

Ref: AIMCAT1704

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

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.

Romanticism does two contradictory things to the notion of authorship. On the one hand, the author becomes supremely individualistic, someone who creates out of a spontaneous overflow of powerful feeling rather than by correctly and cleverly applying the approved thematic, poetical and rhetorical conventions; whose person is that of Byron rather than Dr Johnson. On the other hand, there is a de-individualisation of the author; he is merely an Aeolian harp, responding to the vibrancies and inspirations that waft through him, who becomes de-individualised as he loses himself in an inspiration that is collective or spiritual rather than personal, in this sense, the poet can become the voice of his nation, and his role is to "forge the uncreated conscience of his race in the smithy of his soul".

The belief that the 'nation' is the collective author and articulator of a collective consciousness: that notion is what I wish to trace here, and the Romantic period, which celebrates the poet's Self at the same time that it glorifies the collective folk effusions of popular balladry and fairy-tale, is a crucial period to scrutinise in this respect. The origin of this idea can be found in Giambattista Vico's *Scienza Nuova* of 1725, which posited the view that each nation enters the stage of word history in a 'Big Bang' of collective self-articulation involving, in one originary foundational moment, the crystallization of its mythology, epic poetry, language, and law. These elements of human culture and cognition form, at that primal stage, an undifferentiated whole, and to study them a new kind of scientific endeavour is needed, one which Vico calls, not by the appellation of 'philosophy' but by the almost-neologism 'philology'.

A century later, the idea of philology as the study of cultural history involving language, literature, law and mythology has become widely accepted, as had the term of 'philology' itself, though almost no-one at the time still recalled Vico as the originator of this paradigm.

The appreciation of collective-anonymous authorship is certainly a dominant attitude among early-nineteenth-century philologists. Thus, Wilhelm Grimm, when lecturing on the *Nibelungenlied* at the University of Göttingen, pointed out that the most valuable (and archaic) specimens of a national literature were the anonymous, epic fragments, while later chivalric romance, produced by authors individually known by name are enervated, non-national and less impressive by comparison. The anonymous epic pieces "seem to belong to the nation at large, merely enunciated by a given individual" and "have a firm, well-demarcated content reared on a straightforward base", while "courtly poets were not quite master of their material and topics and often confuse the foreign tales."

The rise of the vernacular literatures of Europe as 'national literatures' in the nineteenth-century sense involved in large part the retrieval and publication of these primeval epics. Where written documents were unavailable, however, the lacuna was often filled by the edition of oral material. The result is an interesting hybrid: not only does oral literature feed into the rising interest in folklore and the study of popular culture as a performative praxis; it also spills over into the concerns of literary history and the search for vernacular epics. To be sure, the notion of 'oral epic' is *prima facie* an oxymoron. The most exalted of literary genres, linked to the names of Homer, Virgil, Dante, Camões and Milton, was in the very root sense of the word *literary*, which is to say a written, literate genre. To see the quality of epic residing in the oral transmission of illiterate demotic performers required, in the early nineteenth century at least, some reconceptualisation. How this reconceptualization came about is linked to the extraordinary European reception history of an oral text from the Balkans, the *Hasanaginica*, in the years 1770-1825, reverberating as it did against the then-current

debates around Ossian, Homer and the anonymous-epic beginnings of vernacular literatures. *Hasanaginica* and its extraordinary reception trajectory demonstrates how the preoccupation with 'nationally' authentic popular culture was in fact a matter of transnational networks and European taste.

1. According to the passage, which of the following is true about the "contradictory things" that Romanticism does to the notion of authorship?
 - (A) On the one hand, the author becomes supremely individualistic while on the other hand, he has to follow approved conventions.
 - (B) The author becomes supremely individualistic when creating his work without caring for approved thematic, poetical and rhetorical conventions but these conventions arise from the collective conscience of the nation which the author has to represent in his work.
 - (C) The author becomes extremely individualistic when he creates his work but the inspiration for his work owes its origin to the collective consciousness of the nation.
 - (D) The author has to forge the uncreated conscience of the nation at the smithy of his soul but he cannot use approved thematic, poetical and rhetorical conventions while doing so.
2. What is the idea that the author refers to when he states that "The origin of this idea can be found in Giambattista Vico's *Scienza Nuova* of 1725..."?
 - (A) How philology was conceptualized.
 - (B) How a poet's individuality is celebrated alongside the collective authorship of the nation.
 - (C) How balladry and fairy-tales came to be considered epics.
 - (D) How nation came to be considered a collective author.
3. It can be inferred from the passage that Giambattista Vico
 - (A) coined the term 'philology' and defined it to mean the study of cultural history involving language, literature, law and mythology.
 - (B) identified the need for a branch of study, different from philosophy, which specifically deals with cultural aspects like mythology, epic, poetry and law.
 - (C) made philology popular and encouraged the study of mythology, literature, poetry and law.
 - (D) suggested that the basis of philology can be found in the foundational moment when each nation enters the stage of world history.
4. Which of the following can be inferred to be true regarding oral literature and vernacular literature in the nineteenth century?
 - (A) Vernacular literature gained popularity during the nineteenth century and any gaps in the vernacular literature were filled based on oral literature.
 - (B) Oral literature became popular because of the growing interest in folklore while vernacular literature gradually became obscure.
 - (C) Vernacular materials started to get published in the nineteenth century and oral materials were used for filling the lacuna in vernacular materials.
 - (D) Oral literature borrows various elements from vernacular literature but not the other way around.
5. Which of the following can be inferred about *Hasanaginica* in the early nineteenth century?
 - (A) It played a part in the recognition of the epic quality of oral literature which is usually in colloquial language.
 - (B) It contributed to the growth in the popularity of vernacular literature across Europe during the early nineteenth century.
 - (C) It proved that oral literature from the Balkans was superior to the oral literature from the rest of Europe.
 - (D) It demonstrated that oral literature was better than any vernacular literature existing at that time.
6. Which of the following is true according to Wilhelm Grimm?
 - (A) Anonymous epic fragments are more popular than chivalric romances.
 - (B) Anonymous epic fragments complement the languid writing of courtly poets.
 - (C) Anonymous epic fragments were less impressive than the chivalric romances.
 - (D) Anonymous epic fragments are crisp and straightforward while chivalric romances are languid and confusing.

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.

How much should we worry about inequality? Answering that question requires that we first answer another question: "Compared to what?" What is the alternative against which to judge the degree of inequality that we see?

Florida is a much more materially unequal society than Cuba. But the right way to look at the situation – if Florida and Cuba are our alternatives – is not to say that Florida has too much inequality, but that Cuba has much too much poverty.

On the global level, it is difficult to argue that inequality is one of the world's major political-economic problems. It is hard, at least for me, to envision alternative political arrangements or economic policies over the past fifty years that would have transferred any significant portion of the wealth of today's rich nations to today's poor nations.

I can easily envision alternatives, such as Communist victories in post-World War II elections in Italy and France that would have impoverished nations now in the rich North. I can also envision alternatives that would have enriched poor

nations: Deng Xiaoping becoming China's leader in 1956 rather than 1976 would have done the job there. But alternatives that would have made the South richer at the price of reducing the wealth of the North would require a wholesale revolution in human psychology.

Nor should we worry a great deal that some people are richer than others. Some people work harder, apply their intelligence more skillfully, or simply have been lucky enough to be in the right place at the right time. But I don't see what alternative political-economic arrangements could make individuals' relative wealth closely correspond to their relative moral or other merit. The problems that can be addressed are those of poverty and social insurance – of providing a safety net – not of inequality.

But on the level of individual societies, I believe that inequality does loom as a serious political-economic problem. In the United States, the average earnings premium received by those with four-year college degrees over those with no college has gone from 30% to 90% over the past three decades, as the economy's skill requirements have outstripped the educational system's ability to meet them. Because the required skills acquired through formal education have become relatively scarcer, the education premium has risen, underpinning a more uneven distribution of income and wealth.

Ceci Rouse and Orley Ashenfelter of Princeton University report that they find no signs that those who receive little education do so because education does not pay off for them: if anything, the returns to an extra year of schooling appear greater for those who get little education than for those who get a lot. A greater effort to raise the average level of education in America would have made the country richer and produced a more even distribution of income and wealth by making educated workers more abundant and less-skilled workers harder to find – and thus worth more on the market.

