

VERBAL ABILITY AND READING COMPREHENSION

Passage 1

The passage below is accompanied by a set of questions. Choose the best answer to each question.

Starting in 1957, [Noam Chomsky] proclaimed a new doctrine: Language, that most human of all attributes, was innate. The grammatical faculty was built into the infant brain, and your average 3-year-old was not a mere apprentice in the great enterprise of absorbing English from his or her parents, but a “linguistic genius.” Since this message was couched in terms of Chomskyan theoretical linguistics, in discourse so opaque that it was nearly incomprehensible even to some scholars, many people did not hear it. Now, in a brilliant, witty and altogether satisfying book, Mr. Chomsky's colleague Steven Pinker . . . has brought Mr. Chomsky's findings to everyman. In “The Language Instinct” he has gathered persuasive data from such diverse fields as cognitive neuroscience, developmental psychology and speech therapy to make his points, and when he disagrees with Mr. Chomsky he tells you so. . . .

For Mr. Chomsky and Mr. Pinker, somewhere in the human brain there is a complex set of neural circuits that have been programmed with “super-rules” (making up what Mr. Chomsky calls “universal grammar”), and that these rules are unconscious and instinctive. A half-century ago, this would have been pooh-poohed as a “black box” theory, since one could not actually pinpoint this grammatical faculty in a specific part of the brain, or describe its functioning. But now things are different. Neurosurgeons [have now found that this] “black box” is situated in and around Broca's area, on the left side of the forebrain. Unlike Mr. Chomsky, Mr. Pinker firmly places the wiring of the brain for language within the framework of Darwinian natural selection and evolution. He effectively disposes of all claims that intelligent nonhuman primates like chimps have any abilities to learn and use language. It is not that chimps lack the vocal apparatus to speak; it is just that their brains are unable to produce or use grammar. On the other hand, the “language instinct,” when it first appeared among our most distant hominid ancestors, must have given them a selective reproductive advantage over their competitors (including the ancestral chimps). . . .

So according to Mr. Pinker, the roots of language must be in the genes, but there cannot be a “grammar gene” any more than there can be a gene for the heart or any other complex body structure. This proposition will undoubtedly raise the hackles of some behavioral psychologists and anthropologists, for it apparently contradicts the liberal idea that human behavior may be changed for the better by improvements in culture and environment, and it might seem to invite the twin bugaboos of biological determinism and racism. Yet Mr. Pinker stresses one

point that should allay such fears. Even though there are 4,000 to 6,000 languages today, they are all sufficiently alike to be considered one language by an extraterrestrial observer. In other words, most of the diversity of the world's cultures, so beloved to anthropologists, is superficial and minor compared to the similarities. Racial differences are literally only "skin deep." The fundamental unity of humanity is the theme of Mr. Chomsky's universal grammar, and of this exciting book.

Q.1) On the basis of the information in the passage, Pinker and Chomsky may disagree with each other on which one of the following points?

- a) The Darwinian explanatory paradigm for language.
- b) The possibility of a universal grammar.
- c) The language instinct.
- d) The inborn language acquisition skills of humans.

Q.2) Which one of the following statements best summarises the author's position about Pinker's book?

- a) The evolutionary and deterministic framework of Pinker's book makes it racist.
- b) The universality of the "language instinct" counters claims that Pinker's book is racist.
- c) Anatomical developments like the voice box play a key role in determining language acquisition skills.
- d) Culture and environment play a key role in shaping our acquisition of language.

Q.3) According to the passage, all of the following are true about the language instinct EXCEPT that:

- a) developments in neuroscience have increased its acceptance.
- b) all intelligent primates are gifted with it.
- c) not all intelligent primates are gifted with it.
- d) it confers an evolutionary reproductive advantage.

Q.4) From the passage, it can be inferred that all of the following are true about Pinker's book, "The Language Instinct", EXCEPT that Pinker:

- a) draws from behavioral psychology theories.
- b) disagrees with Chomsky on certain grounds.
- c) draws extensively from Chomsky's propositions.
- d) writes in a different style from Chomsky.

Passage 2

The passage below is accompanied by a set of questions. Choose the best answer to each question.

Back in the early 2000s, an awesome thing happened in the New X-Men comics. Our mutant heroes had been battling giant robots called Sentinels for years, but suddenly these mechanical overlords spawned a new threat: Nano-Sentinels! Not content to rule Earth with their metal fists, these tiny robots invaded our bodies at the microscopic level. Infected humans were slowly converted into machines, cell by cell.

Now, a new wave of extremely odd robots is making at least part of the Nano-Sentinels story come true. Using exotic fabrication materials like squishy hydrogels and elastic polymers, researchers are making autonomous devices that are often tiny and that could turn out to be more powerful than an army of Terminators. Some are 1-centimeter blobs that can skate over water. Others are flat sheets that can roll themselves into tubes, or matchstick-sized plastic coils that act as powerful muscles. No, they won't be invading our bodies and turning us into Sentinels – which I personally find a little disappointing – but some of them could one day swim through our bloodstream to heal us. They could also clean up pollutants in water or fold themselves into different kinds of vehicles for us to drive. . . .

Unlike a traditional robot, which is made of mechanical parts, these new kinds of robots are made from molecular parts. The principle is the same: both are devices that can move around and do things independently. But a robot made from smart materials might be nothing more than a pink drop of hydrogel. Instead of gears and wires, it's assembled from two kinds of molecules – some that love water and some that avoid it – which interact to allow the bot to skate on top of a pond.

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Sometimes these materials are used to enhance more conventional robots. One team of researchers, for example, has developed a different kind of hydrogel that becomes sticky when exposed to a low-voltage zap of electricity and then stops being sticky when the electricity is switched off. This putty-like gel can be pasted right onto the feet or wheels of a robot. When the robot wants to climb a sheer wall or scoot across the ceiling, it can activate its sticky feet with a few volts. Once it is back on a flat surface again, the robot turns off the adhesive like a light switch.

Robots that are wholly or partly made of gloop aren't the future that I was promised in science fiction. But it's definitely the future I want. I'm especially keen on the nanometre-scale "soft robots" that could one day swim through our bodies. Metin Sitti, a director at the Max Planck Institute for Intelligent Systems in Germany, worked with colleagues to prototype these tiny, synthetic beasts using various stretchy materials, such as simple rubber, and seeding them with

magnetic microparticles. They are assembled into a finished shape by applying magnetic fields. The results look like flowers or geometric shapes made from Tinkertoy ball and stick modeling kits. They're guided through tubes of fluid using magnets, and can even stop and cling to the sides of a tube.

Q.5) Which one of the following scenarios, if false, could be seen as supporting the passage?

- a) Some hydrogels turn sticky when an electric current is passed through them; this potentially has very useful applications.
- b) There are two kinds of molecules used to make some nano-robots: one that reacts positively to water and the other negatively.
- c) Nano-Sentinel-like robots are likely to be used to inject people to convert them into robots, cell by cell.
- d) Robots made from smart materials are likely to become part of our everyday lives in the future.

Q.6) Which one of the following statements best captures the sense of the first paragraph?

- a) People who were infected by Nano-Sentinel robots became mutants who were called X-Men.
- b) None of the options listed here.
- c) Tiny sentinels called X-Men infected people, turning them into mutant robot overlords.
- d) The X-Men were mutant heroes who now had to battle tiny robots called Nano-Sentinels.

Q.7) Which one of the following statements best summarises the central point of the passage?

- a) Robots will use nano-robots on their feet and wheels to climb walls or move on ceilings.
- b) Nano-robots made from molecules that react to water have become increasingly useful.
- c) Once the stuff of science fiction, nano-robots now feature in cutting-edge scientific research.
- d) The field of robotics is likely to be feature more and more in comics like the New X-Men.

Q.8) Which one of the following statements, if true, would be the most direct extension of the arguments in the passage?

- a) Sentinel robots will be used in warfare to cause large-scale destructive mutations amongst civilians.
- b) In the future, robots will be used to search and destroy diseases even in the deepest recesses of the human body.
- c) 1-centimeter blobs of gel that have nano-robots in them will be used to send messages.
- d) X-Men may be created by injecting people with mutant nano-gels that will respond to the brain's magnetic field.

Passage 3

The passage below is accompanied by a set of questions. Choose the best answer to each question.

Today we can hardly conceive of ourselves without an unconscious. Yet between 1700 and 1900, this notion developed as a genuinely original thought. The “unconscious” burst the shell of conventional language, coined as it had been to embody the fleeting ideas and the shifting conceptions of several generations until, finally, it became fixed and defined in specialized terms within the realm of medical psychology and Freudian psychoanalysis.

The vocabulary concerning the soul and the mind increased enormously in the course of the nineteenth century. The enrichments of literary and intellectual language led to an altered understanding of the meanings that underlie time-honored expressions and traditional catchwords. At the same time, once coined, powerful new ideas attracted to themselves a whole host of seemingly unrelated issues, practices, and experiences, creating a peculiar network of preoccupations that as a group had not existed before. The drawn-out attempt to approach and define the unconscious brought together the spiritualist and the psychical researcher of borderline phenomena (such as apparitions, spectral illusions, haunted houses, mediums, trance, automatic writing); the psychiatrist or alienist probing the nature of mental disease, of abnormal ideation, hallucination, delirium, melancholia, mania; the surgeon performing operations with the aid of hypnotism; the magnetizer claiming to correct the disequilibrium in the universal flow of magnetic fluids but who soon came to be regarded as a clever manipulator of the imagination; the physiologist and the physician who puzzled over sleep, dreams, sleepwalking, anesthesia, the influence of the mind on the body in health and disease; the neurologist concerned with the functions of the brain and the physiological basis of mental life; the philosopher interested in the will, the emotions, consciousness, knowledge, imagination and the creative genius; and, last but not least, the psychologist.

Significantly, most if not all of these practices (for example, hypnotism in surgery or psychological magnetism) originated in the waning years of the eighteenth century and during the early decades of the nineteenth century, as did some of the disciplines (such as psychology and psychical research). The majority of topics too were either new or assumed hitherto unknown colors. Thus, before 1790, few if any spoke, in medical terms, of the affinity between creative genius and the hallucinations of the insane . . .

Striving vaguely and independently to give expression to a latent conception, various lines of thought can be brought together by some novel term. The new concept then serves as a kind of

resting place or stocktaking in the development of ideas, giving satisfaction and a stimulus for further discussion or speculation. Thus, the massive introduction of the term unconscious by Hartmann in 1869 appeared to focalize many stray thoughts, affording a temporary feeling that a crucial step had been taken forward, a comprehensive knowledge gained, a knowledge that required only further elaboration, explication, and unfolding in order to bring in a bounty of higher understanding. Ultimately, Hartmann's attempt at defining the unconscious proved fruitless because he extended its reach into every realm of organic and inorganic, spiritual, intellectual, and instinctive existence, severely diluting the precision and compromising the impact of the concept.

Q.9) All of the following statements may be considered valid inferences from the passage, EXCEPT:

- a) New conceptions in the nineteenth century could provide new knowledge because of the establishment of fields such as anaesthesiology.
- b) Unrelated practices began to be treated as related to each other, as knowledge of the mind grew in the nineteenth century.
- c) Without the linguistic developments of the nineteenth century, the growth of understanding of the soul and the mind may not have happened.
- d) Eighteenth century thinkers were the first to perceive a connection between creative genius and insanity.

Q.10) Which one of the following statements best describes what the passage is about?

- a) The identification of the unconscious as an object of psychical research.
- b) The collating of diverse ideas under the single term: unconscious.
- c) The growing vocabulary of the soul and the mind, as diverse processes.
- d) The discovery of the unconscious as a part of the human mind.

Q.11) Which one of the following sets of words is closest to mapping the main arguments of the passage?

- a) Literary language; Unconscious; Insanity.
- b) Unconscious; Latent conception; Dreams.
- c) Imagination; Magnetism; Psychiatry.
- d) Language; Unconscious; Psychoanalysis.

