
24. What is the implication from the author's use of the sentence "Before 1914, wars were also not typically presumed to be suspect before proven necessary" in the fourth paragraph?
- (A) Before 1914, it was widely held that wars wouldn't be waged without good reason.
 - (B) After 1914, nuclear weaponry is a major factor that instigates war.
 - (C) Before 1914, all wars inspired widespread support even though they were not necessary.
 - (D) Before 1914, even though wars were meaningless, governments of countries that waged war were considered innocent until proven guilty.

DIRECTIONS for questions 25 to 28: The five sentences (labelled 1, 2, 3, 4 and 5) given in the following question, when properly sequenced, form a coherent paragraph.

Decide on the sequence of five numbers as your answer.

25. (1) Later, even after this stream of literary inspiration began to dry up, the writer/poet protagonist remained a figure of admiration and romance.
(2) But what about the publisher?
(3) For much of its history, popular Hindi cinema took literature seriously.
(4) It's fascinating: the publisher in Hindi cinema was invariably a petty, money-minded sort, either too stupid or too evil to appreciate the worth of the writer-hero.
(5) Until the 1960s and 1970s, screenplays were often adapted from existing literary work: plays, novels, short stories.

26. (1) I do not mean that this was the intention, but that it was, in fact, the effect.
(2) There must have been a time when *homo sapiens* was a very rare species, subsisting precariously in jungles and caves, terrified of wild beasts, having difficulty in securing nourishment.
(3) In those days, the number of men must certainly have been very small but throughout the ages, men have used their biological and technical skills mainly to increase the total population.
(4) The most indubitable respect in which ideas have helped mankind is numbers.
(5) At this period the biological advantage of his greater intelligence had scarcely begun to outweigh the disadvantages of his long infancy, his lessened agility as compared with monkeys, and his lack of hirsute protection against cold.

27. (1) It, in fact, takes place one windy winter day spent exploring the preserved Portuguese houses at Taipa Houses Museum.
(2) Behind me, excited soon-to-wed couples pose theatrically against the charming backdrop of white and green houses, a cobble-stoned walkway and tall trees billowing in the mid-morning breeze.
(3) The guide informs us that the boat has been put on display for effect, but the picture-perfect sight leaves me blissed-out.
(4) I settle on a solitary bench, facing a still mossy lake, disturbed only by a fisherman's boat.
(5) My favourite moment in Macau has nothing to do with its much talked about night-life, gambling culture, uber expensive malls or the greyhound races.

28. (1) Currently, the amount of vitamin E needed to produce these effects is unknown: the diet may supply enough vitamin E in most athletes, but some may require supplementation.
(2) Although it is well known that vitamin deficiencies can create difficulties in endurance training and recovery, the role of antioxidant

supplementation in a well-nourished athlete is controversial and experimental studies are often conflicting and inconclusive.

- in the recovery process following exercise.
(4) Nevertheless, most of the data suggest that increased intake of vitamin E is protective against exercise induced oxidative damage.
(5) There is no firm data to support the use of increased amounts of the other antioxidants.

DIRECTIONS for questions 29 to 31: Five sentences related to a topic are given below. Four of them can be put together to form a meaningful and coherent short paragraph. Identify the odd one out. Choose its number as your answer and key it in.

29. (1) It occasionally feels as if one of the main pillars of the original Mystery genre, the classic detective story 'puzzler', died with Christie, for very few later authors appear to have attempted it since her death.
(2) She was another competent – but really very basic – writer, but brilliant storyteller (note: plotting is not writing).
(3) To my eyes, the closest equivalent to the J. K. Rowling phenomenon, regarding both the dispersion of the work worldwide, as well as its sheer popularity, was Agatha Christie.
(4) In Literature, even the supplementary characters may be clearly etched miniature portraits without detracting from the principal players.
(5) In a Christie novel, everything is subordinate to the plot/puzzle *du jour*, and every book is brought to a conclusive ending.

30. (1) Nagel who is an eminent philosopher and professor at NYU, shows with terse, meticulous thoroughness why mainstream thought on the workings of the mind is intellectually bankrupt.
(2) Researchers in these fields are profoundly split, and the chaos was on display in the ugliness occasioned by the publication of Thomas Nagel's *Mind & Cosmos* in 2012.
(3) This is why the idea of objective reality is a masterpiece of Western thought—an idea we associate with Galileo and Descartes and other scientific revolutionaries of the 17th century.
(4) The modern "mind fields" encompass artificial intelligence, cognitive psychology, and philosophy of mind.
(5) He explains, much to the indignation of the philosophical intelligentsia, why Darwinian evolution is insufficient to explain the emergence of consciousness and then offers his own ideas which are speculative and provocative.