Likewise, America's corporate CEOs and their near-peers earn ten times more today than they did a generation ago. This is not because a CEOs work effort and negotiation and management skills are ten times more valuable nowadays, but because other corporate stakeholders have become less able to constrain top managers and financiers from capturing more of the value-added.

Similar patterns are found elsewhere. Within each country, the increase in inequality that we have seen in the past generation is predominantly a result of failures of social investment and changes in regulations and expectations, and has not been accompanied by any acceleration in the overall rate of economic growth. For the most part, it looks like these changes in economy and society have not resulted in more wealth, but only in an upward redistribution of wealth – a successful right-wing class war.

7. What is a possible reason for the author's comparison of Florida with Cuba?
 - (A) To present a contrast between rich societies and poor societies.
 - (B) To emphasize that inequality is better than equality.
 - (C) To suggest that inequality should not be the only parameter for grading societies.
 - (D) To point out that different societies require different strategies to achieve equality.
8. The alternatives mentioned by the author in the fourth paragraph of the passage suggest
 - (A) what some countries need to do in order to achieve a more even distribution of wealth.
 - (B) what the author would have preferred to have happened in those countries.
 - (C) how the North could have become richer at the expense of the South.
 - (D) how some countries that are currently rich could have ended up being poor and vice versa.
9. According to the author, which of the following will least likely be achieved by political-economic arrangements?
 - (A) Increasing the income of the poor.
 - (B) Providing unemployment benefits to the poor.
 - (C) Ensuring that a person's income depends on his moral merit.
 - (D) Providing employment opportunities to the poor.
10. According to Ceci Rouse and Orley Ashenfelter, for which of the following persons will the increase in their income due to an extra year of education be the highest?
 - (A) A university graduate already employed.
 - (B) An unemployed university graduate.
 - (C) An uneducated but employed person.
 - (D) A person who finished schooling.
11. Which of the following arguments will most weaken the recommendation of the author which states that "A greater effort to ... the market." (para 7)?
 - (A) Less skilled workers are already scarce in America and if they become more scarce, it will only push their wages up.
 - (B) Large number of people will want to avoid incurring the cost of education because the income of a less skilled worker, who does not incur the cost of education, will be comparable to the income of an educated worker.
 - (C) The schools in America are not equipped to provide education to such a large number of people.
 - (D) There will always be a greater requirement for less skilled workers as compared to educated worker.
12. Which of the following is the primary reason for the increase in inequality?
 - (A) Failures of social investment
 - (B) The absence of any acceleration in economic growth
 - (C) The increase in the management skills of top management
 - (D) The increase in illiteracy

DIRECTIONS for questions 13 to 15: The passage given below is followed by a set of three questions. Choose the best answer to each question.

When confronted with a law enforcement agency request to help it unlock the iPhone of the San Bernardino attacker, Apple chose to gamble, and refused. It bet three things. One, that no terror attack that could be averted with the help of information locked up on the phone would occur. Two, that the brand would go up in public esteem as a defender of privacy against an intrusive government. And, three, that neither the government nor any other agency would actually be able to hack into the locked phone and open it.

In the event, it has lost on the last two counts. That its phone can be hacked is a blow. Additionally, it now has to ask the government agency, FBI, for information on the vulnerability in its hardware or operating system that proved amenable to hacking.

While Apple does not have any blood on its hands, as no terror attack took place, its stance on security looks unreal. Individual liberty and privacy are important, no doubt. But when confronted with national security, the law allows, in the US, tapping of phones, surveillance and other intrusive invasion of privacy – of course, with due legal sanction and accountability to a committee of the legislature. How is examining the contents of a phone any different? Why would a company risk indirectly abetting a future strike by terrorists by insisting on defending the privacy of a slain terrorist?

As it has transpired, the government has been able, with third-party help, to hack into the phone. That leaves Apple's defence of the inviolability of its phones silly. The phones can be hacked, at least the model 5c running on the operating system iOS 9.

The world has become interconnected in complex ways that make the privacy that was natural to isolated existence no longer sensible. Doctors and lawyers are useless if information is hidden from them. The point is to regulate and oversee all those with access to your information, including the government, in a way that prevents misuse. In the inevitable trade-off between privacy and security, compromising security is not an option, in these troubled times.

13. According to the passage, which of the following did Apple bet on?
- (A) The government can seek help from a third-party to hack into the phone.
 - (B) The information locked up in the phone could not be related to any terror attack.
 - (C) Any terror attack which can be prevented with the help of the information locked up in the phone would not occur.
 - (D) The government would recognize the need for privacy of individuals which will project Apple as a defender of privacy.
14. The author states that Apple's stance on security is "unreal" because
- (A) the reasons mentioned by Apple for refusing to help unlock its phone are not convincing.
 - (B) protecting the privacy of a deceased terrorist is not as important as countering terrorist threats.
15. Which of the following best describes the opinion of the author in the trade-off between privacy and national security?
- (A) There is no place for privacy in a connected world.
 - (B) People should willingly share all information about themselves regarding matters of national security.
 - (C) Measures that protect privacy of people should be removed in the interest of national security.
 - (D) Privacy should take a backseat in issues of national security.

DIRECTIONS for questions 16 to 21: The passage given below is followed by a set of six questions. Choose the best answer to each question.

Few things get music scholars more nervous than cross-cultural comparisons. The field of ethnomusicology, which was invented to inquire into this very subject, has grown increasingly uneasy with this part of its mission. The ethnomusicologist does not seek out such comparisons, but rather serves as "the debunker of generalizations." Anthony Seeger has offered a similar perspective, expressing his resistance to "the privileging of similarities over differences." If human beings from different cultures share certain musical proclivities and practices, academics in the field would rather not hear about it.

This resistant attitude is so highly prevalent that researchers Steven Brown and Joseph Jordania, conclude that "many decades of skepticism have prevented the field of musicology from embracing the importance of musical universals." When the subject is addressed, they add, it is almost always in the form of "meta-critiques about the concept of universals," rather than actual consideration of empirical evidence. This would be peculiar under any circumstances, but is especially so given the growing amount of evidence that runs counter to the isolationist assumptions of the academic music community.

Music scholars are not alone in their preference for differences over similarities. Their views reflect a prevailing paradigm embedded in a wide range of cultural studies during the 20th century. "Individual cultures", says anthropologist

Ruth Benedict, "are traveling along different roads in pursuit of different ends, and these ends and these means in one society cannot be judged in terms of those of another society, because essentially they are incommensurable." Let physicists seek out unified theories — in the human sciences the motto has long been *vive la différence*.

I would argue that the time has come to question this allegiance to the particular and reconsider the explanatory value of musical universals. Important recent findings in related fields, for example Harvard professor E. J. Michael Witzel's paradigm-changing exploration of the origins of human mythology, present a serious challenge of the incommensurability model and should not be ignored by music scholars. In linguistics, increasing focus on language macrofamilies, for example in the work of Joseph Greenberg or the Russian Nostratic linguists, is having a similar impact; the same is true of the genetic research into the so-called "African Eve."

Music scholars have good reasons for resisting the path of cross-cultural systemization. In the past, such approaches have frequently been linked to generalizations on race and normative assumptions about the characteristics of "primitive" and "civilized" cultures. The definition of universal categories often involved assumptions about purity or authenticity or progress that did not hold up under close scrutiny and distorted the interpretation of empirical data.

Yet the new cultural universals are different from those of the past. Instead of coming pre-packaged with biased and normative assumptions about the stages of human progress, they now often arrive in tandem with powerful methodological tools, drawn from the sciences, statistics, and mathematics. These methodologies are less susceptible to bias and misuse than the traditional approaches of empirical ethnography.

In my study of early accounts of music in healing rituals, I could not ignore the unexplained patterns that emerge in far distant parts of the globe. Perhaps a diffusion model could explain why Siberian shamanism has so many shared characteristics with Native American practices, but how does one address this same congruence of shamanistic rituals and belief systems among the aboriginal population of Australia or the San people of Southern Africa? These same rituals and belief systems, almost always accompanied by specific musical practices, are also echoed in the Western myth of Orpheus. When Vittorio Macchioro first proposed that Orpheus might be considered a shaman, similar to those documented in the anthropological literature, this view was shocking to classicists, yet even more surprising discoveries were soon made. Back at the same time Benedict was publishing her incommensurability thesis, A. H. Gayton was also sharing her finding that 50 different Native American tribes possessed an Orpheus myth. Later researchers have added to Gayton's findings, identifying more examples in Native American myths as well as in other cultures. Once the blind spot was removed by Macchioro and Gayton, new horizons were opened. Such blind spots still exist and are obstacles to the advancement of our understanding of human music-making.