Q.12) "The enrichments of literary and intellectual language led to an altered understanding of the meanings that underlie time-honored expressions and traditional catchwords." Which one of the following interpretations of this sentence would be closest in meaning to the original?

- a) Time-honored expressions and traditional catchwords were enriched by literary and intellectual language.
- b) The meanings of time-honored expressions were changed by innovations in literary and intellectual language.
- c) Literary and intellectual language was altered by time-honored expressions and traditional catchwords.
- d) All of the options listed here.

Passage 4

The passage below is accompanied by a set of questions. Choose the best answer to each question.

Keeping time accurately comes with a price. The maximum accuracy of a clock is directly related to how much disorder, or entropy, it creates every time it ticks. Natalia Ares at the University of Oxford and her colleagues made this discovery using a tiny clock with an accuracy that can be controlled. The clock consists of a 50-nanometre-thick membrane of silicon nitride, vibrated by an electric current. Each time the membrane moved up and down once and then returned to its original position, the researchers counted a tick, and the regularity of the spacing between the ticks represented the accuracy of the clock. The researchers found that as they increased the clock's accuracy, the heat produced in the system grew, increasing the entropy of its surroundings by jostling nearby particles . . . "If a clock is more accurate, you are paying for it somehow," says Ares. In this case, you pay for it by pouring more ordered energy into the clock, which is then converted into entropy. "By measuring time, we are increasing the entropy of the universe," says Ares. The more entropy there is in the universe, the closer it may be to its eventual demise. "Maybe we should stop measuring time," says Ares. The scale of the additional entropy is so small, though, that there is no need to worry about its effects, she says.

The increase in entropy in timekeeping may be related to the "arrow of time", says Marcus Huber at the Austrian Academy of Sciences in Vienna, who was part of the research team. It has been suggested that the reason that time only flows forward, not in reverse, is that the total amount of entropy in the universe is constantly increasing, creating disorder that cannot be put in order again.

The relationship that the researchers found is a limit on the accuracy of a clock, so it doesn't mean that a clock that creates the most possible entropy would be maximally accurate – hence a large, inefficient grandfather clock isn't more precise than an atomic clock. "It's a bit like fuel use in a car. Just because I'm using more fuel doesn't mean that I'm going faster or further," says Huber.

When the researchers compared their results with theoretical models developed for clocks that rely on quantum effects, they were surprised to find that the relationship between accuracy and entropy seemed to be the same for both. . . . We can't be sure yet that these results are actually universal, though, because there are many types of clocks for which the relationship between accuracy and entropy haven't been tested. "It's still unclear how this principle plays out in real devices such as atomic clocks, which push the ultimate quantum limits of accuracy," says Mark Mitchison at Trinity College Dublin in Ireland. Understanding this relationship could be helpful for designing clocks in the future, particularly those used in quantum computers and other devices where both accuracy and temperature are crucial, says Ares. This finding could also help us understand more generally how the quantum world and the classical world are similar and different in terms of thermodynamics and

Q.13) The author makes all of the following arguments in the passage, EXCEPT that:

- a) The relationship between accuracy and entropy may not apply to all clocks.
- b) Researchers found that the heat produced in a system is the price paid for increased accuracy of measurement.
- c) There is no difference in accuracy between an inefficient grandfather clock and an atomic clock.
- d) In designing clocks for quantum computers, both precision and heat have to be taken into account.

Q.14) "It's a bit like fuel use in a car. Just because I'm using more fuel doesn't mean that I'm going faster or further . . ." What is the purpose of this example?

- a) If you go faster in a car, you will tend to consume more fuel, but the converse is not necessarily true. In the same way, increased entropy does not necessarily mean greater accuracy of a clock.
- b) The further you go in a car, the more fuel you use. In the same way, the faster you go in a car, the less time you use.
- c) If you measure the speed of a car with a grandfather clock, the result will be different than if you measured it with an atomic clock.
- d) The further and faster you go in a car, the greater the amount of fuel you will use, the greater the amount of heat produced and, hence, the greater the entropy.

Q.15) Which one of the following sets of words and phrases serves best as keywords of the passage?

- a) Electric current; Heat; Quantum effects.
- b) Silicon Nitride; Energy; Grandfather Clock.

- c) Measuring Time; Accuracy; Entropy.
- d) Membrane; Arrow of time; Entropy.

Q.16) None of the following statements can be inferred from the passage EXCEPT that:

- a) the arrow of time has not yet been tested for atomic clocks.
- b) quantum computers are likely to produce more heat and, hence, more entropy, because of the emphasis on their clocks' accuracy.
- c) grandfather clocks are likely to produce less heat and, hence, less entropy, because they are not as accurate.
- d) a clock with a 50-nanometre-thick membrane of silicon nitride has been made to vibrate, producing electric currents.

Q.17) **The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.**

The human mind is wired to see patterns. Not only does the brain process information as it comes in, it also stores insights from all our past experiences. Every interaction, happy or sad, is catalogued in our memory. Intuition draws from that deep memory well to inform our decisions going forward. In other words, intuitive decisions are based on data, and not contrary to data as many would like to assume. When we subconsciously spot patterns, the body starts firing neurochemicals in both the brain and gut. These “somatic markers” are what give us that instant sense that something is right ... or that it’s off. Not only are these automatic processes faster than rational thought, but our intuition draws from decades of diverse qualitative experience (sights, sounds, interactions, etc.) – a wholly human feature that big data alone could never accomplish.

- a) Intuitions are automatic processes and are therefore faster than rational thought, and so decisions based on them are better.
- b) Intuition draws from deep memory, and may not be related to data, but to decades of diverse qualitative experience.
- c) Intuitions are neuro-chemical firings based on pattern recognition and draw upon a rich and vast database of experiences.
- d) Intuition is infinitely richer than big data which is based on rational thought and accomplishes more than what big data can.

Q.18) **Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:**

1. A typical example is Wikipedia, where the overwhelming majority of contributors are male and so the available content is skewed to reflect their interests.

2. Without diversity of thought and representation, society is left with a distorted picture of future options, which are likely to result in augmenting existing inequalities.
3. Gross gender inequality in the technology sector is problematic, not only for the industry-wide marginalisation of women, but because technology designs embody the values of their makers.
4. While redressing unequal representation in the workplace is a step in the right direction, broader social change is needed to address the structural inequalities embedded within the current organisation of work and employment.
5. If technology merely reflects the perspectives of the male stereotype, then new technologies are unlikely to accommodate the diverse social contexts within which they operate.

[TITA]

Q.19) The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced, would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. It is regimes of truth that make certain relationships speakable – relationships, like subjectivities, are constituted through discursive formations, which sustain regimes of truth.
2. Relationships are nothing without the communication that brings them into being; interpersonal communication is connected to knowledge shared by interlocutors, and scholars should attend to relational histories in their analyses.
3. A Foucauldian approach to relationships goes beyond these conceptions of discourse and history to macro level regimes of truth as constituting relationships.
4. Reconsidering micropractices within relationships that are constituted within and simultaneously contributors to regimes of truth acknowledges the central position of power/knowledge in the constitution of what has come to be considered true and real.

[TITA]

Q.20) Five jumbled up sentences, related to a topic, are given below. Four of them can be put together to form a coherent paragraph. Identify the odd one out and key in the number of the sentence as your answer:

1. They often include a foundation course on navigating capitalism with Chinese characteristics and have replaced typical cases from US corporates with a focus on how Western theories apply to China's buzzing local firms.
2. The best Chinese business schools look like their Western rivals but are now growing distinct in terms of what they teach and the career boost they offer.
3. Western schools have enhanced their offerings with double degrees, popular with domestic and overseas students alike—and boosted the prestige of their Chinese partners.

4. For students, a big draw is the chance to rub shoulders with captains of China's private sector.
5. Their business courses now largely cater to the growing demand from China Inc which has become more global, richer and ready to recruit from this sinocentric student body.

[TITA]

Q.21) The four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. Businesses find automation, such as robotic employees, a big asset in terms of productivity and efficiency.
2. But in recent years, robotics has had increasing impacts on unemployment, not just of manual labour, as computers are rapidly handling some white-collar and service-sector work.
3. For years politicians have promised workers that they would bring back their jobs by clamping down on trade, offshoring and immigration.
4. Economists, based on their research, say that the bigger threat to jobs now is not globalisation but automation.

[TITA]

Q.22) The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

People view idleness as a sin and industriousness as a virtue, and in the process have developed an unsatisfactory relationship with their jobs. Work has become a way for them to keep busy, even though many find their work meaningless. In their need for activity people undertake what was once considered work (fishing, gardening) as hobbies. The opposing view is that hard work has made us prosperous and improved our levels of health and education. It has also brought innovation and labour and time-saving devices, which have lessened life's drudgery.

- a) While the idealisation of hard work has propelled people into meaningless jobs and endless activity, it has also led to tremendous social benefits from prosperity and innovation.
- b) Despite some detractors, hard work is essential in today's world to enable economic progress, for education and health and to propel innovations that make life easier.
- c) Hard work has overtaken all aspects of our lives and has enabled economic prosperity, but it is important that people reserve their leisure time for some idleness.
- d) Some believe that hard work has been glorified to the extent that it has become meaningless, and led to greater idleness, but it has also had enormous positive impacts on everyday life.

Q.23) The four sentences (labelled 1, 2, 3 and 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer:

1. Restitution of artefacts to original cultures could faces legal obstacles, as many Western museums are legally prohibited from disposing off their collections.
2. This is in response to countries like Nigeria, which are pressurising European museums to return their precious artefacts looted by colonisers in the past.
3. Museums in Europe today are struggling to come to terms with their colonial legacy, some taking steps to return artefacts but not wanting to lose their prized collections.
4. Legal hurdles notwithstanding, politicians and institutions in France and Germany would now like to defuse the colonial time bombs, and are now backing the return of part of their holdings.

[TITA]

Q.24) The passage given below is followed by four alternate summaries. Choose the option that best captures the essence of the passage.

Brazil's growth rate has been low, yet most Brazilians say their financial situation has improved, and they expect it to get even better. This is because most incomes are rising fast, with higher minimum wages and very low unemployment. The result is falling inequality and a growing middle class — the result of economic stabilization, improved social security and universal primary education. But despite recent improvements the Brazilian economy is still painfully unequal, with poor Brazilians paying the biggest share of their income in taxes and getting the least back in government services.

- a) Most Brazilians feel they have benefitted from recent economic events, but the poor continue to be dealt unfairly by the state.
- b) Economic reforms have benefitted many Brazilians, but they are unaware of the impending problems from rising inequalities in their society.
- c) With rising incomes and falling unemployment, most Brazilians are being misled into thinking that their economy is doing well.
- d) Good economic indicators have masked the unfair taxation of the poor that is likely to destabilise the Brazilian economy in the next few years.

DATA INTERPRETATION AND LOGICAL REASONING

Set 1

10 players – P1, P2, ... , P10 - competed in an international javelin throw event. The number (after P) of a player reflects his rank at the beginning of the event, with rank 1 going to the topmost player. There were two phases in the event with the first phase consisting of rounds 1, 2, and 3, and the second phase consisting of rounds 4, 5, and 6. A throw is measured in terms of the distance it covers (in meters, up to one decimal point accuracy), only if the throw is a 'valid' one. For an invalid throw, the distance is taken as zero. A player's score at the end of a round is the maximum distance of all his throws up to that round. Players are re-ranked after every round based on their current scores. In case of a tie in scores, the player with a prevailing higher rank retains the higher rank. This ranking determines the order in which the players go for their throws in the next round.

In each of the rounds in the first phase, the players throw in increasing order of their latest rank, i.e. the player ranked 1 at that point throws first, followed by the player ranked 2 at that point and so on. The top six players at the end of the first phase qualify for the second phase. In each of the rounds in the second phase, the players throw in decreasing order of their latest rank i.e. the player ranked 6 at that point throws first, followed by the player ranked 5 at that point and so on. The players ranked 1, 2, and 3 at the end of the sixth round receive gold, silver, and bronze medals respectively.