31. (1) Managing diversity is different from both affirmative action and valuing diversity because it focuses on the "business case" for diversity.
(2) Again, the focus was and has been on increasing the representation of minorities and females in the workforce to reflect their availability in the labour market.

- (3) Affirmative Action, a direct result of the Civil Rights movement (1960s), is grounded in moral and social responsibility to amend wrongs done in the past to those Americans who were not of the majority population.
- (4) Because of a long history of discriminatory practices, federal contractors have been expected to make a positive effort to recruit, hire, train, and promote qualified employees of previously excluded groups.
- (5) The legal obligations of affirmative action are based on numerical measures and were designed to increase the representation of minorities and women in areas of employment where they were previously underrepresented.

DIRECTIONS for questions 32 to 34: Four alternative summaries are given below the text. Choose the option that best captures the essence of the text.

32. The tendency toward extreme, unhealthy competition has been termed hypercompetitiveness. This concept originated in Karen Horney's theories on neurosis; specifically, the highly aggressive personality type which is characterized as "moving against people". In her view, some people have a need to compete and win at all costs as a means of maintaining their self-worth. These individuals are likely to turn any activity into a competition, and they will feel threatened if they find themselves losing. Researchers have found that men and women who score high on the trait of hypercompetitiveness are more narcissistic and less psychologically healthy than those who score low on the trait. Hypercompetitive individuals generally believe that "winning isn't everything; it's the only thing".

- (A) Hypercompetitive individuals tend to provide extremely tough challenges to those they seek to challenge and hence make great sportspersons. It can be tackled by becoming less narcissistic and more psychologically healthy.
- (B) Karen Horney has presented a scientific analysis of hypercompetitiveness. Hypercompetitiveness is the opposite of cooperation.
- (C) Hypercompetitiveness is a negative trait that leads to increased stress levels, anxiety and desperation to succeed. It can also result in depression.
- (D) Hypercompetitiveness is the tendency to see every activity as a contest. People who are hypercompetitive also indulge more in vainglory and are prone to feel uneasy if they believe themselves to be losing.

33. We live in a society dedicated to the idea that we're always better off gathering as much information and spending as much time as possible in deliberation. That information then crowds out factors that our unconscious mind had pegged as key at the start. Sometimes, the unconscious gets the key factors wrong, as with ethnic stereotyping, but Malcolm Gladwell in his book *Blink* insists we're better off teaching the brain to screen out these mistakes than dismissing our instincts. There are lots of situations—particularly at times of high pressure and stress—when haste does not make waste, when our snap judgments and first impressions offer a much better means of making sense of the world. When we meet someone for the first time, or walk into a house we

are thinking of buying, or read the first few sentences of a book, our mind takes about two seconds to jump to a series of conclusions. Well, *Blink* is about those two seconds, because those instant conclusions that we reach are really powerful and important.

- (A) We are taught to be sceptical of first impressions, but Malcolm Gladwell argues that those split-second summations are wiser than we assume them to be. They bring in the very same information, which one's unconscious makes. The unconscious keys in these initial judgements, which later turn out to be true in any case.
- (B) We live in a society dedicated to the ideas: haste makes waste, look before you leap, stop and think. First impressions are rather judgmental and do not leave any room for ethnic stereotyping; but it's always better to rely on one's instincts when sizing up people for the first time, a point which has been proved through research.
- (C) Research has shown how studying a subject in-depth or overt analyses can introduce extraneous information which can prevent the unconscious from focusing on important points. Initial impressions often provide insights into a person's nature or situation and these instant conclusions are important. Malcolm Gladwell seconds this opinion in the book *Blink*.
- (D) *Blink* is concerned with the smallest components of our everyday lives—with the content and origin of those instantaneous impressions and conclusions that bubble up whenever we meet a new person, or confront a complex situation, or have to make a decision under conditions of stress. I think it's time we paid more attention to those fleeting moments which may not be as judgmental as we think.