Wouldn't scholars rather devote their energies to showing how much our interests and practices converge, rather than emphasize our differences and incompatibilities? So those who love music shouldn't feel threatened by the contributions of the sciences and social sciences to the study of human music-making. Rather than representing outside influences, they may serve as invaluable reminders of music's power to break down boundaries and geographical divides. This remarkable capacity of music might even help us overcome these divisions in other spheres of social life.

16. Which of the following is, possibly, a valid reason for the resistance of musicologists to the universalist approach?
 - (A) Universalist approaches were often considered to be cognate with unjustifiably stereotypical perspectives of race and cultures.
 - (B) Universalist approaches often resulted in the stereotyping of race and cultures.
 - (C) Assumptions about purity or authenticity or progress in the universalist approach did not hold water and were invalidated by empirical data.
 - (D) Assumptions about purity or authenticity or progress in the universalist approach did not hold water and, further, obfuscated empirical findings.
17. According to the first paragraph of the passage, why was ethnomusicology invented?
 - (A) To inquire into a prevailing paradigm in the field of music.
 - (B) To address the concerns of cross-cultural systematization as far as music was concerned.
 - (C) To deal with the skepticism involved in applying music fundamentals to other cultures.
 - (D) To attempt to understand the cross-cultural currents in diverse systems of music.
18. What is the author's opinion towards the tendency of a few music scholars to focus on cross-cultural differences rather than similarities?
 - (A) Skeptical
 - (B) Condescending
 - (C) Contentious
 - (D) Indifferent
19. Which of the following is/ are definitely not in favour of the opinion of music scholars in the passage?
 - (1) Ruth Benedict
 - (2) Steven Brown
 - (3) Joseph Jordania
 - (4) Author of the passage
 - (5) E. J. Michael Witzel
 - (6) Joseph Greenberg

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) Ruth Benedict
- (2) Steven Brown
- (3) Joseph Jordania
- (4) Author of the passage
- (5) E. J. Michael Witzel
- (6) Joseph Greenberg

20. How were the new cultural universals different from those of the past?
 - (A) They determine normative assumptions about the stages of human advancement.

- (B) They are in favour of the conventional practices of empirical ethnography.
 (C) They tend to be the subjects of more objective study.
 (D) They provide the mechanism for accurately correlating assumptions in related fields like sciences, statistics, and mathematics
21. According to the passage, what does the author imply by the phrase "blind spots" with respect to musical practices?
- (A) The obstacles to the advancement of our perception of human music.
 (B) The many cross-cultural similarities in music which we are not yet aware of.
 (C) The Orpheus myth which was possessed by many different native American tribes.
 (D) Music making which involves unknown fundamentals in other cultures.

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.

Perhaps we're past the point of having to explain that graphic novels which attract reluctant readers have a legitimate place on library shelves. But what about the idea that graphic novels encompass such a wide range of themes and create such layered experiences through word and art that they actually belong in classrooms? Because contemporary students have a much wider visual vocabulary than we did growing up, I contend that the format offers great opportunities to teach as well as to entertain.

The superhero (created after the Great Depression), comicdom's most famous invention, is a prime example of a potent American cultural symbol. The superhero character potently reflected the American can-do spirit and penchant towards arrogance that entire curricula could be developed around it.

The point of this is that sequential art (the form of expression that fills graphic novels) is a form with something to teach us. The graphic novel is no longer just a format suitable to learn *about*. It is also starting to be used as a tool to *educate*.

With its comic-strip hero (*Spring-Heeled Jack* is dressed like a Victorian Superman), its use of comic-strip narrative techniques – individual frames, speech bubbles, captions – and its dependence on slapstick humour, *Spring-Heeled Jack* certainly employs many of the elements which have been disparaged by those who deplore graphic fiction. However, Pullman's inclusion of a relatively large proportion of text and the book's covertly conveyed historical content both go some way towards placating this hostile audience. Texts which make none of these concessions, but which have nevertheless received considerable critical praise, are Art Spiegelman's *MAUS*.

MAUS is a graphic approach to the ever-expanding body of literature about the Second World War. Spiegelman uses only cartoon techniques to tell his story, and this has several interesting but potentially contentious consequences. For instance, like many satirists, he has decided to substitute animals for human characters – in *MAUS*, animal species represent racial and national groups. Thus the German Nazis are portrayed as cats, the Jews as mice, the Poles as pigs, and the Americans as dogs.

The following ideas can be adapted for students in grades 1-7 for use in the classroom:

1. Have each student illustrate the following story: A man is hurrying to catch a train. He runs. He runs faster. He runs faster still. He either boards the train or misses it. He reacts to his success or failure.

Students must tell the story in six panels. They can use body language, facial expressions, color, and symbols such as speed lines, but they cannot use words. When everyone is finished, compare the ways the completed stories show the character's various actions and final reaction.

2. Have each student draw five different depictions of "sad." They can use facial expressions, body language, words, color, or metaphor (i.e., a wilted flower), but each image must be limited to a single panel.

Thanks to graphic novels, I've seen students' imaginations soar. Take advantage of the incredible potential these novels offer. Use your students' enthusiasm to help them make a powerful investment in their own education. Why leave any resource untapped?

22. What, according to the author, is the reason for including graphic novels in the classroom?
 (A) They have a greater appeal.
 (B) Current students have wider visual vocabulary.
 (C) They offer more attractive opportunities to teach and entertain students.
 (D) Most educationists are fascinated with the history and language of the graphic novel format as a vehicle for education.
23. What does the author mean when he says, "Why leave any resource untapped?" (last para)?
 (A) All literary resources must be used until they are extinguished.
 (B) One should experiment by using graphic novels as a medium of education by considering it a resource.
 (C) One should utilize an opportunity, when it is there, to the fullest.

- (D) Children should be encouraged to watch more of graphic content on TV and educators should be trained to enact particular scenes from graphic novels.
- 24.** According to the author, what is an evident point of difference between *Spring-Heeled Jack* and MAUS?
- The use of only cartoon techniques in the latter which is not the case in the former.
 - The inclusion of both text and graphic representation in *Spring-Heeled Jack*, unlike MAUS.
 - The former is about the Great Depression and is what children want to read. The latter is about the Second World War and what adults think that children ought to read.
 - The use of humour and underlying historical content in the former but not in the latter.

DIRECTIONS for questions 25 to 28: Each of the following questions has a paragraph or two from which a sentence has been removed. From the given options below the question paragraph(s), choose the one that completes the blank in the paragraph in the most appropriate way.

- 25.** In 1990, Voyager took a photograph of Earth that was striking precisely because it showed so little. The spacecraft was 6 billion kilometres away at the time and the image it sent back was memorably described by Carl Sagan as a "pale blue dot". Imagine, then, how pale such a dot would be if the planet in the picture were 113,000 billion kilometres away. Yet this is the distance to the nearest confirmed exoplanet – a planet orbiting a star other than the sun. Only in the most special of circumstances can they actually see their quarry. Mostly, they have to work with indirect measurements, like watching for slight dips in the intensity of a star's light when a planet passes in front of it, a phenomenon known as a transit.
- (A) It is therefore likely to be the subject of intense future scrutiny.
 (B) That gives some idea of the task faced by those who study these bodies.
 (C) Two known exoplanets orbit their stars so closely that their rocky surfaces are evaporating.
 (D) But if indirect observation is all that is on offer, then astronomers must make the best of it.

- 26.** Noughts and crosses (known as tic-tac-toe in America) is one of the first games children learn. The more inquisitive among them soon realise there are strategies that always win if your opponent makes a mistake, and guarantee a draw even if he does not. (The best is to start out in one of the grid's corners.)

Using computers, quite a few games have now been solved in this formal mathematical sense. These include Connect Four, nine-men's morris and draughts. One thing those examples have in common is that they are "perfect information" games, meaning each player knows, at all times, everything that is going on. Not all perfect information games have been so solved. Chess has

not. Neither has Go. But no non-trivial "imperfect information" game, such as one involving playing cards, has ever been solved formally.