All the valid throws of the event were of distinct distances (as per stated measurement accuracy). The tables below show distances (in meters) covered by all valid throws in the first and the third round in the event.

Distances covered by all the valid throws in the first round

Player	Distance (in m)
P1	82.9
P3	81.5
P5	86.4
P6	82.5
P7	87.2
P9	84.1

Distances covered by all the valid throws in the third round

Player	Distance (in m)
P1	88.6
P3	79.0
P9	81.4

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The following facts are also known.

- i. Among the throws in the second round, only the last two were valid. Both the throws enabled these players to qualify for the second phase, with one of them qualifying with the least score. None of these players won any medal.
- ii. If a player throws first in a round AND he was also the last (among the players in the current round) to throw in the previous round, then the player is said to get a double. Two players got a double.
- iii. In each round of the second phase, exactly one player improved his score. Each of these improvements was by the same amount.
- iv. The gold and bronze medalists improved their scores in the fifth and the sixth rounds respectively. One medal winner improved his score in the fourth round.
- v. The difference between the final scores of the gold medalist and the silver medalist, as well as the difference between the final scores of the silver medalist and the bronze medalist was 1.0 m.

Q.1) Which two players got the double?

- a) P2, P4
- b) P1, P8
- c) P1, P10
- d) P8, P10

Q.2) Who won the silver medal?

- a) P1
- b) P5
- c) P9
- d) P7

Q.3) Who threw the last javelin in the event?

- a) P1
- b) P7
- c) P9
- d) P10

Q.4) What was the final score (in m) of the silver-medalist?

- a) 89.6
- b) 88.4
- c) 87.2
- d) 88.6

The logo for CATKing features a stylized 'C' composed of three overlapping curved lines in shades of purple and yellow. To the right of the 'C', the word 'CATKing' is written in a bold, sans-serif font. The 'C' and 'A' are in a light purple color, while 'TKing' is in a darker purple. A small yellow dot is positioned above the 'A'.

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Q.5) Which of the following can be the final score (in m) of P8?

- a) 82.7
- b) 0
- c) 81.9
- d) 85.1

Q.6) By how much did the gold medalist improve his score (in m) in the second phase?

- a) 1.0
- b) 2.4
- c) 2.0
- d) 1.2

Set 2

Three reviewers Amal, Bimal, and Komal are tasked with selecting questions from a pool of 13 questions (Q01 to Q13). Questions can be created by external “subject matter experts” (SMEs) or by one of the three reviewers. Each of the reviewers either approves or disapproves a question that is shown to them. Their decisions lead to eventual acceptance or rejection of the question in the manner described below.

If a question is created by an SME, it is reviewed first by Amal, and then by Bimal. If both of them approve the question, then the question is accepted and is not reviewed by Komal. If both disapprove the question, it is rejected and is not reviewed by Komal. If one of them approves the question and the other disapproves it, then the question is reviewed by Komal. Then the question is accepted only if she approves it.

A question created by one of the reviewers is decided upon by the other two. If a question is created by Amal, then it is first reviewed by Bimal. If Bimal approves the question, then it is accepted. Otherwise, it is reviewed by Komal. The question is then accepted only if Komal approves it. A similar process is followed for questions created by Bimal, whose questions are first reviewed by Komal, and then by Amal only if Komal disapproves it. Questions created by Komal are first reviewed by Amal, and then, if required, by Bimal.

The following facts are known about the review process after its completion.

1. Q02, Q06, Q09, Q11, and Q12 were rejected and the other questions were accepted.
2. Amal reviewed only Q02, Q03, Q04, Q06, Q08, Q10, Q11, and Q13.
3. Bimal reviewed only Q02, Q04, Q06 through Q09, Q12, and Q13.
4. Komal reviewed only Q01 through Q05, Q07, Q08, Q09, Q11, and Q12.

Q.7) How many questions were DEFINITELY created by Amal? [TITA]

Q.8) How many questions were DEFINITELY created by Komal? [TITA]

Q.9) How many questions were DEFINITELY created by the SMEs? [TITA]

Q.10) How many questions were DEFINITELY disapproved by Bimal?

- a) 7
- b) 3
- c) 5
- d) 4

Q.11) The approval ratio of a reviewer is the ratio of the number of questions (s)he approved to the number of questions (s)he reviewed. Which option best describes Amal's approval ratio?

- a) 0.25
- b) either 0.25 or 0.75
- c) lies between 0.25 and 0.75
- d) lies between 0.25 and 0.50

Q.12) How many questions created by Amal or Bimal were disapproved by at least one of the other reviewers?

- a) 4
- b) 5
- c) 2
- d) 7

Set 3

Each of the bottles mentioned in this question contains 50 ml of liquid. The liquid in any bottle can be 100% pure content (P) or can have a certain amount of impurity (I). Visually it is not possible to distinguish between P and I. There is a testing device which detects impurity, as long as the percentage of impurity in the content tested is 10% or more.

For example, suppose bottle 1 contains only P, and bottle 2 contains 80% P and 20% I. If content from bottle 1 is tested, it will be found out that it contains only P. If content of bottle 2 is tested, the test will reveal that it contains some amount of I. If 10 ml of content from bottle 1 is mixed with 20 ml content from bottle 2, the test will show that the mixture has impurity, and hence we can conclude that at least one of the two bottles has I. However, if 10 ml of content

from bottle 1 is mixed with 5 ml of content from bottle 2. the test will not detect any impurity in the resultant mixture.

Q.13) 5 ml of content from bottle A is mixed with 5 ml of content from bottle B. The resultant mixture, when tested, detects the presence of I. If it is known that bottle A contains only P, what BEST can be concluded about the volume of I in bottle B?

- a) Less than 1 ml
- b) 10 ml or more
- c) 1 ml
- d) 10 ml

Q.14) There are four bottles. Each bottle is known to contain only P or only I. They will be considered to be “collectively ready for despatch” if all of them contain only P. In minimum how many tests, is it possible to ascertain whether these four bottles are “collectively ready for despatch”? [TITA]

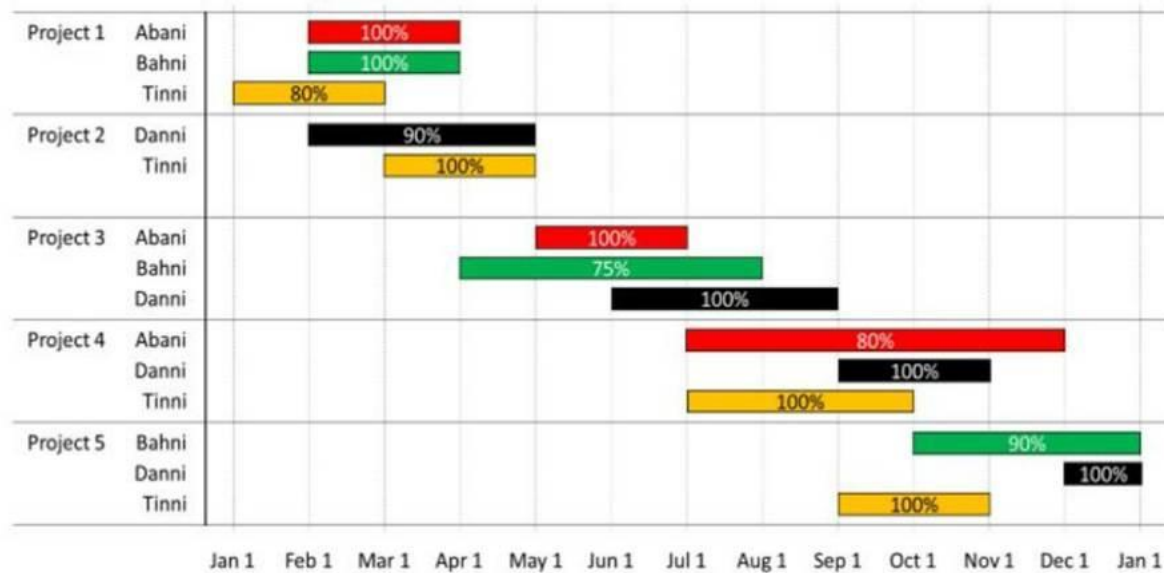
Q.15) There are four bottles. It is known that three of these bottles contain only P, while the remaining one contains 80% P and 20% I. What is the minimum number of tests required to definitely identify the bottle containing some amount of I? [TITA]

Q.16) There are four bottles. It is known that either one or two of these bottles contain(s) only P, while the remaining ones contain 85% P and 15% I. What is the minimum number of tests required to ascertain the exact number of bottles containing only P?

- a) 1
- b) 2
- c) 3
- d) 4

Set 4

The figure above shows the schedule of four employees – Abani, Bahni, Danni and Tinni – whom Dhoni supervised in 2020. Altogether there were five projects which started and concluded in 2020 in which they were involved. For each of these projects and for each employee, the starting day was at the beginning of a month and the concluding day was the end of a month, and these are indicated by the left and right end points of the corresponding horizontal bars. The number within each bar indicates the percentage of assigned work completed by the employee for that project, as assessed by Dhoni.



For each employee, his/her total project-month (in 2020) is the sum of the number of months (s)he worked across the five project, while his/her annual completion index is the weightage average of the completion percentage assigned from the different projects, with the weights being the corresponding number of months (s)he worked in these projects. For each project, the total employee-month is the sum of the number of months four employees worked in this project, while its completion index is the weightage average of the completion percentage assigned for the employees who worked in this project, with the weights being the corresponding number of months they worked in this project.

Q.17) Which of the following statements is/are true?

I: The total project-month was the same for the four employees.

II: The total employee-month was the same for the five projects.

- a) Neither I nor II
- b) Only II
- c) Only I
- d) Both I and II

Q.18) Which employees did not work in multiple projects for any of the months in 2020?

- a) Only Tinni
- b) All four of them
- c) Only Abani and Bahni
- d) Only Abani, Bahni and Danni

Q.19) The project duration, measured in terms of the number of months, is the time during which at least one employee worked in the project. Which of the following pairs of the projects had the same duration?

- a) Project 1, Project 5
- b) Project 3, Project 4
- c) Project 3, Project 5
- d) Project 4, Project 5

Q.20) The list of employees in decreasing order of annual completion index is:

- a) Tinni, Danni, Abani, Bahni
- b) Bahni, Abani, Tinni, Danni
- c) Danni, Tinni, Bahni, Abani
- d) Danni, Tinni, Abani, Bahni

QUANTITATIVE ABILITY

Q.1) If n is a positive integer such that $(\sqrt[7]{10})(\sqrt[7]{10})^2 \dots (\sqrt[7]{10})^n > 999$, then the smallest value of n is
[TITA]

Q.2) For a real number 'a', if $(\log_{15}a + \log_{32}a)/(\log_{15}a)(\log_{32}a) = 4$ then a must lie in the range

- a) $2 < a < 3$
- b) $3 < a < 4$
- c) $4 < a < 5$
- d) $a > 5$

Q.3) Consider a sequence of real numbers x_1, x_2, x_3, \dots such that $x_{n+1} = x_n + n - 1$ for all $n \geq 1$. If $x_1 = -1$ then x_{100} is equal to

- a) 4950
- b) 4849
- c) 4850
- d) 4949

Q.4) Mira and Amal walk along a circular track, starting from the same point at the same time. If they walk in the same direction, then in 45 minutes, Amal completes exactly 3 more rounds

than Mira. If they walk in opposite directions, then they meet for the first time exactly after 3 minutes. The number of rounds Mira walks in one hour is
[TITA]

Q.5) In a tournament, a team has played 40 matches so far and won 30% of them. If they win 60% of the remaining matches, their overall win percentage will be 50%. Suppose they win 90% of the remaining matches, then the total number of matches won by the team in the tournament will be

