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

Cheese has long been a staple of the Swiss diet – a fact that's hardly surprising in a nation where, until recent times, dairy cows outnumbered bankers, foreign investors, and tourists. Last year, the Swiss ate about 43 pounds for each of the country's more than seven million citizens, compared with about 30 pounds for Americans.

Emmenthal, the steep alpine German-speaking valley in Switzerland gave the world Emmenthaler, the typical pale yellow medium-hard cheese with a mild sweet, nutty taste. It is distinguished by large holes that are formed by pockets of gas during a fermentation that lasts anywhere from three to six months. Because the raw milk used to make Emmenthaler cheese is partially skimmed, the cheese is lower in fat than many other hard cheeses. It's also higher in quality than cheaper foreign versions. Raw-milk Emmenthaler is consistently memorable. It is Emmenthaler's pasteurized-milk imitators, such as Norwegian Jarlsberg and Wisconsin Alpine Lace, that have reduced the status of this fine cheese.

Emmenthaler cheese is made by adding cultures of the bacteria *Streptococcussalivarius* subspecies *thermophilus*, *Lactobacillus delbrueckii* subspecies *bulgaricus*, and *Propionibacteriumfreudenreichii* subspecies *shermani* to warm. These bacteria form curds in the milk, which are then pressed into wheel-shaped molds and soaked in a brine bath. The brine forms a thick rind around the cheese and the wheels are placed in ripening caves to mature.

As the cheese ages, the bacteria continue to eat away at it. *P. shermani* also consumes the lactic acid excreted by the other types of bacteria and, in turn, releases acetate, propionic acid and carbon dioxide. The first two compounds help produce Emmenthaler's characteristic flavor and the last, because of the density of the cheese and the rind, forms bubbles. The more the cheese ages, the more pronounced is the flavour of the cheese and the bigger the bubbles get. And when the wheel is broken into more manageable pieces, the bubbles burst, leaving behind holes (called “eyes” by cheese makers).

In 2000, the FDA ruled that the eyes in Grade-A Emmenthaler Swiss cheese sold in America had to be between 3/8 and 13/16 of an inch in diameter because newer cheese slicing equipment was tearing large-eyed Emmenthaler cheese apart. Two varieties of Emmenthal cheese produced in the United States – Baby Swiss (made from whole milk) and Lacy Swiss (made from low fat milk) – have smaller holes than the original Emmenthaler cheese produced in Switzerland. Reseachers say that the holes are also caused by hay particles that fall into milk-collecting buckets in barns. They also say that modern milking is very clean and eliminated debris such as hay dust, thereby playing a role in reduced hole size in Emmenthaler Swiss cheese. The researchers were able to alter the number of holes in Emmentalhaler cheese by changing the amount of hay dust they added to milk.

However, Switzerland's most popular cheese is mozzarella – the unlikely leader of the pack. Mozzarella, the creamy white soft cheese, is best made of water buffalo milk that most people associated more with Naples in Italy than Neuchâtel (which was famous for cheese made from cow's milk) in Switzerland. The water buffalo's milk has twice the fat content of the dairy cow's. “The highest fat content we've measured is 12 percent,” a farm owner once proudly said. “That's coffee cream.”

Mr. Hans Bieri, whose farm perches at the upper reaches of the Emmenthal valley in Switzerland, imported 15 water buffaloes from Romania and persevered in getting the mozzarella cheese recipe borrowed from Italian

mozzarella cheese makers right. At first Mr. Hans Bieri and his fellow cheese makers did without machines and made the mozzarella balls by hand. Later they began to use stainless steel machines to roll out the mozzarella balls. Soon, several other cheese makers, were receiving regular deliveries of water buffalo milk from Mr. Hans Bieri and transforming it into fluffy mozzarella. Their success turned tiny Schangnau, population 954, into the mozzarella capital of Switzerland, and mozzarella into the favorite Swiss cheese. Today, the lion's share of mozzarella consumed by the Swiss is made using cow's milk by big Swiss food distributors like Emmi; but Schangnau, which still depends on water buffalo milk for its cheese manufacturing process, remains the boutonniere on the lapel.

Q1. Which of the following is a false statement about Ementhaler cheese as discussed in the passage?