- Such a player would not expect to lose, even over a lifetime of games against an error-free opponent.
- But such simplification means losing important details, and the resulting strategies are an imperfect fit to the real game.
- When a provably ideal strategy such as this is discovered for any given game, mathematicians describe that game as being "solved".
- The only hope is an enormous, and unlikely, conceptual breakthrough in how to attack the problem.

- 27.** When Warren Buffett no longer "tap dances to work", as he describes it, what will become of Berkshire Hathaway, the company he created? The "Sage of Omaha" is 84 and his firm is one of America's most valuable companies, with a market capitalisation of over \$350 billion. Its success has defied the conventional wisdom that conglomerates do not work. Berkshire Hathaway is a hotch-potch of 600 different businesses that deal in everything from private jets to low-cost carpets and insurance. Investors love the way the firm's share price keeps going up, but they are beginning to fret that the founder's departure will bring the good times to an end.

Mr Buffett has long argued that he has built a company designed to thrive after he has gone, as he explains. Many of the people who run his businesses have also been encouraged to tell their stories to Lawrence A. Cunningham, the author of "Berkshire Beyond Buffett".

- Cunningham asserts that Mr Buffett believes in giving his managers plenty of autonomy and trusting them to do the right thing, which they mostly tend to do.
- However, the author seems too easily convinced by Mr Buffett's claims that the firm's culture will keep it on track after he has gone.
- Indeed, Berkshire Hathaway is arguably the leading example of a company run to maximise its long-term value, rather than yielding to the short-termist pressures of the stockmarket.
- The result is an unusually detailed description of Mr Buffett's management ideas and his long efforts to embed them permanently into the firm's internal systems.

- 28.** The Kumbha Mela is an ancient version of a spiritual expo. Over the centuries, thousands of sages who have meditated, done penance and been enlightened come to the Kumbha Mela and relieve themselves of the burden of the merits gained through Sadhana by bathing in the rivers. Water has the quality to absorb the energy that they radiate. The seekers, who come from all corners to be in the company of the seers and saints, gain that merit when they take a dip in the rivers. The seers, saints and aspirants of spiritual knowledge, congregate once every twelve years specifically at the confluence, or Sangam, of the three holy rivers – Ganga, Yamuna and Saraswati. The Ganga is a

symbol of knowledge and self-enquiry. It is on the banks of the Yamuna that events of love have been immortalized.

- (A) When knowledge and love come together, when the heart meets the head, Saraswati, symbolic of wisdom and fine arts, emerges.
- (B) There has always been a head-on conflict between knowledge and love; it is finally knowledge that emerges victorious.
- (C) Wisdom is needed to resolve the conflict between knowledge and love.
- (D) But Ganga and Yamuna are incomplete without Saraswati.

DIRECTIONS for questions 29 to 31: Four alternative summaries are given below the text. Choose the option that best captures the essence of the text.

29. Grameen Telecom, Grameen Bank's arm in Bangladesh for administering the village phone operators typically selects women on the basis of past borrowing records with the bank. For instance, if a woman has demonstrated certain skills in learning new things, she is favoured as a candidate for retailing phone service. Another factor is the location of her house; a central location in the village is preferred. Grameen Bank also ensures that at least one member of the family of a village phone operator knows English letters and numbers. There is also a great deal of social impact due to this new service. With some of the poorest women in the villages holding in their hand instruments of global communication, there are ripples in the highly stratified villages. Even a relatively rich person in the village is walking up to a poor woman's home for a service he needs. The phone service being retailed in these villages almost exclusively by women, a situation due to the fact that 94% of borrowers of the Grameen Bank are women, is turning out to be another good thing. Since it is the men who tend to go to the cities for work or trade or even to foreign countries as migrant workers, it is the women left behind in the villages who need to contact their men travelling or residing outside. The women naturally feel more comfortable going to other women to make phone calls.

- (A) Women choosing to retail telephone services need only one-day of training from Grameen Telecom. Their success in rapid training and in their business has to be at least partly attributed to their general entrepreneurial skills and the confidence they have built through their past income generating businesses with the help of the Grameen Bank.
- (B) Grameen Bank is implementing a nation-wide telecom project to bring about greater connectivity. The women naturally feel more comfortable going to other women in rural areas to make phone calls and the telecom project is bound to be a huge success.
- (C) Bangladesh's Grameen Bank, via its arm Grameen Telecom, retails phone services in rural areas through village phone operators whom they select carefully – typically women who are constituents of the bank, and whose circumstances will enable them to deliver the

services effectively. This new service has significant social impact, especially for poorer women, helping not only the operators but a number of users as well.

(D) Grameen Bank is promoting women's empowerment by providing them with telephones, manned exclusively by women. This will also result in social change in rural Bangladesh.

30. As long back as 1891, in 'The Decay of Lying', Oscar Wilde warned artists and critics not to become infatuated with Life at the expense of Art. He wrote: "Art begins with abstract decoration, with purely imaginative and pleasurable work dealing with what is unreal and non-existent. This is the first stage. Then Life becomes fascinated with this new wonder, and asks to be admitted into the charmed circle. Art takes life as part of its rough material; recreates it, and refashions dreams, and keeps between itself and reality the impenetrable barrier of beautiful style, of decorative or ideal treatment. The third stage is when Life gets the upper hand, and drives Art out into the wilderness. This is the true decadence, and it is from this that we are now suffering." Wilde's words on the decadence of a literary culture attracted to fame, gossip and scandal are just as relevant today. By focussing too much on life in our readings of art, we miss that which is 'purely imaginative and pleasurable' – the element of beauty, music and mystery that differentiates poems and stories from politics and propaganda.

- (A) The first stage that Art goes through is characterized by pure insight and gratification. In the second stage, the elements from life impregnate art. In the third, life wins over art. Thus each stage takes art closer to the state of moral retrogression.
- (B) Art goes through three stages. The first stage shows the influence of life in all aspects of life and treatment. The second stage is characterized by purely inventive or visionary themes. In the third stage, life is artless. The third stage is a reflection of decadence prevalent in society.
- (C) Life has three stages just like art. The first is when art is unreal and enterprising; the second is when art and life perfectly intersperse with each other; the third is when art is thrown out of the window of life. The first two stages of art are a reflection of the decadence in humanity.
- (D) There are three stages in art – first, when art is unreal, ingenious and gratifying; second, when art admits life into its space, remodels it but maintains its own impregnable style. The third represents a 'degenerative state where life relegates art to the periphery. The third stage is reflected in the decadence even now prevalent in the literary sphere.

31. The critical difference in the direction of flow of India's wealth was introduced with the setting up of British rule. The English East India Company which acquired political power in 1757 was not merely another Indian state. Bullion inflow into India was to ease out; instead Indian goods were to be bought by the British from the revenues of Bengal. Initially Bengal and later the revenues of most of the upper

provinces were to maintain not only British power but also sustain their Empire. India became a supplier of raw material to British industry and a market for her finished products. This imbalanced relation encouraged a functional relationship with the British. The Britishers on posting to India rarely came with their families. India remained a "posting" for them. Thus in British India not only were salaries and pensions of officers transferred to Britain but the fortunes amassed were also dispatched home to be invested there. The fortunes of the British, acquired legally and illegally, were by no means small. They often earned them the title of oriental Nabobs. The title not only connoted an "Indianised" lifestyle but also the corrupt practices and wealth that Britishers associated with oriental princes.

- (A) The Indian economy was affected in a major way during the British Raj. India provided only raw materials for the British industries, the profit filled the British coffers and even the salaries and the pensions of the officers was dispatched home, to the British treasuries. The British regarded India only as a posting. The title of oriental Nabobs was conferred on the Britishers by the oriental princes.
- (B) The East India Company acquired political power, and the revenues of Bengal and the upper provinces began to be used to maintain the British Empire. Indian raw material sustained British industries and profits made in India contributed to the sustenance of British dominance. This imbalanced relation led to a purely functional relationship with the British Raj. To the English of the Raj, India was only a posting where many of them amassed fortunes and were referred to as oriental 'Nabobs', a title that referred not only to their lifestyle, but also to their illgotten wealth.
- (C) The defining disjunction that the English East India Company rule heralded was the use of the revenues of Bengal for the maintenance of an imbalanced commercial tie between Britain and India. This was particularly true after the industrial revolution of England when bullion inflows into India were considerably lowered; and India became a market for England's finished products. The Britishers regarded India as a home away from home and they earned the title of oriental Nabobs.
- (D) The Indian economy was affected in a major way during the British Raj. Indian raw material was taken to Britain and finished products were delivered to India. Britain shared a symbiotic relationship with India. But the Britishers never regarded India as their home as had been the case with the Mughal Emperors and nobles who lived here with their families for good.