- a) 86
- b) 80
- c) 78
- d) 84

Q.6) If $3x + 2|y| + y = 7$ and $x + |x| + 3y = 1$, then $x + 2y$ is

- a) 0
- b) $8/3$
- c) $-4/3$
- d) 1

Q.7) One part of a hostel's monthly expenses is fixed, and the other part is proportional to the number of its boarders. The hostel collects ₹ 1600 per month from each boarder. When the number of boarders is 50, the profit of the hostel is ₹ 200 per boarder, and when the number of boarders is 75, the profit of the hostel is ₹ 250 per boarder. When the number of boarders is 80, the total profit of the hostel, in INR, will be

- a) 20200
- b) 20000
- c) 20800
- d) 20500

Q.8) A shop owner bought a total of 64 shirts from a wholesale market that came in two sizes, small and large. The price of a small shirt was INR 50 less than that of a large shirt. She paid a total of INR 5000 for the large shirts, and a total of INR 1800 for the small shirts. Then, the price of a large shirt and a small shirt together, in INR, is

- a) 200
- b) 225
- c) 175
- d) 150

Q.9) The arithmetic mean of scores of 25 students in an examination is 50. Five of these students top the examination with the same score. If the scores of the other students are distinct integers with the lowest being 30, then the maximum possible score of the toppers is [TITA]

Q.10) Bank A offers 6% interest rate per annum compounded half yearly. Bank B and Bank C offer simple interest but the annual interest rate offered by Bank C is twice that of Bank B. Raju invests a certain amount in Bank B for a certain period and Rupa invests ₹ 10,000 in Bank C for twice that period. The interest that would accrue to Raju during that period is equal to the interest that would have accrued had he invested the same amount in Bank A for one year. The interest accrued, in INR, to Rupa is

- a) 2436
- b) 2346
- c) 1436
- d) 3436

Q.11) If $f(x) = x^2 - 7x$ and $g(x) = x + 3$, then the minimum value of $f(g(x)) - 3x$ is

- a) -16
- b) -12
- c) -20
- d) -15

Q.12) If a certain weight of an alloy of silver and copper is mixed with 3 kg of pure silver, the resulting alloy will have 90% silver by weight. If the same weight of the initial alloy is mixed with 2 kg of another alloy which has 90% silver by weight, the resulting alloy will have 84% silver by weight. Then, the weight of the initial alloy, in kg, is

- a) 3.5
- b) 4
- c) 3
- d) 2.5

Q.13) One day, Rahul started a work at 9 AM and Gautam joined him two hours later. They then worked together and completed the work at 5 PM the same day. If both had started at 9 AM and worked together, the work would have been completed 30 minutes earlier. Working alone, the time Rahul would have taken, in hours, to complete the work is

- a) 10
- b) 12
- c) 11.5

d) 12.5

Q.14) A tea shop offers tea in cups of three different sizes. The product of the prices, in INR, of three different sizes is equal to 800. The prices of the smallest size and the medium size are in the ratio 2 : 5. If the shop owner decides to increase the prices of the smallest and the medium ones by INR 6 keeping the price of the largest size unchanged, the product then changes to 3200. The sum of the original prices of three different sizes, in INR, is
[TITA]

Q.15) A four-digit number is formed by using only the digits 1, 2 and 3 such that both 2 and 3 appear at least once. The number of all such four-digit numbers is
[TITA]

Q.16) In a triangle ABC, $\angle BCA = 50^\circ$. D and E are points on AB and AC, respectively, such that AD = DE. If F is a point on BC such that BD = DF, then $\angle FDE$, in degrees, is equal to

- a) 72
- b) 80
- c) 100
- d) 96

Q.17) Let ABCD be a parallelogram. The lengths of the side AD and the diagonal AC are 10 cm and 20 cm, respectively. If the angle $\angle ADC$ is equal to 30° then the area of the parallelogram, in sq. cm, is

- a) $\frac{25(\sqrt{5} + \sqrt{15})}{2}$
- b) $25(\sqrt{3} + \sqrt{15})$
- c) $25(\sqrt{5} + \sqrt{15})$
- d) $\frac{25(\sqrt{3} + \sqrt{15})}{2}$

Q.18) The number of distinct pairs of integers (m,n) satisfying $|1+mn| < |m+n| < 5$ is
[TITA]

Q.19) A park is shaped like a rhombus and has area 96 sq m. If 40 m of fencing is needed to enclose the park, the cost, in INR, of laying electric wires along its two diagonals, at the rate of ₹125 per m, is
[TITA]

Q.20) Anil can paint a house in 12 days while Barun can paint it in 16 days. Anil, Barun, and Chandu undertake to paint the house for ₹ 24000 and the three of them together complete the painting in 6 days. If Chandu is paid in proportion to the work done by him, then the amount in INR received by him is

[TITA]

Q.21) The cost of fencing a rectangular plot is ₹ 200 per ft along one side, and ₹ 100 per ft along the three other sides. If the area of the rectangular plot is 60000 sq. ft, then the lowest possible cost of fencing all four sides, in INR, is

- a) 160000
- b) 100000
- c) 90000
- d) 120000

Q.22) The total of male and female populations in a city increased by 25% from 1970 to 1980. During the same period, the male population increased by 40% while the female population increased by 20%. From 1980 to 1990, the female population increased by 25%. In 1990, if the female population is twice the male population, then the percentage increase in the total of male and female populations in the city from 1970 to 1990 is

- a) 68.75
- b) 68.50
- c) 69.25
- d) 68.25

SOLUTIONS

VERBAL ABILITY AND READING COMPREHENSION

Q.1) Answer – A

Let us refer to the passage

“Unlike Mr. Chomsky, Mr. Pinker firmly places the wiring of the brain for language within the framework of Darwinian natural selection and evolution. He effectively disposes of all claims that intelligent nonhuman primates like chimps have any abilities to learn and use language. It is not that chimps lack the vocal apparatus to speak; it is just that their brains are unable to produce or use grammar. On the other hand, the “language instinct,” when it first appeared

among our most distant hominid ancestors, must have given them a selective reproductive advantage over their competitors”

In the beginning of the above-mentioned excerpt we can see the disagreement between Chomsky and Pinker which is about the wiring of the brain of language being within the framework of Darwinian natural selection and evolution. This is perfectly captured in Option A. Hence, it is the correct answer.

Q.2) Answer – B

Let us refer to the passage

“ This proposition will undoubtedly raise the hackles of some behavioral psychologists and anthropologists, for it apparently contradicts the liberal idea that human behavior may be changed for the better by improvements in culture and environment, and **it might seem to invite the twin bugaboos of biological determinism and racism. Yet Mr. Pinker stresses one point that should allay such fears.** Even though there are 4,000 to 6,000 languages today, they are all sufficiently alike to be considered one language by an extraterrestrial observer. **In other words, most of the diversity of the world’s cultures, so beloved to anthropologists, is superficial and minor compared to the similarities.** Racial differences are literally only “skin deep.” **The fundamental unity of humanity is the theme of Mr. Chomsky’s universal grammar, and of this exciting book.**”

In the above-mentioned excerpt the author stresses on the point that the fundamental unity of humanity is the theme of the book by Mr. Pinker. He removes all doubts and fears of his book being borderline racist by bringing out the point that differences in world’s cultures are small compared to their similarities. This is perfectly captured in Option B. Hence, it is the correct answer.

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Q.3) Answer - B

Let us refer to the passage

“Unlike Mr. Chomsky, Mr. Pinker firmly places the wiring of the brain for language within the framework of Darwinian natural selection and evolution. **He effectively disposes of all claims that intelligent nonhuman primates like chimps have any abilities to learn and use language.** It is not that chimps lack the vocal apparatus to speak; it is just that their brains are unable to produce or use grammar.”

The above-mentioned excerpt proves that all intelligent primates are not gifted with the language instinct. Hence, Option B is the correct answer.

Q.4) Answer – A

Option B – “In “The Language Instinct” he has gathered persuasive data from such diverse fields as cognitive neuroscience, developmental psychology and speech therapy to make his points,

and when he disagrees with Mr. Chomsky he tells you so. . . .”. From this excerpt we can understand that this statement is true, hence this option is incorrect.

Option C - Now, in a brilliant, witty and altogether satisfying book, Mr. Chomsky's colleague Steven Pinker . . . **has brought Mr. Chomsky's findings to everyman**. From this excerpt we can understand that this statement is true, hence this option is incorrect.

Option D – “Since this message was couched in terms of Chomskyan theoretical linguistics, **in discourse so opaque that it was nearly incomprehensible even to some scholars, many people did not hear it**. Now, in a brilliant, witty and altogether satisfying book, Mr. Chomsky's colleague Steven Pinker . . . **has brought Mr. Chomsky's findings to everyman**”. From this excerpt we can understand that this statement is true, hence this option is incorrect.

From option elimination we can understand that Option B,C,D are incorrect. Hence, Option A is the correct answer.

Q.5) Answer – C

Let us refer to the passage

“Now, a new wave of extremely odd robots is making at least part of the Nano-Sentinels story come true. Using exotic fabrication materials like squishy hydrogels and elastic polymers, researchers are making autonomous devices that are often tiny and that could turn out to be more powerful than an army of Terminators. Some are 1-centimetre blobs that can skate over water. Others are flat sheets that can roll themselves into tubes, or matchstick-sized plastic coils that act as powerful muscles. **No, they won't be invading our bodies and turning us into Sentinels – which I personally find a little disappointing – but some of them could one day swim through our bloodstream to heal us.**”

When we falsify option C it essentially means that the Nano-Sentinel-like robots are **not** likely to be used to inject people to convert them into robots, cell by cell. This is exactly same as the above-mentioned excerpt. Hence, Option C is the correct answer.

Q.6) Answer – D

Let us refer to the passage

“Back in the early 2000s, an awesome thing happened in the New X-Men comics. Our mutant heroes had been battling giant robots called Sentinels for years, but suddenly these mechanical overlords spawned a new threat: Nano-Sentinels! Not content to rule Earth with their metal fists, these tiny robots invaded our bodies at the microscopic level. Infected humans were slowly converted into machines, cell by cell.”

The usual enemies for the X-men were the sentinels but they had a new enemy to worry about i.e the Nano-sentinels.

This is best captured in Option D, hence it is the correct answer.

Q.7) Answer – C

Let us refer to the passage

“Our mutant heroes had been battling giant robots called Sentinels for years, but suddenly these mechanical overlords spawned a new threat: **Nano-Sentinels! Not content to rule Earth with their metal fists, these tiny robots invaded our bodies at the microscopic level.**”

“Using exotic fabrication materials like squishy hydrogels and elastic polymers, researchers are making autonomous devices that are often tiny and that could turn out to be more powerful than an army of Terminators.”

“Unlike a traditional robot, which is made of mechanical parts, these new kinds of robots are made from molecular parts”

“Robots that are wholly or partly made of gloop aren’t the future that I was promised in science fiction. But it’s definitely the future I want.”

The above-mentioned excerpts chart out the narrative of the passage, it starts with an example from the X-men about tiny robots which affect humans genetically and then moves on to talk about research about robots which are made from molecular parts and can help humans with internal functions in the body.

This shows us the evolution of tiny robots from fiction to research which is perfectly captured in Option C, hence it is the correct answer.

Q.8) Answer – B

Let us refer to the last paragraph

“But it’s definitely the future I want. I’m especially keen on the nanometre-scale **“soft robots” that could one day swim through our bodies.** Metin Sitti, a director at the Max Planck Institute for Intelligent Systems in Germany, worked with colleagues to prototype these tiny, synthetic beasts using various stretchy materials, such as simple rubber, and seeding them with magnetic microparticles. They are assembled into a finished shape by applying magnetic fields. The results look like flowers or geometric shapes made from Tinkertoy ball and stick modelling kits. **They’re guided through tubes of fluid using magnets, and can even stop and cling to the sides of a tube.**”

The final paragraph talks about robots which can swim through human bodies and its characteristics. Among the options given the most logical one which links to the human body aspect is about searching and destroying diseases in the body which is best expressed in Option B. Hence, it is the correct answer.

Q.9) Answer – A

Option B – “At the same time, once coined, powerful new ideas attracted to themselves a whole host of seemingly unrelated issues, practices, and experiences, creating a peculiar network of preoccupations that as a group had not existed before.”