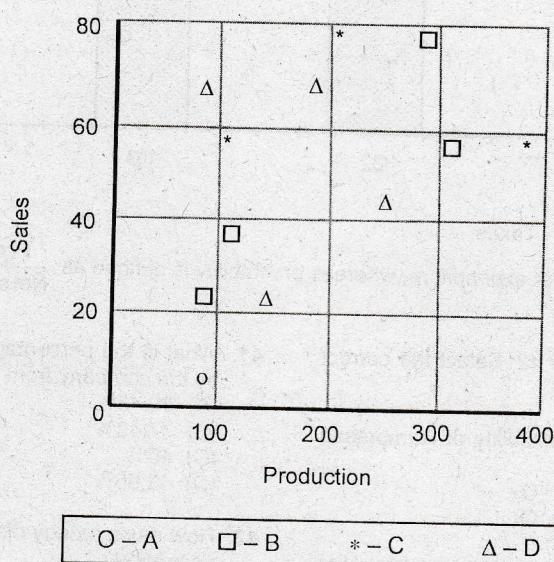
34. People who do not believe in the soul are in a most unfortunate condition. They do not know where they came from nor where they are going. Knowledge of the soul is the most important knowledge, but it is not discussed in any university. But what is the constitution of this body? What is the distinction between a dead body and a living body? Why is the body living? What is the condition of the body, and what is its value? People need to understand that they are not these bodies but are spirit souls.

- (A) The modern educational system lacks connection with God. There should be courses teaching people about the souls as it is a very important topic and people are ignorant about it.
- (B) It is sad that some people do not believe in the soul. Knowledge of the soul is extremely important, but unfortunately, it is not discussed in any university, which leaves many questions about the soul unanswered. People need to understand that their soul is their essence.
- (C) If you help a person achieve his material goals and pursue other knowledge but, in doing so, do not deal at all with the person as a spiritual entity, what is the benefit? The soul is the most important part of the human body and we should value it.
- (D) Material scientists conclude that there is no soul, but that is not a fact. There is a soul. The presence of the soul makes a difference between a living body and a dead body.

SECTION – II
Number of Questions = 32

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

Each point in the graph below shows the production and sales (both in '000 units) of a company. Each company belongs to one of the four sectors A, B, C and D



○ – A □ – B * – C Δ – D

DIRECTIONS for questions 35 to 38: Select the correct alternative from the given choices.

35. For how many of the given companies do the sales exceed 20% of the production?
 (A) 6 (B) 7 (C) 5 (D) 8

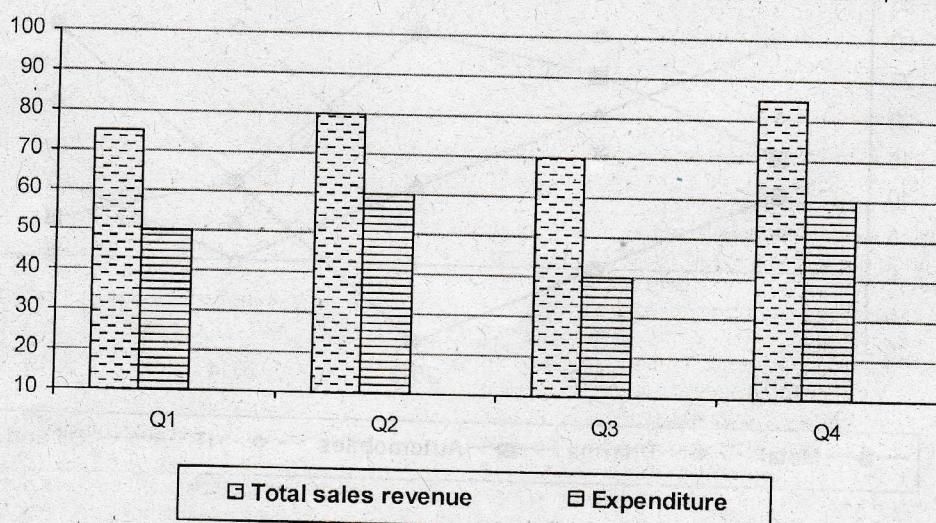
36. For how many companies in sector B is the production more than 100 thousand units and the sales less than 50 thousand units?
 (A) 1 (B) 2 (C) 3 (D) 0