- a) The original Swiss Ementhaler cheese is made out of unpasteurized milk.
- b) The Swiss Ementhaler cheese has larger holes than Lacy Swiss cheese.
- c) The flavour of the Swiss Ementhaler cheese is attributed to the carbon dioxide gas released by the propionibacteria used in manufacturing the cheese.
- d) A longer fermentation period can give the bacteria involved in making the Ementhaler cheese more time to act thereby making the flavour of the cheese more striking.

Q2. The place which is now famous for Mozzarella cheese made from water buffalo milk is

- a) Emmenthal .
- b) Schangnau.
- c) Naples.
- d) Neuchatel.

Q3. Modern industrial milking methods that don't expose the milk to open barn environments can

- a) play a role in reducing the size of the holes in Ementhaler cheese.
- b) play a role in increasing the size of the holes in Ementhaler cheese.
- c) play a role in preserving the size of the “eyes” in Ementhaler cheese.
- d) make the flavour of the cheese less pronounced and lessen the chances of the brand getting the Grade A stamp in America.

Q4. The last sentence of the passage says, “Schangnau remains the boutonniere on the lapel”. The meaning of the word 'boutonniere' would be....

- a) A fashion designer
- b) A person with a creative bent of mind who makes cheese
- c) A button maker

d) A flower that is worn on a buttonhole

Q5. According to the passage, which of the following is a true statement about Mozzarella cheese?

a) Switzerland's cheese makers worked on perfecting the Mozzarella cheese recipe borrowed from the Italians.

b) The Mozzarella cheese recipe was borrowed from the Swiss by the Italians.

c) Mozzarella cheese is a typical pale yellow medium-hard cheese with a mild sweet, nutty taste but is devoid of holes.

d) Mozzarella cheese made from cow's milk is tastier and costlier.

Q6. Larger “eyes” in the Ementhaler cheese

a) are due to the lactic acid consumed by Streptococci and Lactobacilli in the milk culture.

b) are due to the high fat and protein content of the dairy cow's milk used in making the cheese and make the cheese taste like coffee cream.

c) make the cheese come apart in slicing equipment.

d) are seen as signs of imperfections of the Swiss cheese making process and suggest that cheese making in Switzerland has a still long way to go.

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

When we talk about Gandhiji, automatically certain ideals come to our mind i.e. truth, nonviolence, simplicity, love for all, leadership, dignity of labour and implementation or practicising ideas rather than just propagating them. These ideals are also reflected in the educational philosophy of Gandhiji.

Gandhiji advocated that education was the means to attain virtues. Basic education was every person's right. Children should not only learn to read and write, they must also learn some family skills, the usage of which would make them independent and self-reliant. Basic education should be made compulsory for all children upto the age of fourteen. The medium for education should be one's mother tongue, so that one can easily grasp it. Education should not end with childhood. Adult education plays an equally vital role in the development of an individual.

Gandhiji understood that to achieve deep, lasting learning, students needed to be engaged on many levels – emotional, physical, spiritual and cognitive. Yet, too often, our teaching, he said, failed to move students beyond the cognitive level, leaving them with no sense of the connections between course content and their personal lives. Traditional teaching centered methods left deep learning more to serendipity than to conscious intent.

Since a human being is a complex combination of body, mind and spirit, true education, Gandhiji said, should help develop all these three dimensions of the human personality in an integrated way. Education, he insisted, must be closely linked to work and creativity since we know this to be the best medium of development. True education should give one the ability to transform knowledge into wisdom. Gandhiji defined his concept of

education as a process that extends from the moment a child is conceived in the mother's womb to the moment of death. It means that education must be both for and through life. Gandhian education, therefore, becomes co-extensive with life itself. Cleanliness, health, citizenship, work, worship, play, and recreation, for instance, are not to be seen as separate subjects of the syllabus but as inter-related processes for the development of a harmonious and balanced life. The ultimate objective of education should be, Gandhiji said, to deliver its unique function of creating not only a balanced and harmonious individual but also a balanced and harmonious society where true justice as fairness prevails, where there is no unnatural division between the 'haves' and the 'have-nots' and where everybody is assured of a living wage and the right to live and the right to freedom.

Q7. Which of the following statements can be understood from the passage?

a) Education, according to Gandhiji, should include reading, writing and foreign languages.

b) One of the dimensions of human personality that education should help develop according to Gandhiji is communication skills.

c) Education and life for Gandhiji were equal or coincident in scope.

d) If one applied Gandhiji's idea of justice as fairness in real life, then all individuals should be paid equally for the work they did and all children upto the age of 14 should be provided free education in similar schools.