From the above-mentioned excerpt we can infer the option from the passage. Hence, it is incorrect.

Option C – “The vocabulary concerning the soul and the mind increased enormously in the course of the nineteenth century. The enrichments of literary and intellectual language led to an altered understanding of the meanings that underlie time-honored expressions and traditional catchwords.”

From the above-mentioned excerpt we can infer the option from the passage. Hence, it is incorrect.

Option D – “the physiologist and the physician who puzzled over sleep, dreams, sleepwalking, anesthesia, the influence of the mind on the body in health and disease; the neurologist concerned with the functions of the brain and the physiological basis of mental life; the philosopher interested in the will, the emotions, consciousness, knowledge, imagination and the creative genius; and, last but not least, the psychologist.”

From the above-mentioned excerpt we can infer the option from the passage. Hence, it is incorrect.

Hence, Option A is the correct answer.

Q.10) Answer – B

Let us refer to the passage

“Yet between 1700 and 1900, this notion developed as a genuinely original thought. The “unconscious” burst the shell of conventional language”

“The vocabulary concerning the soul and the mind increased enormously in the course of the nineteenth century”

“The drawn-out attempt to approach and define the unconscious brought together the spiritualist and the psychical researcher of borderline phenomena”

“Significantly, most if not all of these practices (for example, hypnotism in surgery or psychological magnetism) originated in the waning years of the eighteenth century and during the early decades of the nineteenth century”

From the above mentioned excerpts we can understand that the author is discussing how over a period of almost 200 years, the term unconscious brought within itself a wide range of related, interconnected things, ideas and concepts.

The author talks about the evolution of the term unconscious and its various things that come under its umbrella.

This is best captured in Option B. Hence, it is the correct answer.

Q.11) Answer – D

Let us refer to the passage

“The “unconscious” burst the shell of **conventional language**, coined as it had been to embody

the fleeting ideas and the shifting conceptions of several generations until”

The first paragraph talks about language hence the first argument is about language.

“The drawn-out attempt to approach and define the unconscious brought together the spiritualist and the psychical researcher of borderline phenomena (such as apparitions, spectral illusions, haunted houses, mediums, trance, automatic writing);”

The first paragraph talks about the unconscious hence the first argument is about unconscious.

Once we identify these 2 arguments it’s easy to get to Option D as the answer.

Q.12) Answer – B

Let us refer to the passage

“The enrichments of literary and intellectual language led to an altered understanding of the meanings that underlie time-honored expressions and traditional catchwords. At the same time, once coined, powerful new ideas attracted to themselves a whole host of seemingly unrelated issues, practices, and experiences, creating a peculiar network of preoccupations that as a group had not existed before.”

The sentence has three important words: enrichments of literary language.... led to an....altered understanding of ...the meanings that underlie traditional catchwords.

This is best captured in Option B, hence it is the correct answer.

Q.13) Answer – B

Let us refer to the passage

“The researchers found that as they increased the clock’s accuracy, the heat produced in the system grew, increasing the entropy of its surroundings by jostling nearby particles . . . **“If a clock is more accurate, you are paying for it somehow,” says Ares. In this case, you pay for it by pouring more ordered energy into the clock, which is then converted into entropy.** “By measuring time, we are increasing the entropy of the universe,” says Ares. The more entropy there is in the universe, the closer it may be to its eventual demise. “Maybe we should stop measuring time,” says Ares. The scale of the additional entropy is so small, though, that there is no need to worry about its effects, she says.”

The option says

Researchers found that the **heat produced in a system is the price paid** for increased accuracy of measurement.

The option is extreme in making the statement a generic one while the passage talks about us paying somehow to make the clock accurate. Also relating entropy to heat in absolute terms is also incorrect. Hence, Option B is the correct answer.

Q.14) Answer – A

Let us refer to the passage

“The relationship that the researchers found is a limit on the accuracy of a clock, so it **doesn’t mean that a clock that creates the most possible entropy would be maximally accurate – hence a large, inefficient grandfather clock isn’t more precise than an atomic clock.** “It’s a bit like fuel use in a car. Just because I’m using more fuel doesn’t mean that I’m going faster or further,” says Huber.”

This was a simple question

It essentially means that for a watch to be more accurate it will generate certain entropy but that doesn’t essentially mean that the watch which generates maximum entropy will be the most accurate. This is perfectly explained in Option A, hence it is the correct answer.

Q.15) Answer – C

Let us refer to the passage

“**Keeping time** accurately comes with a price. The maximum accuracy of a clock is directly related to how much disorder, or entropy, it creates every time it ticks.”

“The researchers found that as they increased the **clock’s accuracy**, the heat produced in the system grew, increasing the entropy of its surroundings by jostling nearby particles . . . “If a clock is more accurate, you are paying for it somehow,” says Ares.”

“When the researchers compared their results with theoretical models developed for clocks that rely on quantum effects, they were surprised to find that the relationship between accuracy and **entropy** seemed to be the same for both”

Based on the above-mentioned excerpts we can infer Option C to be correct.

Q.16) Answer – B

This question essentially means which option can be inferred from the passage

“Understanding this relationship could be helpful for designing clocks in the future, particularly those used in quantum computers and other devices where both accuracy and temperature are crucial, says Ares.”

Quantum computer as a device needs high accuracy and needs to maintain temperatures, but to have high accuracy it will produce high entropy thereby leading to higher temperatures.

This is perfectly captured in Option B, hence it is the correct answer.

Q.17) Answer – C

Option A – Decisions based on intuition being better than rational thought is not mentioned in the passage. Hence, this option is incorrect.

Option B – “may not be related to data” as mentioned in the option is exactly opposite to what is mentioned in the passage. Hence, this option is incorrect.

Option C – This perfectly captures the essence of intuition and how it is based on data. Hence, this option is correct.

Option D – The aspect of intuition accomplishing more than big data is not mentioned in the passage. Hence, this option is incorrect.

Q.18) Answer – 4

Statement 2 introduces us to the topic of how Without diversity of thought and representation, society is left with a distorted picture of future options, which are likely to result in augmenting existing inequalities. Statement 3 gives us a particular direction of how without diversity of thought society is distorted, in gender inequality in technology sector is problematic. Statement 5 talks about how technology merely reflects the perspectives of the male stereotype which directly connects to statement 3. Statement 1 continues this topic by introducing an example of the same in Wikipedia. Hence, the order is 2351. Statement 4 talks about gender inequality in the workplace and how to redress It which is not in line with the other 4 statements. Hence it is the correct answer.

Q.19) Answer – 2314

Statement 2 introduces us to the topic that relationships are nothing without the communication that originates a relationship. Statement 3 continues on the point of how scholars should attend to relational histories in their analyses and talks about the Foucauldian approach to relationships which goes beyond these conceptions of discourse and history. The aspect of regimes of truth mentioned in statement 3 is continued in statement 1. Statement 4 finally talks about what has been come to be considered true and real. Hence, the final order is 2-3-1-4.

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Q.20) Answer – 3

Statement 2 introduces us to the topic of how Chinese business schools are now growing distinct in terms of what they teach and the career boost they offer. Statement 1 talks about the Chinese curriculum and is China Centric and the main reason being the growing demand from China Inc which has become more global, richer and ready to recruit from this sinocentric student body as mentioned in statement 5. Statement 4 talks about how the things mentioned in the previous 3 statements will be beneficial to students in Chinese business schools.

Statement 3 talks about Western schools which is not in line with the other 4 statements.

Hence it is the odd one out.

Q.21) Answer – 3412

Statement 3 introduces us to the topic of politicians promising people to address the problem of unemployment by addressing vehicles of globalization. Statement 4 continues this by stating that a bigger threat to unemployment isn't globalization but automation. Statement 1 expands

on the point as to why automation is a bigger threat than globalization. Finally, Statement 2 expands on the point of robotics mentioned in statement 1. Hence, the final order is 3-4-1-2.

Q.22) Answer – A

Let us refer to the passage

“People view idleness as a sin and **industriousness as a virtue**, and in the process have developed an **unsatisfactory relationship with their jobs**. Work has become a way for them to keep busy, even though **many find their work meaningless**. In their need for activity people undertake what was once considered work (fishing, gardening) as hobbies. The opposing view is that hard **work has made us prosperous and improved our levels of health and education**. It has also **brought innovation and labour and time-saving devices**, which have lessened life’s drudgery.”

The words highlighted in the above-mentioned excerpt bring out the essence of the passage which talks about work being idealized is making people work meaningless jobs to keep them busy and in the pursuit of finding meaning at work people are undertaking other activities which are beneficial socially and in terms of innovation. This is perfectly captured in Option A; hence it is the correct answer.

Q.23) Answer – 3214

Statement 3 introduces us to the topic of Museums in Europe are struggling to come to terms with their colonial legacy, they have artifacts they took during colonization and are struggling to return them as they don’t want to lose their prized possessions. Statement 2 talks about why these museums are being asked to return artifacts. Statement 1 talks about the legal problems museums could face while returning the artifacts and finally statement 4 talks about politicians and institutions wanting to defuse the colonial time bomb irrespective of the legal hurdles. Hence, the final order is 3-2-1-4.

Q.24) Answer – A

Let us refer to the passage

“Brazil’s growth rate has been low, yet most **Brazilians say their financial situation has improved, and they expect it to get even better**. This is because most incomes are rising fast, with **higher minimum wages and very low unemployment**. The result is falling inequality and a growing middle class — the result of economic stabilization, improved social security and universal primary education. But despite recent **improvements the Brazilian economy is still painfully unequal, with poor Brazilians paying the biggest share of their income in taxes and getting the least back in government services.**”

The first part talks about Brazil's economic growth, falling inequality, and economic stabilization. The second part talks about poor Brazilians who have to pay a good part of their income as taxes, and getting the least in return.

This is perfectly captured in Option A; hence it is the correct answer.

DATA INTERPRETATION AND LOGICAL REASONING

Q.1) Answer- D

From the question we can make the following table. Also from condition one we know that only the last 2 shots were valid in the second round which means that all others retain their previous throw as the best throw. We also know that P8 and P10 qualify to the next phase and one of them does so with the least score.

	1	2	3	4	5	6
P1	82.9	P7 87.2				
P2	0	P5 86.4				
P3	81.5	P9 84.1				
P4	0	P1 82.9				
P5	86.4	P6 82.5				
P6	82.5	P3 81.5				
P7	87.2	P2 0				
P8	0	P4 0				
P9	84.1	P8				
P10	0	P10				

Now as per condition 2, two players got a double and as per condition 3 in the next phase only 1 player improved in each round by the same figure so this condition essentially tells that the only possibility of doubles is from round 2 to round 3 and from round 3 to round 4.

If we think on this logically we will realise that only 1 player improves in each round and as per condition 4 it is evident that different people were the 1 player who improved each round thus it is not possible to reach from rank 6 to rank 1.

Thus P10 had the highest score in round 2 and P8 had a score > 82.5 but <82.9.



1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	>87.2	P8					
P2	0	P5	86.4	P7	87.2	P9					
P3	81.5	P9	84.1	P5	86.4	P5					
P4	0	P1	82.9	P9	84.1	P7					
P5	86.4	P6	82.5	P1	88.6	P10					
P6	82.5	P3	81.5	P8	>82.5	P1					
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

We know that P8 and P10 don't win a medal so in this phase we will only be concerned with P1, P5, P7 and P10. Now we know that only 1 person can improve in each round and in round 5 & 6 two different people improved their scores. Also the difference between the medalists at the end of the last round needs to be 1.0 m, basis this information we can eliminate P9 as one of the top 3 throwers.