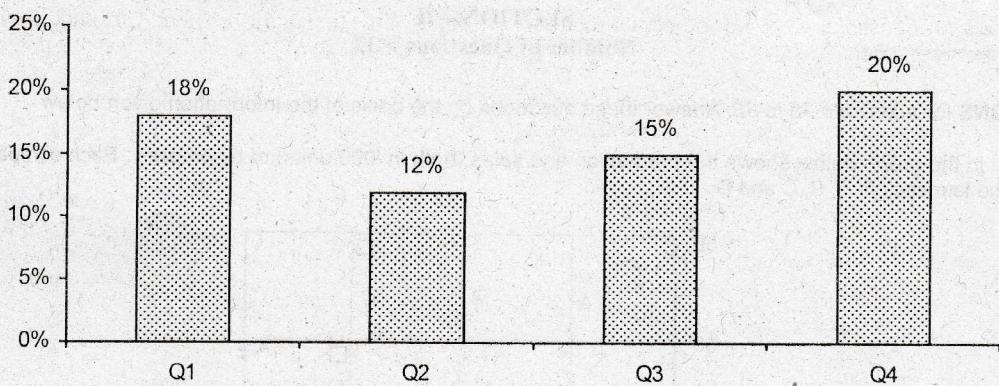
37. Aravind wants to make an investment in a company under sector A or sector C with production more than 100 thousand and sales more than 20% of the production. How many choices does he have?
 (A) 3 (B) 2 (C) 1 (D) 4

38. Among the given companies, to which sector does the company with the highest production to sales ratio belong?
 (A) A (B) B (C) C (D) D

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

The first bar graph shows the total sales revenue and the expenditures (both given in ₹lakh) of the company 'Ramprasad and Sons' in each of the four quarters of the FY 2012 – the quarters being denoted by Q₁, Q₂, Q₃, and Q₄. The second bar graph shows the tax paid by the company as a percentage of the total sales revenue in each of the four quarters.





Net Sales = Total Sales Revenue – Taxes

Profit is the excess of net sales over expenditure, whereas profitability is defined as $\frac{\text{Profit}}{\text{Netsales}}$

DIRECTIONS for questions 39 to 42: Select the correct alternative from the given choices.

41. What is the percentage decrease in the profit made by the company from Q₁ to Q₄?

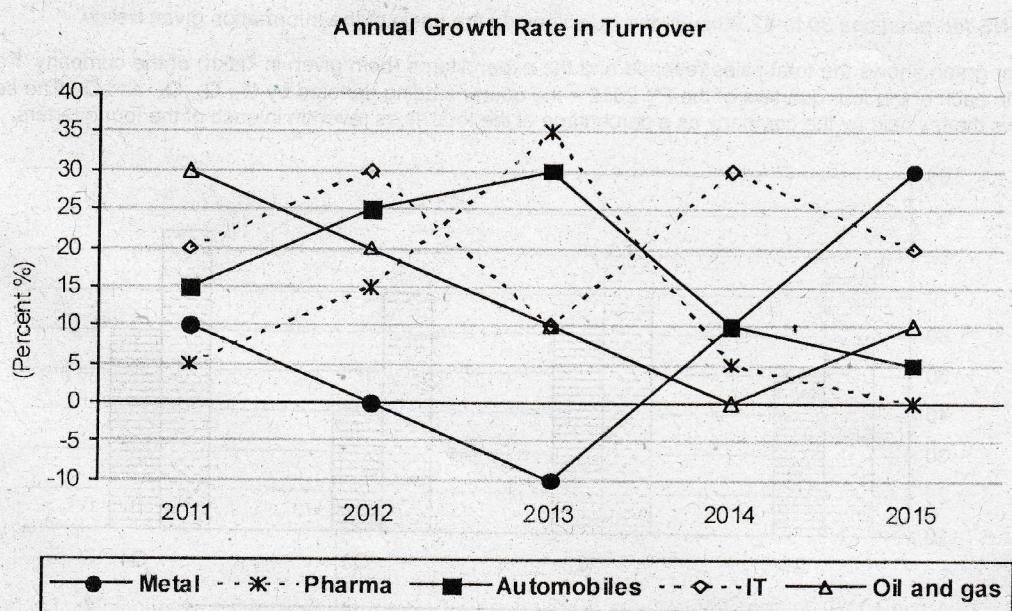
(A) 30.43%
(B) 37.43%
(C) 40%
(D) 42.65%

42. How much money did the company pay as tax in the year 2012?

(A) ₹29.2 lakh
(B) ₹63.7 lakh
(C) ₹32.5 lakh
(D) ₹50.6 lakh

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

The following line graph gives the growth rate (compared to the previous year) in the turnover of different sectors of the industry.