Q8. Which of the following would most weaken Gandhiji's arguments in the passage?

a) Free education results in lowering of education standards.

b) Compulsory education compromises on initiatives.

c) Educating an individual requires special training and ability to comprehend differs from person to person.

d) Creation of a equitable and compatible society is dependent on other extraneous factors besides congenial and balanced individuals.

Q9. Which of the following is an inference from the information given in para 3?

a) Gandhiji advocated that teacher-centered methods that did not encourage thorough understanding should be eliminated in favour of contemporary methods.

b) Gandhiji was of the view that learning by rote was a sad commentary on the education system and should be discouraged to ensure effective learning.

c) Gandhiji believed that intuitive learning was the best way of garnering and assimilating knowledge, and learning that happened on an accidental level reflected poorly on an instructor's teaching skills.

d) Gandhiji subscribed to the view that learning methods which emphasized on only cognitive learning compartmentalized life and education.

DIRECTIONS *for questions 10 to 15*: The passage given below is followed by a set of six questions. Choose the best answer to each question.

THE SUPER-INDUSTRIAL revolution will consign to the archives of ignorance most of what we now believe about democracy and the future of human choice. Today in the techno-societies there is an almost ironclad consensus about the future of freedom. Maximum individual choice is regarded as the democratic ideal. Yet most writers predict that we shall move further and further from this ideal. They conjure up a dark vision of the future, in which people appear as mindless consumer-creatures, surrounded by standardised goods, educated in standardised schools, fed a diet of standardised mass culture, and forced to adopt standardised styles of life.

Such predictions have spawned a generation of future-haters and technophobes, as one might expect. One of the most extreme of these is a French religious mystic, Jacques Ellul, whose books are enjoying a campus vogue. According to Ellul, man was far freer in the past when 'Choice was a real possibility for him.' By contrast, today, 'The human being is no longer in any sense the agent of choice.' And, as for tomorrow: 'In the future, man will apparently be confined to the role of a recording device.' Robbed of choice, he will be acted upon, not active. He will live, Ellul warns, in a totalitarian state run by a velvet-gloved Gestapo.

This same theme – the loss of choice – runs through much of the work of Arnold Toynbee. It is repeated by everyone from hippie gurus to Supreme Court justices, tabloid editorialists and existentialist philosophers. Put in its simplest form, this Theory of Vanishing Choice rests on a crude syllogism: science and technology have fostered standardisation. Science and technology will advance, making the future even more standardised than the present. Ergo: man will progressively lose his freedom of choice.

If instead of blindly accepting this syllogism, we stop to analyse it, however, we make an extraordinary discovery. For not only is the logic itself faulty, the entire idea is premised on sheer factual ignorance about the nature, the meaning and the direction of the super-industrial revolution. Ironically, the people of the future may suffer not from an absence of choice, but from a paralysing surfeit of it; they may turn out to be victims of that peculiarly super-industrial dilemma: overchoice.

Q10. The phrase “ironclad consensus” in this passage, is of a .....

- a) Conclusion drawn by future dogmatic leaders.
- b) Decision drawn by future dogmatic leaders.
- c) Future that is resistant to change.
- d) A future that is common to all.

Q11. As indicated in the passage, all of the following would support the view that science and technology will deprive humans of choices EXCEPT?

i. Author of the passage
ii. Journalists
iii. Arnold Tonybee
iv. Pro-Existentialists
v. Legislative judges
vi. Religious gurus

- a) Only i
- b) ii and vi
- c) i and iii

d) i, iv and v

Q12. Which of the following examples best suits the "Theory of Vanishing Choice" mentioned in the passage?

a) A mind-boggling variety of trendy clothing for teenagers available at "Jack and Jones" stores.

b) A robot controlling the schedules of doctors in the out-patient department and the operation theatre of a hospital.

c) People given an opportunity to invest only in a public sector bank and not a private sector bank.

d) Booking your train ticket online or through an agent or personally going to the booking counter to book the ticket yourself.

Q13. All of the following statements about Jacques Ellul are true from the passage EXCEPT?

a) He believes that the future government will not consist of ruthless dictators.

b) His impression about the future was not sanguine.

c) He thought that the past was better than the future with respect to available choices for man.

d) He had many followers.

Q14. Which of the following can be understood from the passage?

a) The author of the passage is a technophobe.

b) Jacques Ellul opined that man made better choices in the past.

c) The author's main argument in the passage is that a large generation of future-haters and technophobes are being spawned due to the Super-Industrial revlution.

d) The main focus of the passage is freedom of choice.