P5 – 86.4, P7 – 87.2, P1 – 88.6

Now we can be smart and take help of Question 6, since the difference between P5, P7 & P1 is currently in decimals the correct option will be one of 2.4 or 1.2

Now lets take P5 & P7

$P5 - 86.4 + 1.2 = 87.6$

$P7 - 87.2 + 1.2 = 88.4 + 1.2 = 89.6$

and P1 – 88.6

The final condition is matching

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1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	>87.2	P8		P8		P8	
P2	0	P5	86.4	P7	87.2	P9	84.1	P9	84.1	P9	84.1
P3	81.5	P9	84.1	P5	86.4	P5	86.4	P5	86.4	P10	
P4	0	P1	82.9	P9	84.1	P7	88.4	P10		P5	87.6
P5	86.4	P6	82.5	P1	88.6	P10		P7	89.6	P1	88.6
P6	82.5	P3	81.5	P8	>82.5	P1	88.6	P1	88.6	P7	89.6
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

Q.2) Answer- A

From the question we can make the following table. Also from condition one we know that only the last 2 shots were valid in the second round which means that all others retain their previous throw as the best throw. We also know that P8 and P10 qualify to the next phase and one of them does so with the least score.

1		2		3		4		5		6	
P1	82.9	P7	87.2								
P2	0	P5	86.4								
P3	81.5	P9	84.1								
P4	0	P1	82.9								
P5	86.4	P6	82.5								
P6	82.5	P3	81.5								
P7	87.2	P2	0								
P8	0	P4	0								
P9	84.1	P8									
P10	0	P10									

Now as per condition 2, two players got a double and as per condition 3 in the next phase only 1 player improved in each round by the same figure so this condition essentially tells that the only possibility of doubles is from round 2 to round 3 and from round 3 to round 4.

If we think on this logically we will realise that only 1 player improves in each round and as per condition 4 it is evident that different people were the 1 player who improved each round thus it is not possible to reach from rank 6 to rank 1.

Thus P10 had the highest score in round 2 and P8 had a score > 82.5 but < 82.9 .

1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	> 87.2	P8					
P2	0	P5	86.4	P7	87.2	P9					
P3	81.5	P9	84.1	P5	86.4	P5					
P4	0	P1	82.9	P9	84.1	P7					
P5	86.4	P6	82.5	P1	88.6	P10					
P6	82.5	P3	81.5	P8	> 82.5	P1					
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

We know that P8 and P10 don't win a medal so in this phase we will only be concerned with P1, P5, P7 and P10. Now we know that only 1 person can improve in each round and in round 5 & 6 two different people improved their scores. Also the difference between the medalists at the

end of the last round needs to be 1.0 m, basis this information we can eliminate P9 as one of the top 3 throwers.

P5 – 86.4, P7 – 87.2, P1 – 88.6

Now we can be smart and take help of Question 6, since the difference between P5, P7 & P1 is currently in decimals the correct option will be one of 2.4 or 1.2

Now lets take P5 & P7

$P5 - 86.4 + 1.2 = 87.6$

$P7 - 87.2 + 1.2 = 88.4 + 1.2 = 89.6$

and P1 – 88.6

The final condition is matching

1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	>87.2	P8		P8		P8	
P2	0	P5	86.4	P7	87.2	P9	84.1	P9	84.1	P9	84.1
P3	81.5	P9	84.1	P5	86.4	P5	86.4	P5	86.4	P10	
P4	0	P1	82.9	P9	84.1	P7	88.4	P10		P5	87.6
P5	86.4	P6	82.5	P1	88.6	P10		P7	89.6	P1	88.6
P6	82.5	P3	81.5	P8	>82.5	P1	88.6	P1	88.6	P7	89.6
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

Q.3) Answer- B

From the question we can make the following table. Also from condition one we know that only the last 2 shots were valid in the second round which means that all others retain their previous throw as the best throw. We also know that P8 and P10 qualify to the next phase and one of them does so with the least score.

1		2		3		4		5		6	
P1	82.9	P7	87.2								
P2	0	P5	86.4								
P3	81.5	P9	84.1								
P4	0	P1	82.9								
P5	86.4	P6	82.5								
P6	82.5	P3	81.5								
P7	87.2	P2	0								
P8	0	P4	0								
P9	84.1	P8									
P10	0	P10									

Now as per condition 2, two players got a double and as per condition 3 in the next phase only 1 player improved in each round by the same figure so this condition essentially tells that the only possibility of doubles is from round 2 to round 3 and from round 3 to round 4.

If we think on this logically we will realise that only 1 player improves in each round and as per condition 4 it is evident that different people were the 1 player who improved each round thus it is not possible to reach from rank 6 to rank 1.

Thus P10 had the highest score in round 2 and P8 had a score > 82.5 but < 82.9 .

1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	> 87.2	P8					
P2	0	P5	86.4	P7	87.2	P9					
P3	81.5	P9	84.1	P5	86.4	P5					
P4	0	P1	82.9	P9	84.1	P7					
P5	86.4	P6	82.5	P1	88.6	P10					
P6	82.5	P3	81.5	P8	> 82.5	P1					
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

We know that P8 and P10 don't win a medal so in this phase we will only be concerned with P1, P5, P7 and P10. Now we know that only 1 person can improve in each round and in round 5 & 6 two different people improved their scores. Also the difference between the medalists at the end of the last round needs to be 1.0 m, basis this information we can eliminate P9 as one of the top 3 throwers.

P5 – 86.4, P7 – 87.2, P1 – 88.6

Now we can be smart and take help of Question 6, since the difference between P5, P7 & P1 is currently in decimals the correct option will be one of 2.4 or 1.2

Now lets take P5 & P7

$$P5 - 86.4 + 1.2 = 87.6$$

$$P7 - 87.2 + 1.2 = 88.4 + 1.2 = 89.6$$

and P1 – 88.6

The final condition is matching

1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	>87.2	P8		P8		P8	
P2	0	P5	86.4	P7	87.2	P9	84.1	P9	84.1	P9	84.1
P3	81.5	P9	84.1	P5	86.4	P5	86.4	P5	86.4	P10	
P4	0	P1	82.9	P9	84.1	P7	88.4	P10		P5	87.6
P5	86.4	P6	82.5	P1	88.6	P10		P7	89.6	P1	88.6
P6	82.5	P3	81.5	P8	>82.5	P1	88.6	P1	88.6	P7	89.6
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

Q.4) Answer- D

From the question we can make the following table. Also from condition one we know that only the last 2 shots were valid in the second round which means that all others retain their previous throw as the best throw. We also know that P8 and P10 qualify to the next phase and one of them does so with the least score.

1		2		3		4		5		6	
P1	82.9	P7	87.2								
P2	0	P5	86.4								
P3	81.5	P9	84.1								
P4	0	P1	82.9								
P5	86.4	P6	82.5								
P6	82.5	P3	81.5								
P7	87.2	P2	0								
P8	0	P4	0								
P9	84.1	P8									
P10	0	P10									

Now as per condition 2, two players got a double and as per condition 3 in the next phase only 1 player improved in each round by the same figure so this condition essentially tells that the only possibility of doubles is from round 2 to round 3 and from round 3 to round 4.

If we think on this logically we will realise that only 1 player improves in each round and as per

condition 4 it is evident that different people were the 1 player who improved each round thus it is not possible to reach from rank 6 to rank 1.

Thus P10 had the highest score in round 2 and P8 had a score > 82.5 but < 82.9 .

1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	>87.2	P8					
P2	0	P5	86.4	P7	87.2	P9					
P3	81.5	P9	84.1	P5	86.4	P5					
P4	0	P1	82.9	P9	84.1	P7					
P5	86.4	P6	82.5	P1	88.6	P10					
P6	82.5	P3	81.5	P8	>82.5	P1					
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

We know that P8 and P10 don't win a medal so in this phase we will only be concerned with P1, P5, P7 and P10. Now we know that only 1 person can improve in each round and in round 5 & 6 two different people improved their scores. Also the difference between the medalists at the end of the last round needs to be 1.0 m, basis this information we can eliminate P9 as one of the top 3 throwers.

P5 – 86.4, P7 – 87.2, P1 – 88.6

Now we can be smart and take help of Question 6, since the difference between P5, P7 & P1 is currently in decimals the correct option will be one of 2.4 or 1.2

Now lets take P5 & P7

$P5 - 86.4 + 1.2 = 87.6$

$P7 - 87.2 + 1.2 = 88.4 + 1.2 = 89.6$

and P1 – 88.6

The final condition is matching

1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	>87.2	P8		P8		P8	
P2	0	P5	86.4	P7	87.2	P9	84.1	P9	84.1	P9	84.1
P3	81.5	P9	84.1	P5	86.4	P5	86.4	P5	86.4	P10	
P4	0	P1	82.9	P9	84.1	P7	88.4	P10		P5	87.6
P5	86.4	P6	82.5	P1	88.6	P10		P7	89.6	P1	88.6
P6	82.5	P3	81.5	P8	>82.5	P1	88.6	P1	88.6	P7	89.6
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

Q.5) Answer- A

From the question we can make the following table. Also from condition one we know that only the last 2 shots were valid in the second round which means that all others retain their previous throw as the best throw. We also know that P8 and P10 qualify to the next phase and one of them does so with the least score.

1		2		3		4		5		6	
P1	82.9	P7	87.2								
P2	0	P5	86.4								
P3	81.5	P9	84.1								
P4	0	P1	82.9								
P5	86.4	P6	82.5								
P6	82.5	P3	81.5								
P7	87.2	P2	0								
P8	0	P4	0								
P9	84.1	P8									
P10	0	P10									

Now as per condition 2, two players got a double and as per condition 3 in the next phase only 1 player improved in each round by the same figure so this condition essentially tells that the only possibility of doubles is from round 2 to round 3 and from round 3 to round 4.

If we think on this logically we will realise that only 1 player improves in each round and as per condition 4 it is evident that different people were the 1 player who improved each round thus it is not possible to reach from rank 6 to rank 1.

Thus P10 had the highest score in round 2 and P8 had a score > 82.5 but <82.9.

1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	>87.2	P8					
P2	0	P5	86.4	P7	87.2	P9					
P3	81.5	P9	84.1	P5	86.4	P5					
P4	0	P1	82.9	P9	84.1	P7					
P5	86.4	P6	82.5	P1	88.6	P10					
P6	82.5	P3	81.5	P8	>82.5	P1					
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

We know that P8 and P10 don't win a medal so in this phase we will only be concerned with P1, P5, P7 and P10. Now we know that only 1 person can improve in each round and in round 5 & 6 two different people improved their scores. Also the difference between the medalists at the end of the last round needs to be 1.0 m, basis this information we can eliminate P9 as one of the top 3 throwers.

P5 – 86.4, P7 – 87.2, P1 – 88.6

Now we can be smart and take help of Question 6, since the difference between P5, P7 & P1 is currently in decimals the correct option will be one of 2.4 or 1.2

Now lets take P5 & P7

$P5 - 86.4 + 1.2 = 87.6$

$P7 - 87.2 + 1.2 = 88.4 + 1.2 = 89.6$

and P1 – 88.6

The final condition is matching

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1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	>87.2	P8		P8		P8	
P2	0	P5	86.4	P7	87.2	P9	84.1	P9	84.1	P9	84.1
P3	81.5	P9	84.1	P5	86.4	P5	86.4	P5	86.4	P10	
P4	0	P1	82.9	P9	84.1	P7	88.4	P10		P5	87.6
P5	86.4	P6	82.5	P1	88.6	P10		P7	89.6	P1	88.6
P6	82.5	P3	81.5	P8	>82.5	P1	88.6	P1	88.6	P7	89.6
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

Q.6) Answer- B

From the question we can make the following table. Also from condition one we know that only the last 2 shots were valid in the second round which means that all others retain their previous throw as the best throw. We also know that P8 and P10 qualify to the next phase and one of them does so with the least score.

1		2		3		4		5		6	
P1	82.9	P7	87.2								
P2	0	P5	86.4								
P3	81.5	P9	84.1								
P4	0	P1	82.9								
P5	86.4	P6	82.5								
P6	82.5	P3	81.5								
P7	87.2	P2	0								
P8	0	P4	0								
P9	84.1	P8									
P10	0	P10									

Now as per condition 2, two players got a double and as per condition 3 in the next phase only 1 player improved in each round by the same figure so this condition essentially tells that the only possibility of doubles is from round 2 to round 3 and from round 3 to round 4.