DIRECTIONS for questions 43 to 46: Select the correct alternative from the given choices.

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

The table below gives some information about the points scored by Arjun in AHC (All Hastin Championship), in each of five different mind games – Dice, Dance, Dupe, Digit and Dynasty.

Game	Total Problems	Problems Attempted	Successful Attempts	Failures	Net Score
Dice	35	29			
Dance	30				
Dupe	35	17		6	
Digit	40				11
Dynasty	45		30		

It is also known that,

- i. for every successful attempt Arjun gets one point and for every unattempted problem he loses $\frac{1}{6}$ th of a point and for every failure he loses $\frac{1}{3}$ rd of a point.
 - ii. Arjun scored a total of 67 points and attempted 125 problems.
 - iii. the number of failures of Arjun in Digit is $\frac{1}{6}$ th of his total number of failures and twice his number of failures in Dance.
 - iv. Arjun's net score in Dance is double that in Dupe.

DIRECTIONS for question 47: Type in your answer in the input box provided below the question.

47. What is the total number of failures of Arjun in the competition?

1

DIRECTIONS for question 48: Type in your answer in the input box provided in the question.

48. The maximum number of failures of Arjun in any game was

game was

DIRECTIONS for questions 49 and 50: Type in your answer in the input box provided below the question.

49. What is the number of problems attempted by Arjun in Dance?

1

50. What is the net score of Ariun in Dynasty?

1

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

In a wrestling championship, five persons – Andy, Bumrah, Clarke, David and Hussey – secured the first five ranks, in the same order. The weight of each of the five persons is a distinct natural number.

The following information is known regarding their weights:

- (1) Clarke is the heaviest person and Bumrah is the second heaviest.
 - (2) Andy is heavier than David.
 - (3) The weight of the lightest person among the five is 54 kg and it is not Hussey.
 - (4) The weight of the heaviest person is 87 kg.
 - (5) The weight of one of the persons is 19 kg more than that of Hussey.
 - (6) The person whose weight is 82 kg secured a better rank than the person whose weight is 67 kg.

DIRECTIONS for questions 51 to 54: Type in your answer in the input box provided below the question.

51. What is the weight (in kg) of Andy?

1

52. What is the total weight (in kg) of all the five persons put together?

10

53. What is the weight (in kg) of Hussey?

1

54. What is the rank of the second lightest person?

1

DIRECTIONS for questions 55 to 58: Answer these questions on the basis of the information given below.

In a school van, there are six seats in two rows which are opposite each other, such that there are three seats in each row. Two children can sit in a seat. Ten children – A through J – travel by that van and they sit in the following manner:

- (i) F sits in the seat opposite G.
- (ii) I always sits alone.
- (iii) J and C always sit on the same seat and also sit in the same row as E.
- (iv) G and H sit on adjacent seats.

DIRECTIONS for questions 55 to 58: Select the correct alternative from the given choices.

55. If F does not sit in the same row as J, then who must sit in the same row as F?

- (A) A
- (B) B
- (C) I
- (D) E

56. If E and D sit on the same seat, then who among the following must sit in the same row as C?

- (A) H
- (B) F
- (C) G
- (D) A

57. If B sits in the seat opposite H, then who among the following must sit in the seat opposite I?

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

58. If H and B sit on the same seat and D and E sit on the same seat, then who among the following sits in the same row as A?

- (A) H
- (B) G
- (C) I
- (D) Cannot be determined

DIRECTIONS for questions 59 to 62: Answer these questions on the basis of the information given below.

The 48 players who assembled for a football camp are from four different teams – Barca, Multipool, Arsenal and Madrid. Each player is either a goalkeeper, a striker, a mid-fielder or a defender. The following facts are also known about the players:

- (a) Each team sent not more than 13 players.
- (b) Kaka, Baka, Raka and Laka are the mid-fielders from Barca.
- (c) There are an equal number of goalkeepers, strikers, mid-fielders and defenders at the camp.
- (d) Arsenal and Barca had an equal number of players and Multipool and Madrid had an equal number of players in the camp.
- (e) Each team sent an equal number of goalkeepers.
- (f) Had Madrid sent one more player in one of the categories and Multipool sent one more player in one of the other categories, then there would have been at least three players from each team in each category.