Q15. Which of the following sentences of the passage will best serve as the main conclusion of the author?

a) Science and technology will advance, making the future even more standardised than the present.

b) Maximum individual choice is regarded as the democratic ideal.

c) Ironically, the people of the future may suffer not from an absence of choice, but from a paralysing surfeit of it; they may turn out to be victims of that peculiarly super-industrial dilemma: overchoice.

d) The Theory of Vanishing Choice rests on a crude syllogism: science and technology have fostered standardisation.

DIRECTIONS *for questions 16 to 18*: The passage given below is followed by a set of three questions. Choose the best answer to each question.

When Santa Cruz teacher, poet and musician Dan Phillips was about to turn 50, he looked around for something to reinvigorate the second half of his life and found, not a hobby, but an entire culture.

In 1986, Dan and his wife Judy took a short tour of the Indonesian country of Bali and their lives were changed forever. Ten years after their initial visit, the couple bought a second home outside the village of Ubud and Phillips began editing the stack of journals he'd been keeping over the past decade.

"The Bali In Me," the product of Phillips' journals, is available by contacting him through email. A narrative of his time in Bali, Phillips' 122-page book is also about his spiritual growth. In addition to relating his delight with temples, shadow puppets, water buffalo, chanting priests and clove plantations, Phillips also tells us how Bali helped him grow as an artist, especially as a member of a gamelan orchestra.

He tells about the many Balinese ceremonies, raves about the Javanese nobleman's house he bought with friends and gives us clues to the Balinese personality. He says that the Balinese town of Ubud is a little bit of both, thriving center of the arts and chaotic flea market. The inland town of Ubud is known as the cultural hub of Bali. But before you picture a tranquil artists' community, where the reverent silence of masters at work is broken only by tropical birdsong and the lilt of a distant gamelan, let us put you straight. Ubud is a hot and raucous place – and you're more likely to run into T-shirt hawkers than artists. Visitors are also often struck by the uneven quality and random subject matter of the work on display. Many of the town's famous sculpture studios seem to prioritize commercial expedience over artistic tradition, and put a chaotic jumble of tat on sale – you'll come across everything from Christmas decorations to carvings of decidedly non-native lions and giraffes. The paintings also betray a mélange of foreign influences, with pseudo-Impressionism and faux-Expressionism finding particular favor among local daubers targeting the tourist dollar.

That said, the prices of *objets d'art* are low and bargaining is expected. You can start your negotiations by cutting the stated price by at least 50%, and pick up a miniature, framed original painting for less than $10. Ubud can also turn up some stunning finds if you have the patience to browse through mountainous displays in the artisan shops located along Jalan Raya Ubud and Monkey Forest Road (store aisles will be almost impassable with paintings and carvings – take a deep breath and watch your step). One more word of advice: guides and drivers will often try to steer you to a shop or gallery run by a friend or family member.

Q16. The style of the passage is _____ and the tone of the author is one of _____.

- a) Narrative ..... positive enthusiasm
- b) Descriptive ..... implied skepticism
- c) Analytical ..... guarded appreciation
- d) Argumentative ..... great polemic

Q17. From the information given in the passage, what can be understood to be true?

- a) Dan Phillips fell in awe of the customs and the rituals of Bali during his short stay.
- b) Dan Phillips visited religious places in Bali and chatted with priests in a gamelan orchestra about foreign influences in paintings.
- c) Dan Phillips visited pastoral areas of Bali and owned a second home in the inland town of Ubud.

d) It is suggested that one has to display great patience in order to find good art in Ubud's fragmentary markets

Q18. According to the author, Bali belies the tag of cultural hub for which of the following reasons?

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

(1) Nowadays, T shirt hawkers are more prevalent in Bali than artists who earlier had a higher stature in society.
(2) The Balinese people celebrate Christmas more than others in the world and are fond of Christmas decorations.
(3) The Balinese target the tourist dollar and give more importance to making business out of tourists rather than to giving priority to art.
(4) The natives of Bali are attuned to the sounds of nature and enjoy the chirping of birds. Their paintings reflect themes of nature.
(5) The works of art on display in Bali have random subjects.

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

A new strain of H5N1 avian influenza virus that has apparently gained predominance in Egypt in recent months may be associated with the sharp increase in human H5N1 cases there during that same time frame, an international team of scientists reported yesterday in *Eurosurveillance*. A flu virus infects a cell by linking its hemagglutinin gene – the H in H5N1 – with chemical receptors on the surface of the cell, like a key fitting a lock.