If we think on this logically we will realise that only 1 player improves in each round and as per condition 4 it is evident that different people were the 1 player who improved each round thus it is not possible to reach from rank 6 to rank 1.

Thus P10 had the highest score in round 2 and P8 had a score > 82.5 but < 82.9 .

1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	> 87.2	P8					
P2	0	P5	86.4	P7	87.2	P9					
P3	81.5	P9	84.1	P5	86.4	P5					
P4	0	P1	82.9	P9	84.1	P7					
P5	86.4	P6	82.5	P1	88.6	P10					
P6	82.5	P3	81.5	P8	> 82.5	P1					
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

We know that P8 and P10 don't win a medal so in this phase we will only be concerned with P1, P5, P7 and P10. Now we know that only 1 person can improve in each round and in round 5 & 6 two different people improved their scores. Also the difference between the medalists at the

end of the last round needs to be 1.0 m, basis this information we can eliminate P9 as one of the top 3 throwers.

P5 – 86.4, P7 – 87.2, P1 – 88.6

Now we can be smart and take help of Question 6, since the difference between P5, P7 & P1 is currently in decimals the correct option will be one of 2.4 or 1.2

Now lets take P5 & P7

$P5 - 86.4 + 1.2 = 87.6$

$P7 - 87.2 + 1.2 = 88.4 + 1.2 = 89.6$

and P1 – 88.6

The final condition is matching

1		2		3		4		5		6	
P1	82.9	P7	87.2	P10	>87.2	P8		P8		P8	
P2	0	P5	86.4	P7	87.2	P9	84.1	P9	84.1	P9	84.1
P3	81.5	P9	84.1	P5	86.4	P5	86.4	P5	86.4	P10	
P4	0	P1	82.9	P9	84.1	P7	88.4	P10		P5	87.6
P5	86.4	P6	82.5	P1	88.6	P10		P7	89.6	P1	88.6
P6	82.5	P3	81.5	P8	>82.5	P1	88.6	P1	88.6	P7	89.6
P7	87.2	P2	0	P6	82.5						
P8	0	P4	0	P3	81.5						
P9	84.1	P8		P2	0						
P10	0	P10		P4	0						

Q.7) Answer- 3

Rejected	Question no	A	B	K	Question made by
	1			Y	
Y	2	Y	Y	Y	
	3	Y		Y	
	4	Y	Y	Y	
	5			Y	
Y	6	Y	Y		
	7		Y	Y	
	8	Y	Y	Y	
Y	9		Y	Y	
	10	Y			
Y	11	Y		Y	
Y	12		Y	Y	
	13	Y	Y		



The above table can be made basis the information given in the question

Question 1, Question 5 – It was accepted and only reviewed by Komal, this means that the question was made by Bimal thus Komal was the only 1 to review and approve it.

Question 2, Question 4, Question 8 – the only way all 3 of them review a question would be if a SME made the question and it was approved by one & rejected by one then it would come to the third person to approve or reject the question.

Question 3, Question 11 – We notice that Bimal did not review this question that means that only he could have made the question as if a SME made a question it would be first reviewed by Amal and then Bimal. Thus these questions are made by Bimal

Question 6, Question 13 – Komal did not review these questions thus she could have made these questions, but there is also a possibility that a SME made these questions and Amal, Bimal reviewed them in the same order.

Question 7, Question 9, Question 12 - We notice that Amal did not review this question that means that only he could have made the question as if a SME made a question it would be first reviewed by Amal and then Bimal. Thus these questions are made by Amal.

Question 10 – The question was reviewed and approved by only Amal which means that Komal must have set the question.

Rejected	Question no	A	B	K	Question made by
	1			Y	B
Y	2	Y	Y	Y	SME
	3	Y		Y	B
	4	Y	Y	Y	SME
	5			Y	B
Y	6	Y	Y		SME/K
	7		Y	Y	A
	8	Y	Y	Y	SME
Y	9		Y	Y	A
	10	Y			K
Y	11	Y		Y	B
Y	12		Y	Y	A
	13	Y	Y		SME/K



Q.8) Answer- 1

Rejected	Question no	A	B	K	Question made by
	1			Y	
Y	2	Y	Y	Y	
	3	Y		Y	
	4	Y	Y	Y	
	5			Y	
Y	6	Y	Y		
	7		Y	Y	
	8	Y	Y	Y	
Y	9		Y	Y	
	10	Y			
Y	11	Y		Y	
Y	12		Y	Y	
	13	Y	Y		

The above table can be made basis the information given in the question

Question 1, Question 5 – It was accepted and only reviewed by Komal, this means that the question was made by Bimal thus Komal was the only 1 to review and approve it.

Question 2, Question 4, Question 8 – the only way all 3 of them review a question would be if a SME made the question and it was approved by one & rejected by one then it would come to the third person to approve or reject the question.

Question 3, Question 11 – We notice that Bimal did not review this question that means that only he could have made the question as if a SME made a question it would be first reviewed by Amal and then Bimal. Thus these questions are made by Bimal

Question 6, Question 13 – Komal did not review these questions thus she could have made these questions, but there is also a possibility that a SME made these questions and Amal, Bimal reviewed them in the same order.

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	1			Y	B
Y	2	Y	Y	Y	SME
	3	Y		Y	B
	4	Y	Y	Y	SME
	5			Y	B
Y	6	Y	Y		SME/K
	7		Y	Y	A
	8	Y	Y	Y	SME
Y	9		Y	Y	A
	10	Y			K
Y	11	Y		Y	B
Y	12		Y	Y	A
	13	Y	Y		SME/K

Q.9) Answer- 3

Rejected	Question no	A	B	K	Question made by
	1			Y	
Y	2	Y	Y	Y	
	3	Y		Y	
	4	Y	Y	Y	
	5			Y	
Y	6	Y	Y		
	7		Y	Y	
	8	Y	Y	Y	
Y	9		Y	Y	
	10	Y			
Y	11	Y		Y	
Y	12		Y	Y	
	13	Y	Y		

The above table can be made basis the information given in the question

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	4	Y	Y	Y	SME
	5			Y	B
Y	6	Y	Y		SME/K
	7		Y	Y	A
	8	Y	Y	Y	SME
Y	9		Y	Y	A
	10	Y			K
Y	11	Y		Y	B
Y	12		Y	Y	A
	13	Y	Y		SME/K



Q.10) Answer- D

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Rejected	Question no	A	B	K	Question made by
	1			Y	
Y	2	Y	Y	Y	
	3	Y		Y	
	4	Y	Y	Y	
	5			Y	
Y	6	Y	Y		
	7		Y	Y	
	8	Y	Y	Y	
Y	9		Y	Y	
	10	Y			
Y	11	Y		Y	
Y	12		Y	Y	
	13	Y	Y		

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Y	6	Y	Y		SME/K
	7		Y	Y	A
	8	Y	Y	Y	SME
Y	9		Y	Y	A
	10	Y			K
Y	11	Y		Y	B
Y	12		Y	Y	A
	13	Y	Y		SME/K

Q.11) Answer- C

Rejected	Question no	A	B	K	Question made by
	1			Y	
Y	2	Y	Y	Y	
	3	Y		Y	
	4	Y	Y	Y	
	5			Y	
Y	6	Y	Y		
	7		Y	Y	
	8	Y	Y	Y	
Y	9		Y	Y	
	10	Y			
Y	11	Y		Y	
Y	12		Y	Y	
	13	Y	Y		

The above table can be made basis the information given in the question

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	7		Y	Y	A
	8	Y	Y	Y	SME
Y	9		Y	Y	A
	10	Y			K
Y	11	Y		Y	B
Y	12		Y	Y	A
	13	Y	Y		SME/K



Q.12) Answer- B

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Rejected	Question no	A	B	K	Question made by
	1			Y	
Y	2	Y	Y	Y	
	3	Y		Y	
	4	Y	Y	Y	
	5			Y	
Y	6	Y	Y		
	7		Y	Y	
	8	Y	Y	Y	
Y	9		Y	Y	
	10	Y			
Y	11	Y		Y	
Y	12		Y	Y	
	13	Y	Y		

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Y	2	Y	Y	Y	SME
	3	Y		Y	B
	4	Y	Y	Y	SME
	5			Y	B
Y	6	Y	Y		SME/K
	7		Y	Y	A
	8	Y	Y	Y	SME
Y	9		Y	Y	A
	10	Y			K
Y	11	Y		Y	B
Y	12		Y	Y	A
	13	Y	Y		SME/K

Q.13) Answer- B

Now 50 ml of content in bottle A is 100% pure of which 5 ml is mixed with 5 ml from bottle B and an impurity is detected. Now we can only detect an impurity if there is 10% or more impure material.

Now Bottle A has 100% and we need the final mixture to have 90% or less impurity which means that Maximum % of P which bottle B can have is 80%.

This means that impurity content in bottle B is minimum 10ml and can be more than 10 too.

Thus Option B is the correct answer.

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Q.14) Answer- 1

Now either a bottle has 100% P or 0% P.

Let's assume that 3 are 100% pure and 1 is 0% pure, so now if we mix all 4 together

Weighted average = $(3*100 + 1*0)/4 = 75\%$

As per question if the impurity is more than 10% we will be able to detect it, thus only 1 test is enough to determine if the bottles are ready for despatch.

Q.15) Answer- 2

We have 3 bottles with 100% P and 1 bottle with 20% impurity

Let's select 2 bottles at random and mix them completely, we will end up with 2 cases

Case 1 – Both bottles test pure, then we take one of these bottles and test it with one of the two remaining bottles. It will either come out as pure again or it will show a presence of impurity.

We need 2 tests in this case.

Case 2 – We find an impurity presence in one of the bottles, again we take one of the 2 bottles and test it with 1 of the 2 remaining bottles. It will either come out as pure again or it will show a presence of impurity.

We need 2 tests in this case too.

Thus we need a minimum of 2 tests to identify the bottle with the impurity.

Q.16) Answer- 1

We will take the weighted average approach here

Case 1 – 1 Bottle has 100% P and 3 bottles have 85% P

Weighted average = $(1*100 + 3*85)/4 = 88.75\%$

Impurity will be detected

Case 2 - 2 Bottles has 100% P and 2 bottles have 85% P

Weighted average = $(2*100 + 2*85)/4 = 92.5\%$

Impurity will not be detected

We can see that only 1 test will be enough to determine the total number of bottles with 100% purity.

Q.17) Answer- C

	A	B	D	T	Total employee months	Project duration
P1	2	2		2	6	3
P2			3	2	5	3
P3	2	4	3		9	5
P4	5		2	3	10	5
P5		3	1	2	6	4
	9	9	9	9		

Based on the above-mentioned table we can see that only statement I is true and statement II is untrue.

Q.18) Answer- D

	A	B	D	T	Total employee months	Project duration
P1	2	2		2	6	3
P2			3	2	5	3
P3	2	4	3		9	5
P4	5		2	3	10	5
P5		3	1	2	6	4
	9	9	9	9		

Tinni has an overlap between project 4 and project 5 in the month of September. The other 3 don't have any overlaps

Q.19) Answer- B

	A	B	D	T	Total employee months	Project duration
P1	2	2		2	6	3
P2			3	2	5	3
P3	2	4	3		9	5
P4	5		2	3	10	5
P5		3	1	2	6	4
	9	9	9	9		

Project 1 & 2 as well as Project 3 & 4 have the same number of months but in the options we only have Project 3 & 4.

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Q.20) Answer- D

	A	B	D	T	Total employee months	Project duration
P1	2	2		2	6	3
P2			3	2	5	3
P3	2	4	3		9	5
P4	5		2	3	10	5
P5		3	1	2	6	4
	9	9	9	9		

Let us calculate the index score

$$A - (2 \times 100) + (2 \times 100) + (5 \times 80) = 800$$

$$B - (2 \times 100) + (4 \times 75) + (3 \times 90) = 770$$

$$D - (3 \cdot 90) + (3 \cdot 100) + (2 \cdot 100) + (1 \cdot 100) = 870$$

$$T - (2 \cdot 80) + (2 \cdot 100) + (3 \cdot 100) + (2 \cdot 100) = 860$$

The weight will be the same as all of them worked for the same number of months.