DIRECTIONS for questions 32 to 34: Six sentences related to a topic are given below. Five 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.

32. (1) The starting date is conventionally held to be 24 April 1915 when the Ottoman authorities rounded up and deported 270 Armenian

intellectuals from Constantinople to Ankara, the majority of whom were eventually murdered.

- (2) The Armenian Genocide was the Ottoman government's systematic extermination of up to 1.5 million of its minority Armenian subjects inside their historic homeland, which lies within the present-day Republic of Turkey.
- (3) This was followed by the deportation of women, children, the elderly and infirm on death marches leading to the Syrian desert.
- (4) Turkey, the successor state of the Ottoman Empire, denies the word genocide as an accurate term for the mass killings of Armenians that began under Ottoman rule in 1915.
- (5) The first phase included the wholesale killing of the able-bodied male population through massacre and subjection of army conscripts to forced labour.
- (6) The genocide was carried out during and after World War I and implemented in two phases.

33. (1) This is because more than 2.1 billion people, or nearly 30% of the global population, are overweight or obese.
- (2) Even over the past three decades, according to a study in the *Lancet*, a medical journal, no nation has slimmed down.
- (3) How much governments should do to promote healthier lifestyles sparks vigorous debate, especially among Americans, who prize freedom as much as freedom fries.
- (4) It has not become a cliché to call obesity a big problem without reason.
- (5) On current trends, almost half of the world's adults will be fat by 2030.
- (6) Excess weight also leads to about 5% of worldwide deaths.

34. (1) The Number took off rapidly as an international system for classifying books, with 150 agencies (one per country, with two for bilingual Canada) now issuing the codes.
- (2) Set up by retailers to ease their distribution and sales, the ISBN increasingly hampers new, small and individual publishers.
- (3) The International Standard Book Number (ISBN) was invented in Britain in 1965.
- (4) That may be true in the analogue world, but in the digital realm what matters is not the number that a publisher gives a book, but how easily it can be downloaded and for how much.
- (5) Look inside any book published since 1970 and you will find a number.
- (6) Yet, digital self-publishing ends the distinction between publisher, distributor and bookshop, making ISBNs less necessary.

SECTION II: DATA INTERPRETATION AND LOGICAL REASONING

Number of Questions = 32

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

Jammy runs a water depot using four water tankers – A, B, C and D. He uses these four tankers for supplying water to different areas in a district. The capacity of each tanker is different and the average speed at which each tanker travels is also different. Further, when any tanker is in transit, the water in the tanker leaks at a constant rate. For transporting water to any area, any tanker is always filled to its full capacity and starts immediately after it is filled. Jammy allocates the tankers for transporting water to an area based on the following criteria:

- The quantity of water in the tanker (among the four tankers that he has) when it reaches its destination should be as close as possible to, but not less than, the quantity of water required in that area.
- If more than one tanker satisfies the above criteria, Jammy will choose any one tanker at random.

The table below provides, for each tanker, the Capacity (in '000 litres) of the tanker, the Rate of Water Leakage (in litres/minute) and the Average Speed (in kmph) of each tanker.

Tanker	Capacity ('000 liters)	Rate of Water Leakage (liters/minute)	Average Speed (kmph)
Tanker A	8	6	20
Tanker B	2.5	4.5	45
Tanker C	6	5	25
Tanker D	7	8	30

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

1. If India Gate Gully, which is 90 km away from the water depot, required 5000 litres of water, which tanker would Jammy have sent to India Gate Gully?
 (A) Tanker A (B) Tanker B
 (C) Tanker C (D) Tanker D
2. If Red Fort Nagar, which is x km away from the water depot, requires 5000 liters of water and Jammy used Tanker D to supply the water, which of the following can be the value of x ?
 (A) 100 km (B) 50 km
 (C) 75 km (D) 150 km
3. If Jammy used Tanker C to supply 2000 litres of water to an area that was d km away from the water depot, which of the following options gives the correct range of all the possible values of d ?
 (A) $83 \frac{1}{3} < d \leq 250$
 (B) $312.5 < d \leq 333 \frac{1}{3}$
 (C) $83 \frac{1}{3} < d \leq 250$ OR $300 < d \leq 312.5$
 (D) $83 \frac{1}{3} < d \leq 250$ OR $312.5 < d \leq 333 \frac{1}{3}$
4. If Jammy used Tanker D to supply x litres of water to an area 300 km away from the water depot, which of the following is true?
 (A) $1450 < x \leq 2400$
 (B) $700 \leq x \leq 2400$
 (C) $700 < x \leq 2200$
 (D) $1450 \leq x \leq 2200$

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

Himesh, a professor, had data regarding the number of cars sold in a country on eight consecutive days – Day 1 through Day 8.

On a particular day, he gave eight students, A through H, partial data about these numbers in this manner: to one student, he gave the number of cars sold on the first day; to another student, he gave the number of cars sold on each of the first two days; to the third student, he gave the number of cars sold on each of the first three days and so on and to the last student, he gave the number of cars sold on each of the eight days. He asked each student to draw a pie chart with only the data that he has been given such that each sector in the pie chart he drew corresponds to the number of cars sold on each day (only among those days for which the data has been given to him). After the eight students drew their respective pie charts, each student was asked to report the angle (in degrees) of the sector which represented the number of cars sold on Day 1.

The following table provides the angles reported by students:

Student	A	B	C	D	E	F	G	H
Angle	36°	96°	144°	54°	360°	72°	216°	48°

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

5. If exactly 3000 cars were sold on Day 1, on how many days were more than 4500 cars sold?

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

7. If 33,150 cars were sold on Day 5, what is the difference between the number of cars sold on Day 4 and that sold on Day 6?

DIRECTIONS for question 6: Select the correct alternative from the given choices.

6. What is the ratio of the number of cars sold on Day 7 to the number of cars sold on Day 8?

- (A) $\frac{1}{3}$ (B) $\frac{2}{3}$
 (C) 3 (D) 2

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

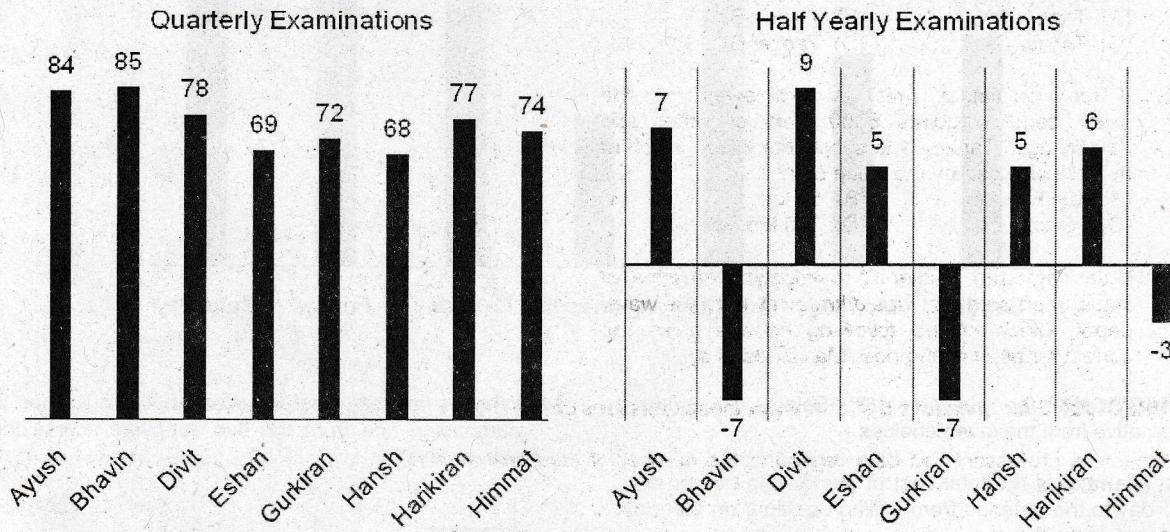
8. What is the number of cars sold on Day 3 as a percentage of the total number of cars sold during the eight days?