DIRECTIONS for questions 59 to 62: Select the correct alternative from the given choices.

59. Which of the following cannot be determined from the information given?

- (A) Number of strikers from Barca.
- (B) Number of goalkeepers from Madrid.
- (C) Number of mid-fielders from Arsenal.
- (D) Number of defenders from Arsenal.

60. Which of the following combinations is not possible?

- (A) Three mid-fielders from Multipool and three defenders from Madrid.
- (B) Three mid-fielders from Madrid and four defenders from Arsenal.
- (C) Two strikers from Multipool and four defenders from Arsenal.
- (D) Two mid-fielders from Madrid and four defenders from Arsenal.

61. If Tuchi, Kichi and Machi are the mid-fielders from Madrid, then which of the following is definitely not true?

- (A) There are two defenders from Multipool.
- (B) There are four defenders from Arsenal.
- (C) There are four strikers from Arsenal.
- (D) There are three mid-fielders from Arsenal.

62. If there are three strikers from Multipool, then which of the following is definitely true?

- (A) There are three strikers from Arsenal.
- (B) There are two defenders from Madrid.
- (C) There are three mid-fielders from Madrid.
- (D) None of the above

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

Among six friends – A, B, C, D, E and F – three are wearing Blue dresses, two are wearing Red dresses and one is wearing a Green dress. Three of them are employed, two are unemployed and one is a student. Also, three of them own only a Bicycle each, two of them own only a scooter each and one owns only a Mobike. Each of the three features, i.e., colour of dress, employment status and the kind of vehicle is hence forth referred to as an *attribute*. Except C and D, no two friends have more than one *attribute* in common.

Further the following information is known:

- (i) C, who does not wear a Blue dress, does not have the same kind of vehicle as A.
- (ii) Each of the four persons A, B, D and E have exactly one *attribute* in common with the person who owns the kind of vehicle which no other person owns.
- (iii) The student does not own a Bicycle.
- (iv) For A, B and F, there is one common *attribute* and that is not the colour of dress.

DIRECTIONS for questions 63 to 66: Select the correct alternative from the given choices.

63. Who owns the Mobike?

- (A) C
- (B) F
- (C) D
- (D) Either C or F

64. What is the colour of the dress that the student wears?

- (A) Blue
- (B) Green
- (C) Red
- (D) Cannot be determined

65. Which of the following pairs of friends are both employed?

- (A) A and D
- (B) F and D
- (C) B and E
- (D) F and A

66. Who wears a green dress?

- (A) A
- (B) B
- (C) C
- (D) None of these

SECTION – III
Number of Questions = 34

DIRECTIONS for questions 67 to 70: Select the correct alternative from the given choices.

67. If $x = 2 + 2^{2/3} + 2^{1/3}$, then which of the following is true?

(A) $2x^3 - 2x^2 + 6x + 3 = 0$
 (B) $6x^3 + x^2 - 12 + 6 = 0$
 (C) $x^3 - 6x^2 + 6x - 2 = 0$
 (D) $x^3 - 12x^2 + x - 4 = 0$

69. Find $prt : qsu$, given that $p : r = 2 : 3$, $q : s = 4 : 3$, $r : t = 8 : 9$, $s : u = 3 : 2$ and $t : q = 3 : 4$.

(A) $\frac{4}{27}$

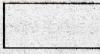
(B) $\frac{8}{27}$

(C) $\frac{16}{27}$

(D) $\frac{32}{27}$

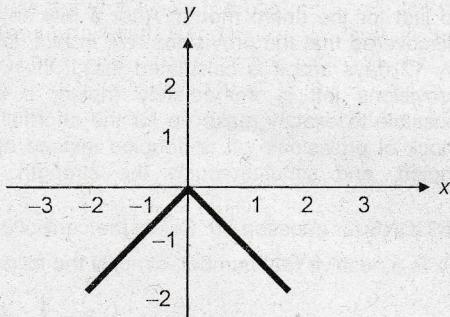
DIRECTIONS for question 71: Type in your answer in the input box provided below the question.

71. In the year 1995, the average age of five brothers was 45 years. One of the brothers died in the year 2002, at the age of 40 years. Find the average age (in years) of the remaining four brothers in the year 2007.



DIRECTIONS for question 72: Select the correct alternative from the given choices.