The decreasing order will be D,T,A,B.

QUALITATIVE ABILITY

Q.1) Answer- 6

$$(\sqrt[7]{10})(\sqrt[7]{10})^2 \dots (\sqrt[7]{10})^n > 999$$

$$10^{1/7} * 10^{2/7} * \dots * 10^{n/7} > 10^3 - 1$$

$$10^{1/7 + 2/7 + \dots + n/7} > 10^3 - 1$$

$$n(n+1)/2 * 7 = 3$$

$$n(n+1) = 42$$

$$n = 6$$

Q.2) Answer- C

$$(\log_{15} a + \log_{32} a) / (\log_{15} a * \log_{32} a) = 4$$

$$\frac{(\log a / \log 15) + (\log a / \log 32)}{\log a * \log a} = \frac{4}{\log 15 * \log 32}$$

$$(\log 32 + \log 15) / \log a = \log_a 480 = 4$$

$$480 = a^4$$

$$4 < a < 5$$

Q.3) Answer- C

$$X_{n+1}, X_n, X_{n-1} \quad n \geq 1$$

$$x_1 = -1$$

$$x_2 = -1 + 1 - 1 = -1$$

$$x_3 = -1+2-1= 0$$

$$x_4 = 0+3-1= 2$$

Now we solve $x_2 - x_1 = 0$

$$x_3 - x_1 = 1$$

$$x_4 - x_3 = 2$$

$$\text{so, } x_5 - x_4 = 3$$

$$\Rightarrow x_5 = 5$$

$$x_5 = (1+2+3) - 1 = \sum_{n=1}^3 n - 1$$

$$x_4 = (1+2) - 1 = \sum_{n=1}^2 n - 1$$

$$x_{100} = \sum_{n=1}^{98} n - 1 = 4850$$

Q.4) Answer- 8

Let Amal and Mira covers 'a' and 'b' rounds in 45 minutes, then

$$a - b = 3 \text{ rounds... (i)}$$

now, given that together they cover 1 round in 3 minutes, then in 45 minutes they will cover 15 rounds together, i.e

$$a + b = 15 \text{... (ii)}$$

from (i) & (ii)

$b = 6$, which means Mira covers 6 rounds in 45 minutes, thus number of rounds Mira walks in 1 hour will be

$$6 \times 60 / 45 = 8 \text{ rounds.}$$

Q.5) Answer- D

Team has played 40 matches

$$\text{matches won} = 40 * 0.3 = 12$$

$$\text{matches lost} = 40 - 12 = 28$$

let the remains matches be $10x$

$$\frac{12 + (0.6 * 10x)}{40 + 10x} = .50 / 100$$

$$2(12 + 6x) = 40 + 10x$$

$$24 + 12x = 40 + 10x$$

$$2x = 16$$

$$x = 8 \quad \text{remaining matches} = 80$$

$$\text{if team wins 90\% of matches} = 0.9 * 80 = 72$$

$$\text{total matches won} = 12 + 72 = 84$$

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Q.6) Answer- D

$$3x + 2|y| + y = 7$$

$$x + |x| + 3y = 1$$

lets take x and y to be positive

$$3x+3y=7$$

$$2x+3y=1$$

x=6, but y is negative so this case is invalid

Lets take x is +ve and y is -ve

$$3x-y=7$$

$$2x+3y=1$$

$$\rightarrow x=2 \text{ and } y=-1$$

Case is valid

$$x+2y = 2 + 2(-1) = 0$$

Q.7) Answer- D

50 boarders $\rightarrow 1600*50 = \text{Rs } 80,000$

Profit = 200/boarder

$$= 200 * 50 = \text{RS } 10000$$

Expenses = RS 70,000

75 boarders $\rightarrow 1600*75 = \text{Rs } 120,000$

Profit = 250/boarder

$$= 250 * 75 = \text{Rs } 18,750$$

Expenses= Rs 101250

$$E_{50} = 70,000 = F + 50n$$

$$E_{75} = 101250 = F + 75n$$

$$E_{80} = 101250 + (31250*5)/25 = \text{Rs } 107500$$

$$\text{Profit} = 80*1600 - 107500$$

$$= 20500$$

Q.8) Answer- A

Let the cost of small shirts = Rs x

Let the cost of large shirt = Rs x + 50

$$(1800/x) + (5000/(x+50)) = 64 \dots (i)$$

$$\text{Now, } x+x+50 = 2x+50$$

so our answer will be even i.e. either of 150 or 200, check

$$\text{if, } 2x+50 = 200 \rightarrow x = 75$$

which satisfies (i), hence it is the answer.

Q.9) Answer- 92

$$\text{Total Score} = 25 \times 50 = 1250$$

Now the lowest score can go from

30.....49

$$\text{total} = \{(30+49)/2\} \times 20 = 790$$

$$1250 - 790 = 460$$

$$\text{Topper score} = 460/5 = 92$$

Q.10) Answer- A

Let Raju invested P amount for T years at x% rate, then according to the question

$$P(x\%)T = P(1.03)^2 - P,$$

$$(xT)\% = 0.0609,$$

Rupa's interest $\rightarrow 10,000(2x\%)(2t)$

$$10,000 \times 4 \times (0.0609) = 2436$$

Q.11) Answer- A

$$F(x) = x^2 - 7x$$

$$g(x) = x + 3$$

min of $f(g(x)) - 3$

$$(x+3)^2 - 7(x+3) - 3x$$

$$x^2 - 4x - 12$$

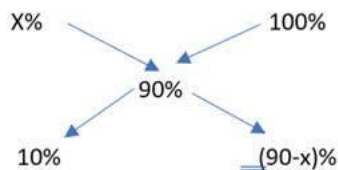
$$\text{Minima} = -D/4a = -(16+48)/4$$

$$= -16$$

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Q.12) Answer- C

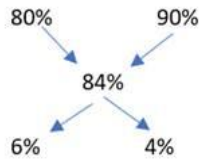


Now if we take the value of $y=3$ kg

the ratio would be 1:1

So, $x\% = 80\%$

Now applying this in the 2nd case



we know 3:2 is $y + 2$ kg

$y = 3$ kg which is same as case 1 è 3 kg

Q.13) Answer- A

Let total work = T units

Rahul can complete x units/hour

Gautam in y units/hour

$$8x + 6y = T$$

$$7.5x + 7.5y = T$$

$$8x + 6y = 7.5x + 7.5y$$

$$0.5x = 0.5y \Rightarrow x = 3y \text{ or } y = x/3$$

$$8x + 6x/3 = T$$

Rahul would need = $T * 10/T = 10$ hours

Q.14) Answer- 34

Let the prices be $2x, 5x, z$

S	M	L
$2x$	$5x$	z

$$10x^2z = 800 \dots\dots\dots(i)$$

$$(2x+6)(5x+6)z = 3200 \dots\dots\dots(ii)$$

From i and ii

$$(2x+6)(5x+6)/2x \cdot 5x = 4$$

$$30x^2 - 42x - 36 = 0$$

$$5x^2 - 7x - 6 = 0$$

$$x = 2 \text{ or } -3/5$$

from (i),

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$$40z = 800 \Rightarrow z = 20$$

$$4 + 10 + 20 = 34$$

Q.15) Answer- 50

Total number can be formed-

$$3 \times 3 \times 3 \times 3 = 81,$$

Now, subtract when only 1 & 2 are taken, i.e.,

$$2 \times 2 \times 2 \times 2 = 16,$$

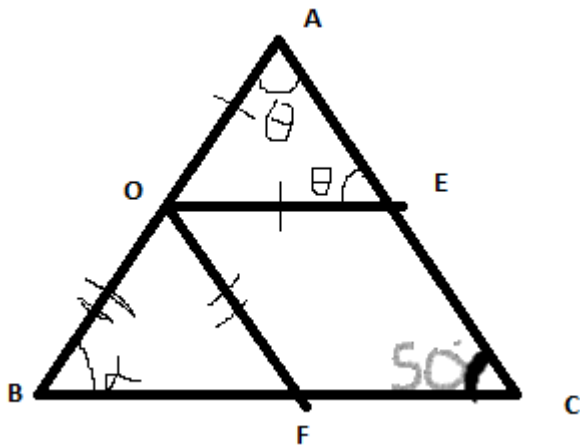
Also, when only 1 & 3 are taken, i.e.,

$$2 \times 2 \times 2 \times 2 = 16,$$

But in these two cases we have subtracted the number (1111) twice, therefore number of required numbers will be

$$81 - 16 - 16 + 1 = 50$$

Q.16) Answer- B



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$$AD = AE$$

$$\text{Angle } A = \text{Angle } E = \theta$$

$$BD = DF$$

$$\text{angle } B = \text{Angle } F = \alpha$$

$$\text{Angle } FDE = x$$

$$\text{Linear angle at } D = 180 - 2\theta + 180 - 2\alpha + x = 180$$

$$180 + x - 2(\alpha + \theta) = 0$$

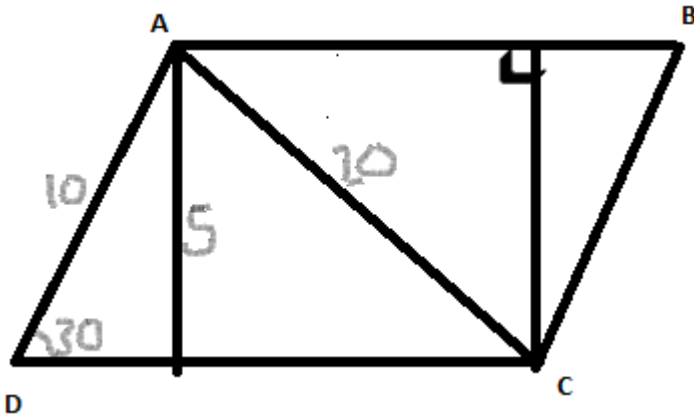
$$\text{now } x + \theta + 50 = 180$$

$$x + \theta = 130$$

$$180+x-2(130) = 0$$

$$x=80$$

Q.17) Answer- B



Now we have 30-60-90 right triangle which have sides the ratio 1: $\sqrt{3}$:2

$$2x=10$$

$$x= 5$$

Now AMC is also right angle triangle

$$5^2+y^2=20^2$$

$$MC = 5\sqrt{15}$$

$$\text{Area of ABCD} = 25(\sqrt{3} + \sqrt{15})$$

Q.18) Answer- 12

$$|1+mn| < |m+n| < 5$$

now (m,n) is integer

Max value of $|m+n|$ can be 4

Now we can see that (1,1), (1,2) will not satisfy the equation

it will only work if one of the values (among m and n) is 0

(2,0) , (-2,0)

(3,0) , (-3,0)

(4,0) , (-4,0)

They are in the form of (m,n) these pair can be interchanged

(0,2) , (0,3),

Thus we get 12 possible values

Q.19) Answer- 3500

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Let side of rhombus be a
if 40m facing is needed then $a = 40/4 = 10\text{m}$
if area is 96 than area of each internal triangle is $96/4 = 24$
and since, Hypotenuse is 10
then Pythagoras triplet (6,8,10) will satisfy
so diagonals
 $D_1 = 8+8 = 16$
 $D_2 = 6+6 = 12$
Cost = $(D_1 + D_2) * 125 = 3500$

Q.20) Answer- 3000

Assuming total work = 48 min

Anil = $48/12 = 4$ units /day

Barun = $48/16 = 3$ units /day

In 6 days Anil and Barun can complete $7 \times 6 = 42$ units

Chandu completes = 6 units

A:B:C = 24:18:6

= 4:3:1

Chandu's profit = $1/8 * 24000 = \text{Rs } 3000$