- (A) 11.25% (B) 13.50%
 (C) 9.67% (D) 8.33%

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

In a school, eight students of a class wrote exactly three examinations – Quarterly, Half-yearly and Annual – during a year. The eight students were ranked in each of the three exams from 1 to 8 such that, in any exam, among any two students, the student with the higher marks received the numerically lower rank. Further, no student received the same marks in any two examinations and no two students received the same marks in any examination. It is also known that, for any student, the marks received by him in the annual examination was neither the highest nor the lowest among the three examinations.

The first graph below provides for each student, the marks obtained by the student in the quarterly examination. The second graph provides the increase/decrease in the marks of each student in the half-yearly examination as compared to the quarterly examination. The table below the graphs provides the ranks obtained by the students in the annual examination.



Annual Examinations								
Student	Ayush	Bhavin	Divit	Eshan	Gurkiran	Hansh	Harikiran	Himmat
Rank	2	3	1	7	6	8	4	5

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

9. What can be the maximum possible score of the fifteen students combined in the Annual examination?

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

10. For which of the following students is the sum of their marks in the Quarterly, Half-yearly and Annual examinations the highest?

(A) Eshan (B) Gurkiran
(C) Hansh (D) Himmat

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

11. How many students scored more than 75 marks in the Annual examination?

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

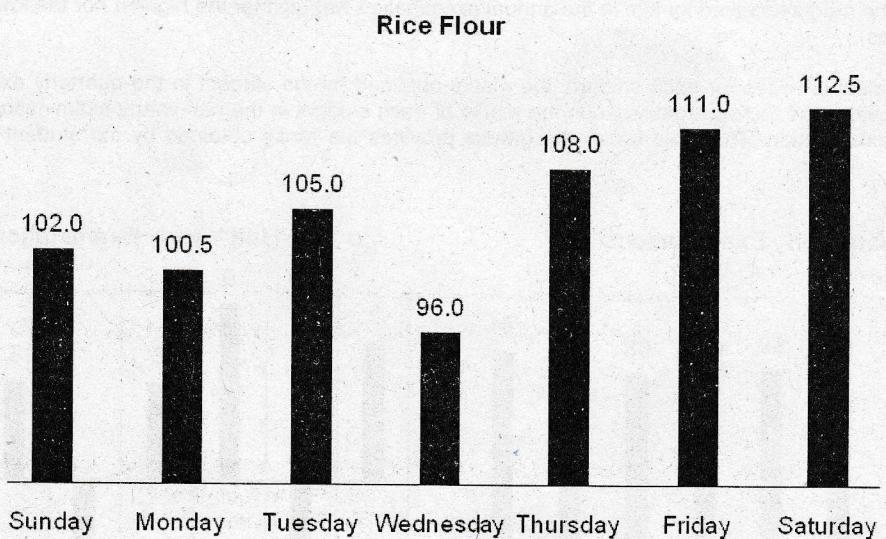
12. If at most two students scored at least 80 marks in the Annual examination, what is the average marks scored by the students in the Annual examination?

(A) 76.25 (B) 76.375
(C) 76.45 (D) Cannot be determined

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

On any day, Kalidas purchases rice from two suppliers, A and B, at a cost of ₹20/kg and ₹25/kg respectively, and makes rice flour from all the rice that he purchases on that day. From each kg of rice that he purchases from A and B, he can make 800 gm and 600 gm of rice flour respectively. Further, he purchases the maximum possible quantity of rice from A and only then purchases rice from B. All the rice flour that he makes on any day is sold on the same day at a price of ₹40/kg.

On each day, during a particular week (from Sunday to Saturday), he purchased exactly 150 kg of rice from the two traders combined. However, the quantity of rice that he purchased from each trader need not be the same across the seven days of the week. The following graph provides the total quantity of rice flour (in kg) that he made (and sold) on each day of the week:



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

13. The ratio of the total cost of purchasing rice on any day to the revenue from selling rice flour on that day was at most
 (A) 0.9125. (B) 0.9245.
 (C) 0.9375. (D) 0.9525.

14. What is the total cost incurred (in ₹) by Kalidas in purchasing rice from the two suppliers across the seven days?

15. On how many days did Kalidas purchase more than 80 kg of rice from supplier B?

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

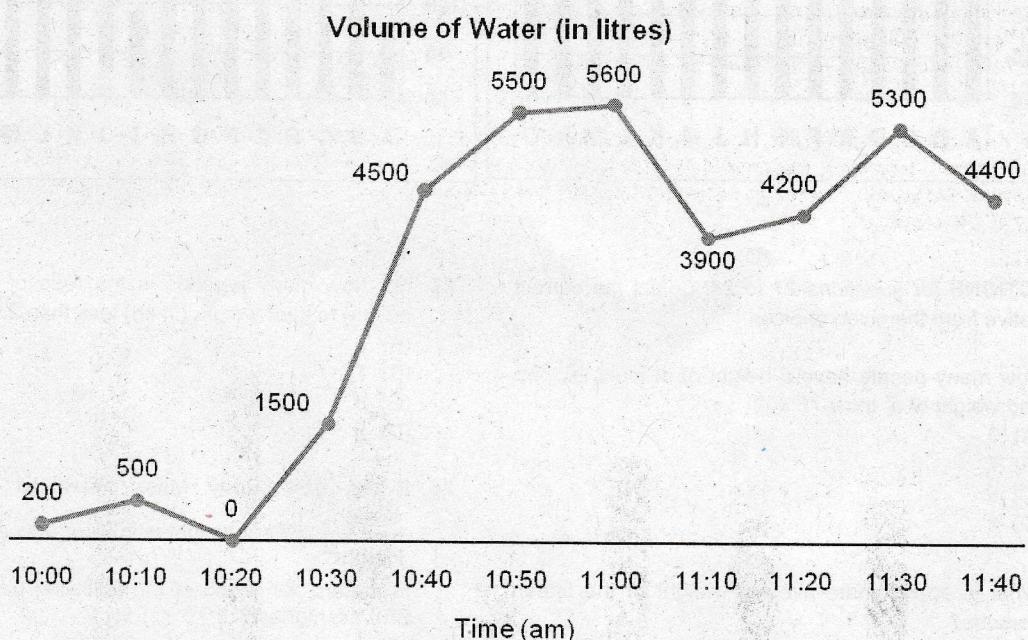
DIRECTIONS for question 16: Select the correct alternative from the given choices.

16. On how many days was the difference between the total cost of purchasing rice and the revenue from selling rice flour more than ₹1000?
(A) 1 (B) 2 (C) 3 (D) 4

DIRECTIONS for questions 17 to 20: Answer these questions on the basis of the information given below.

A water tank in a colony can be filled using two taps – Tap 1 and Tap 2. Further, there are three taps – Tap A, Tap B and Tap C – attached to the tank which can be used for draining the water from the tank. Tap 1 can fill the tank at a rate of 180 litres/minute, Tap 2 can fill at a rate of 200 litres/minute. Tap A, Tap B and Tap C can drain water from the tank at rates of 90 litres/minute, 80 litres/minute and 150 litres/minute respectively.

On a particular day, the tank had 200 litres of water in it at 10:00 am. Exactly two of the five taps were opened at 10:00 am and after every subsequent ten minutes, exactly one tap was either opened or closed (depending on whether it was initially open or closed). At 11:40 am, all the taps were closed. The following graph presents the volume of water (in litres) in the tank at different times between 10:00 am and 11:40 am:



DIRECTIONS for questions 17 to 20: Select the correct alternative from the given choices.