72. The graph below gives a function $f(x)$, represented by thickened line segments. From among the choices given, choose the function that best describes $f(x)$.



- (A) $f(x) = -f(-x)$ (B) $f(x) = f(-x)$
 (C) $f(x) = f(-x) + 2$ (D) $f(x) = 1 - f(-x)$

DIRECTIONS for question 73: Type in your answer in the input box provided below the question.

73. How many four-digit odd numbers can be formed such that if the tens digit is odd, the thousands digit is one less than the hundreds digit?

1

DIRECTIONS for questions 74 and 75: Select the correct alternative from the given choices.

74. In a certain exam, 4 marks were awarded for each correct answer, -1 marks for each incorrect answer, and no marks were awarded for the questions left unattempted. If Hari got a net score of 124 in the exam, which of the following could be the number of questions he attempted?

(A) 41 (B) 42 (C) 43 (D) 44

DIRECTIONS for question 76: Type in your answer in the input box provided below the question.

76. In an obtuse triangle, the difference between the obtuse angle and one of the acute angles of a triangle is 20° , while the difference between the two acute angles is 56° . Find the measure (in degrees) of the smallest angle of the triangle.

1

DIRECTIONS for question 77: Select the correct alternative from the given choices.

77. Twenty persons went on a picnic. Three out of every five in the group do not like pulav but two out of every four carried pulav with them. Then, we can conclude that

 - (A) at least two persons who do not like pulav carried pulav with them.
 - (B) at least eight persons who do not like pulav carried pulav with them.
 - (C) at most eight persons who do not like pulav carried pulav with them.
 - (D) at most two persons who do not like pulav carried pulav with them.

DIRECTIONS for questions 78 and 79: Type in your answer in the input box provided below the question.

78. A garrison starts a month with provisions expected to last for the entire month. After a few days, it is discovered that the provisions will, in fact, fall short by 12 days and it is calculated that if the stock of provisions left is immediately tripled, it will be possible to exactly make up for the shortfall. If the stock of provisions left is doubled instead of being tripled, and simultaneously the strength of the

garrison is decreased by 25%, then find the number of days by which the provisions will fall short.

79. Fresh dates contain 80% water by weight while dry dates contain 20% water by weight. What is the weight of dry dates available from 300 kg of fresh dates?

DIRECTIONS for question 80: Select the correct alternative from the given choices.

80. If x is a positive real number, simplify the following expression:

$$\frac{x^5 + \frac{1}{x^5} + 5 + \frac{\log\left(x^2 + \frac{1}{x^5} + 5\right) + \log\left(\frac{x^5}{x^7 + 5x^5 + 1}\right)}{x^5 + \frac{1}{x^5} + 5 + \frac{\log\left(x^2 + \frac{1}{x^5} + 5\right) + \log\left(\frac{x^5}{x^7 + 5x^5 + 1}\right)}}{x^5 + 5 + \frac{1}{x^5} + \log\left(x^2 + \frac{1}{x^5} + 5\right) + \log\left(\frac{x^5}{x^7 + 5x^5 + 1}\right)}$$

(A) $x^5 + \frac{1}{x^5} + 5 + \log x$

(B) $x^5 + \frac{1}{x^5} + 5$

(C) 0

(D) 1

DIRECTIONS for questions 81 and 82: Type in your answer in the input box provided below the question.

81. When 952 divides a number, the remainder left is 124. Find the remainder left if 68 divides the same number.

82. A certain distance is covered at an average speed of 20 km/hr. If 37.5% of the distance was covered at 15 km/hr and another stretch comprising 12.5% of the distance was covered at 25 km/hr, what was the average speed (in km/hr) for the rest of the distance?

DIRECTIONS for question 83: Select the correct alternative from the given choices.

83. A, B, C have some coins among themselves. A gives to each of B and C one-third of what each of them already has. Then B does the same, i.e., he gives to each of A and C one-third of what each of them already has, after which, C also does the same. If all of them now have the same number of coins, what was the ratio of the initial number of coins with A, B and C respectively?
 (A) 25 : 21 : 18 (B) 18 : 21 : 25
 (C) 3 : 7 : 6 (D) 6 : 7 : 3

DIRECTIONS for questions 84 and 85: Type in your answer in the input box provided below the question.