17. Which of the following taps was open for the longest duration?
(A) Tap 1
(B) Tap A
(C) Tap 2
(D) Tap B
18. Which of the following pairs of taps were not open at the same time?
(A) Tap 1 and Tap C
(B) Tap A and Tap C
(C) Tap 2 and Tap A
(D) Tap 2 and Tap B

19. At which of the following times were the maximum number of taps open?

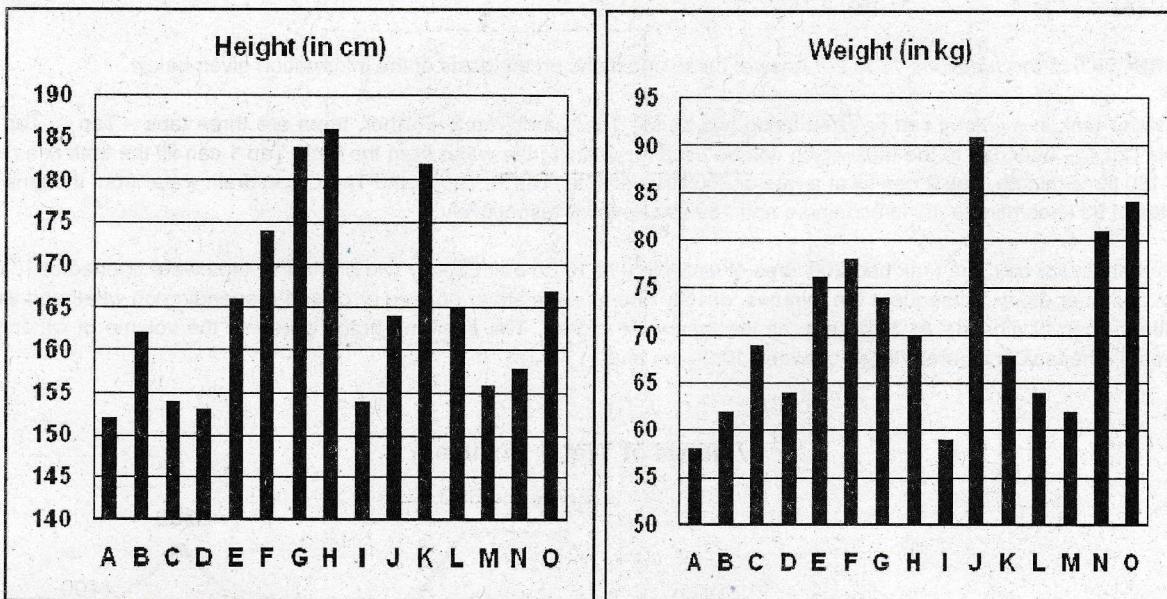
- (A) 10:11 am
(B) 11:01 am
(C) 10:17 am
(D) 10:23 am

20. Among Tap A, Tap B, Tap C and Tap 1, how many taps were open at 11:25?

- (A) 0
(B) 1
(C) 2
(D) More than 2

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

The heights (in m) and weights (in kg) of fifteen people – A through O – are presented in the bar charts below:



DIRECTIONS for questions 21 to 24: Select the correct alternative from the given choices.

21. How many people have a height of at least 160 cm and weight of at most 75 kg?

(A) 9
(B) 7
(C) 5
(D) 3

22. What is approximate average weight of the fifteen persons?

(A) 65 kg
(B) 76 kg
(C) 83 kg
(D) 71 kg

23. For how many persons is the ratio of their height (in cm) to their weight (in kg) less than 2.5?

(A) 6
(B) 7
(C) 8
(D) 9

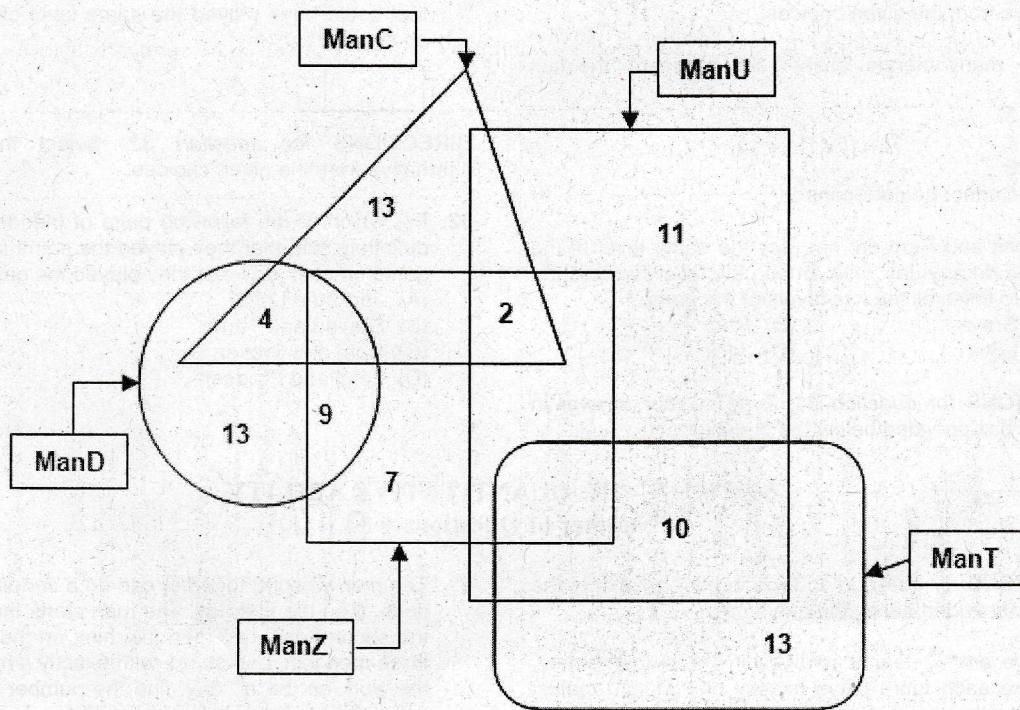
24. If the BMI (Body Mass Index) is defined as $\frac{\text{Weight}}{\text{Height}^2}$, where weight is in kilograms and height is

in meters, for which of the following persons is the BMI the highest?

(A) A
(B) F
(C) I
(D) M

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

Jacob, a hockey enthusiast, was compiling the data regarding 100 players, each of whom, during his career, played for at least one of the five teams among ManC, ManD, ManT, ManU and ManZ. He prepared the following Venn diagram which is only partially filled:



Further, it is also known that

- (i) the number of players who played for ManT is the same as the number of players who played for ManZ.
- (ii) the number of players who played for ManC is fifteen more than the number of players who played for ManD and ManZ.
- (iii) the number of players who played for ManU is four more than the number of players who played for ManT.
- (iv) exactly three players played for ManC and ManZ but not for ManU.

DIRECTIONS for question 25: Type in your answer in the input box provided below the question.

25. How many players played for exactly two of the five teams?

DIRECTIONS for question 26: Select the correct alternative from the given choices.

26. The maximum number of players played for which team?

- (A) ManU (B) ManT
 (C) ManD (D) ManZ

DIRECTIONS for questions 27 and 28: Type in your answer in the input box provided below the question.

27. How many players did not play for ManD but played for at least three other teams?

28. How many players played for ManC and ManZ but not for ManD?

DIRECTIONS for questions 29 to 32: Answer these questions on the basis of the information given below.

During a particular week, starting from Sunday and ending on Saturday, six friends, Jack, Lohit, Pradeep, Ram, Sravan and Tarun, started playing a video game which comprised five levels – L1, L2, L3, L4 and L5. The five levels of the game should be finished in the same order as given above. Each friend finished exactly one level on any day that he played the game. Further, the six friends finished all the five levels of the game during the week.

It is also known that

- (i) Ram was two levels ahead of Jack by Wednesday.
- (ii) Pradeep, who started the game before Tarun did, finished the game after Tarun did.
- (iii) on the day that Lohit was playing L3, Sravan was playing L4.
- (iv) not more than two friends started playing the game (i.e., L1) on the same day and on any day, there was at least one friend who did not play the game.

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

29. How many friends finished the game on the last day?
 (A) 3
 (B) 4
 (C) 5
 (D) Cannot be determined
30. If Lohit and Ram did not play the same level of the game on any day, who among the following was the first to finish all the five levels of the game?
 (A) Sravan (B) Ram
 (C) Lohit (D) Jack

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

SECTION – III: QUANTITATIVE ABILITY

Number of Questions = 34

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

1. There are 32 teams participating in a tournament, where each team plays exactly one match against every other team. For a win, a team is awarded two points; for a draw, each of the two teams gets one point; for a loss, no points are awarded. If the team that scored more number of points in the tournament than any other team was declared the winner of the tournament, the winner must have scored at least

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

2. In an examination comprising T questions, Arif correctly solved 15 of the first 24 questions. Of the remaining questions, he answered one-fourth correctly. If he was able to correctly answer 40% of the questions in the paper overall, how many possible values can T assume?
 (A) Data inconsistent (B) 1
 (C) 2 (D) More than 2
3. If 'a' ounces each of salt and water are added to n ounces of an n% salt solution (by weight) to obtain an (n - 20)% salt solution, where n > 100, then 'a' is equal to
 (A) $\frac{5n}{n-30}$. (B) $\frac{20n}{n-50}$.
 (C) $\frac{10n}{n-70}$. (D) $\frac{15n}{n-60}$.
4. A certain sum lent at a certain rate of interest per annum, under simple interest, becomes 1.375 times itself in three years. After how many years will the total interest accrued be equal to twice the sum?
 (A) 14 (B) 16
 (C) 17 (D) 19

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

31. What is the maximum possible number of friends that could have played the same level of the game on any day?

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

32. For which of the following pairs of friends can it be definitely said that they played the same level of the game on each day that they played the game?
 (A) Jack and Lohit
 (B) Sravan and Tarun
 (C) Ram and Sravan
 (D) Lohit and Pradeep

5. Ten men working together can do a certain job in 56 days. If on the first day, one man starts the work; on the second day, two men join him; on the third day, three men join, and so on, with exactly n men joining the work on the nth day, find the number of days in which the work would be completed.

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

6. The number 75 in the decimal system when expressed in the number system to the base 7, comprises
 (A) two consecutive digits.
 (B) two non-consecutive digits.
 (C) three consecutive even digits.
 (D) three consecutive odd digits.
7. Harshita went to the local market at a certain time when the angle between the minute hand and the hour hand of the wall clock in her room was 55°. She returned home and observed that the angle between the two hands of the clock was once again 55°. If she returned home in less than 45 minutes, for how long was she outside her home?
 (A) $16\frac{3}{11}$ minutes
 (B) 24 minutes
 (C) $22\frac{3}{11}$ minutes
 (D) 20 minutes

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

8. If P is the perimeter of a triangle, two of the sides of which measure 7 cm and 12 cm, how many of the following values of P do not belong to the valid range of values that P can assume?
 (i) P = 22 (ii) P = 24 (iii) P = 28
 (iv) P = 32 (v) P = 38 (vi) P = 39

DIRECTIONS for question 9: Select the correct alternative from the given choices.

9. The graph of a quadratic expression, $ax^2 + bx + c$, attains a maximum value of 10 at $x = 2$. If the graph intersects the x -axis at two points, one positive and the other negative, then which of a , b and c is/are positive?
(A) Only c (B) Only b
(C) Both b and c (D) Both a and c

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

10. If $N = 364n^5$, where n is a positive integer, has 182 factors, how many possible values can N assume?

DIRECTIONS for question 11: Select the correct alternative from the given choices.

11. How many points on the line $2x + 3y = 6$ are equidistant from the coordinate axes?
(A) 0 (B) 1
(C) 2 (D) More than 2

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

12. If p , q , r and s are numbers chosen at random, with replacement, from the set {1, 2, 3, 4, 5, 6, 7}, in how many ways can p , q , r and s be chosen such that $pqr+s$ is even?

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

13. In how many of the following equations is y neither directly nor inversely proportional to x ?
(i) $xy = -101$ (ii) $3x = 5y$
(iii) $4x + 5y = 0$ (iv) $x + y = 2$
(A) 0 (B) 2
(C) 1 (D) More than 2

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

14. If a is an integer, for how many values of a will $\left(\frac{50}{a-50}-1\right)$ be equal to the square of a whole number?

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

15. If $27^x + 27^{x-1} = 252$, find the value of $(3x)^x$.

- (A) $25\sqrt{25}$ (B) $5(25)^{\frac{1}{3}}$
(C) 25 (D) $25(5)^{\frac{1}{3}}$

DIRECTIONS for questions 16 to 18: Type in your answer in the input box provided below the question.

16. Find the total surface area (in sq. cm) of a rectangular box, if the sum of the lengths of all its edges is 112 cm and the distance of one corner of the box from another corner farthest to it is 18 cm.

Enter your answer as '0', if you think that the question cannot be answered using the information given.

17. A function $f(x)$ is defined, for any integer x , as follows:

$$f(x) = \begin{cases} x-1, & \text{if } x \text{ is even;} \\ \frac{x+1}{2}, & \text{if } x \text{ is odd.} \end{cases}$$

Find the sum of all the possible values of t , if $f(f(f(t))) = 15$, where t is an even integer.

18. If each of p_1 , p_2 and $(p_1 - p_2)$ is a prime number less than 50, how many possible values can p_1 assume?

DIRECTIONS for questions 19 and 20: Select the correct alternative from the given choices.

19. Manohar bought 236 pens at a certain price. If he then sold all the pens at a fixed selling price each, such that he was able to recover his investment from the revenue obtained by selling exactly 200 pens, find his profit percentage.

- (A) 18% (B) 24%
(C) 36% (D) Cannot be determined

20. Which of the following gives the value of $(6561)^{-2/3}$?

- (A) 3 (B) $\frac{1}{3}$
(C) 6561^{-8} (D) 6561^6

DIRECTIONS for question 21: Type in your answer in the input box provided below the question.

21. If $t_{p+q} = t_p + t_q + pq$ and $t_1 = 1$, find the value of t_{2016} ?

DIRECTIONS for questions 22 and 23: Select the correct alternative from the given choices.

22. If the range of x for which the inequality $\left|\frac{7-x}{3}\right| < 1$

- holds true is (a, b) , find the sum $(a+b)$.
(A) 14 (B) 7
(C) 10 (D) 17

23. Find the distance between the points at which the curves $x^2 - y = 12$ and $2x + y = 12$ intersect each other.

(A) $10\sqrt{5}$ units (B) 10 units
 (C) 20 units (D) $10\sqrt{2}$ units

DIRECTIONS for question 24: Type in your answer in the input box provided below the question.

24. If p , q and r are real numbers, such that $9p - 7q + 2r - 6 = 0$ and $2p - 6q - 9r + 7 = 0$, find the value of $p^2 + r^2 - q^2$.

Enter your answer as '0', if you think that the question cannot be answered using the information given.

DIRECTIONS for question 25: Select the correct alternative from the given choices.

25. The graph of $y = \log 9x$ intersects the graph of $y = 3 \log x$ at
 (A) exactly one point.
 (B) exactly two distinct points.
 (C) exactly three distinct points.
 (D) no point.

DIRECTIONS for question 26: Type in your answer in the input box provided below the question.

26. Find the minimum number of angles in a convex decagon that must be right or obtuse.

DIRECTIONS for question 27: Select the correct alternative from the given choices.

27. A contractor observed that with the existing number of workers, he could finish a project in 12 days. However, if he added 20 more workers to the existing team, the project will be completed in 10 days. How many days would a single worker take to complete the entire project?
 (A) 480 (B) 600
 (C) 800 (D) 1200

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

28. If the point of tangency between the incircle of a triangle and one of the sides of the triangle divides that side of the triangle into two segments of length 1 cm and 5 cm, find the measure (in cm) of the longest side of the triangle, given that the inradius measures 2 cm.

Enter your answer as '0', if you think that the question cannot be answered using the information given.

DIRECTIONS for questions 29 to 31: Select the correct alternative from the given choices.

29. If an article is marked up by 60% above its cost price and then sold at $\frac{3}{4}$ of its marked price, find the percentage of profit made on the article.
 (A) 20% (B) 25%
 (C) 30% (D) 40%

30. If a and b are positive integers such that $11a - 19b = 1$, where $b < 500$, how many solutions (a, b) exist for the given equation?
 (A) 38 (B) 42
 (C) 46 (D) 48

31. Three faces of a die are marked with the numbers 2, 3 and 4 respectively, whereas each of the remaining three faces is marked with the number '0'. If this die is thrown four times in succession, what is the probability of getting a sum of 6?

(A) $\frac{5}{54}$ (B) $\frac{7}{432}$
 (C) $\frac{13}{108}$ (D) $\frac{29}{216}$

DIRECTIONS for questions 32 and 33: Type in your answer in the input box provided below the question.

32. If x and y are two numbers (where $x > y > 0$), such that their geometric mean is one-third their arithmetic mean, find the value of $\frac{x}{y}$, rounded off to the nearest integer.

33. Find the coefficient of the term independent of x in the expansion of $\left(\frac{4x^2}{9} - \frac{3}{2x}\right)^9$.

DIRECTIONS for question 34: Select the correct alternative from the given choices.

34. Mohan subtracted a certain quantity x from each of 50, 80 and 130. If he found that the resulting numbers formed a geometric progression, find the common ratio of the geometric progression.

(A) $\frac{3}{2}$ (B) $\frac{5}{3}$
 (C) 2 (D) $\frac{8}{5}$