84. The table below shows the distribution of the students in a school.

Class	Percentage
Upto class V	31.25
VI	12.50
VII	18.75
VIII	15.00
IX	10.00
X	12.50

If the number of students in class VII or below is 250 and the ratio of the number of girls to boys in the category 'Upto Class V' is 3 : 2, find the number of girls in the category 'Upto class V'.

85. A student wrote N consecutive natural numbers, starting from 1, on a blackboard and then found their sum. Another student came along and erased the least number on the board and found the sum of the remaining numbers. In this manner students came along and erased the least number on the board, in each case finding the sum of the remaining numbers, until the number left on the board was N . If the average of all the sums found by the students is 188, find N .

DIRECTIONS for questions 86 to 88: Select the correct alternative from the given choices.

86. The question below is followed by two statements, I and II. Study whether the information given in the statements is sufficient to answer the question and select the correct answer option.

If a , b and c are natural numbers, is $ab^2 + 2bc + a^2c$ even?

I. $ab + c^2$ is odd

II. $bc + a$ is odd

- (A) The question can be answered using one of the statements alone, but cannot be answered using the other statement alone.
 (B) The question can be answered using either statement alone.
 (C) The question can be answered using A and B together but not using A or B alone.
 (D) The question cannot be answered even using A and B together.

DIRECTIONS for questions 89 to 93: Type in your answer in the input box provided below the question.

- 89.** The difference between the simple interest and the compound interest accrued in two years on a certain sum at a certain rate of interest is ₹80. If the simple interest for the second year is ₹1000, find the sum.

३

90. On July 1, 2005, two charity organisations – C_1 and C_2 – were formed with x members each. On the first day of each subsequent month, y members join C_1 , while the number of members in C_2 gets multiplied by z . On November 2, 2005, both organisations have the same number of members.

If $y = 20x$, find z .

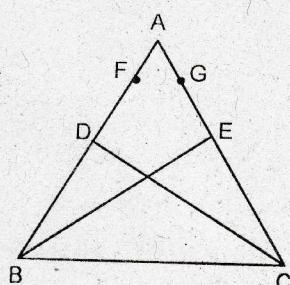
If $y = 20x$, find z .

1

91. The product of three numbers is 1620. If the HCF of any two out of the three numbers is 3, find the LCM of the three numbers.

1

92. In the figure below, CD and BE are the medians to the sides AB and AC , while F and G are points on AB and AC such that FE is parallel to DC and DG is parallel to BE . Find the perimeter (in cm) of the triangle AFG , if $AB = 16$ cm, $AC = 20$ cm and $EG = 6$ cm.



8

93. A lady says that her husband's age can be obtained by interchanging the digits of her own age which is a two-digit number. He is older than her and the sum of their ages is 77 years. What is the units digit of her age, if the difference between their ages is not more than 15 years?

1

DIRECTIONS for questions 94 and 95: Select the correct alternative from the given choices.

94. Which of the following is the greatest?
 (A) $9 + \sqrt{45}$ (B) $12 + \sqrt{30}$
 (C) $11 + \sqrt{35}$ (D) $10 + \sqrt{40}$

95. Consider the following three equations:

$$\begin{aligned} 2x + 3y + 4z &= 33 \\ 4x + 2y + 3z &= 29 \\ 3x + 4y + 2z &= 28 \end{aligned}$$

Which of the following equations is inconsistent with the above equations?

- (A) $x + y + z = 10$ (B) $6x + 5y + 7z = 62$
 (C) $y + z - 2x = 4$ (D) $5x + 3y + z = 23$

DIRECTIONS for questions 96 and 97: Type in your answer in the input box provided below the question.

- 96.** A man arrives at his destination at 12:00 p.m., if he cycles there at 8 km/hr. He would arrive there at 10:00 a.m., if he cycles there at 12 km/hr. Find the speed (in km/hr) at which he must cycle to get there at 2:00 p.m.

1

97. What is the number of points with integer coordinates in the co-ordinate plane which satisfy the inequality $|x| + |y| \leq 6$?

1

DIRECTIONS for questions 98 to 100: Select the correct alternative from the given choices.

98. What is the minimum value of the expression $2x^2 + 3y^2 - 4x - 12y + 18$?
 (A) 18 (B) 10 (C) 4 (D) 0

99. If the sum of the first thirteen terms of an arithmetic progression and the sum of the next twelve terms of the progression are in the ratio of 26 : 49, what is the ratio of the thirteenth term of the progression to the seventh term of the progression?

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