The steep increase in human cases and poultry outbreaks in Egypt in the past several months has stirred speculation about whether mutations in the virus are better equipping it to spread in poultry and from poultry to humans. The report says 435 poultry outbreaks were reported by Egyptian veterinary authorities from October 2014 through February 2015.Human H5N1 cases first occurred in Egypt in 2006, and a total of 204 confirmed cases were reported from 2006 through 2014, with a case-fatality rate of 35.8%, the researchers say. This year, the case total reached 116 as of March 21, with 36 deaths, or more than half the count for the preceding 9 years, they add.

For the study, the team selected a sample of 29 H5N1 isolates representing different poultry species, locations, and operations (commercial farms, backyard flocks, and live-bird markets). They generated sequence data for the hemagglutinin (HA) segments of all 29 viruses and for the neuraminidase (NA) genes of 15 isolates. In addition, they sequenced the entire genomes of four isolates.

Through a phylogenetic analysis to see where the viruses fit on the H5N1 family tree, the team concluded that they belong in a separate cluster within a previously defined clade, 2.2.1.2. They further found that none of the older viruses from that clade have been detected in Egypt since last October, indicating that the new strain has become predominant.

The sequence data for the internal genes of the viruses agree with the findings for the HA and NA sequences, "indicating that the new viruses represent a distinct cluster that originated from previously circulating viruses of

clade 2.2.1.2," the report says.

In addition, the team found that two H5N1 viruses collected from infected humans last November "are part of the same expanding cluster," with similar mutation patterns. The two are the only publicly available sequences of viruses from recent human cases in Egypt.

An analysis of the HA sequence revealed one amino-acid change, K373R, that appeared to be characteristic of the emerging strain, in that it had been seen only rarely in the past. Three other mutations in the strain are associated with increased binding to human-type flu virus receptors, but these mutations had been seen in earlier clade 2.2.1.2 viruses in Egypt, the article says.

"Since no substituting mutations were found in HA epitopes, we do not expect marked differences in the antigenic properties of the emerging phylotype compared with the previously circulating clade," the report says. It adds that this was partly confirmed by testing how viruses of the new strain and other H5 viruses reacted with antibodies from birds that had been exposed to various H5 strains.

The team also found four amino-acid changes in the new strain's NA gene. Three of these were at sites on the protein that induce B- or T-cell responses by the immune system.

The authors comment that a new H5N1 cluster emerged in Egypt once before but did not become predominant. A strain that was designated as clade 2.2.1.1 emerged in late 2007 and expanded in poultry, but then disappeared until the end of 2010. It did not replace 2.2.1.2 viruses, and it apparently caused only one human case.

The team writes that it's hard to assess whether or not the recent increase in poultry H5N1 outbreaks in Egypt is attributable to the biological properties of the new strain in poultry or not.

"In any case, the observed recent rise in outbreaks in poultry probably resulted in increased exposure risks for humans in contact with poultry, which may have caused an increased incidence in human cases," they write. Their findings don't prove that the new strain jumps to humans more easily, they add, but the possibility can't be ruled out.

Q19. What is the main purpose of the author of the passage?

- a) To elaborate on the new strain of H5N1 and to debate the possibility that it may have equipped the quality to jump from avians to humans.
- b) To present a case study on H5N1 and provide statistical evidence of deaths caused in humans.
- c) To analyse whether H5N1 can be transmitted to humans or not.
- d) To present research data on the H5N1 virus.

Q20. According to the passage, how is the predominant strain of H5N1 different from the non-predominant strain of H5N1?

- a) Only the new H5N1 strain has increased binding to human type flu virus receptors.
- b) Unlike the non-predominant H5N1 strain, the predominant H5N1 strain has an amino acid change in the HA sequence and four amino acid changes in the NA sequence.

c) Unlike the non-predominant H5N1 strain, the predominant H5N1 strain has four amino acid changes in the HA sequence and four amino acid changes in the NA sequence.

d) Unlike the predominant H5N1 strain, the predominant H5N1 strain has three mutations in the HA sequence which alter the binding to human-type flu virus receptors.

21. Which of the following can be inferred from the passage?

a) The older H5N1 strain has transformed into the newer H5N1 strain and both of them belong to the same clade but different cluster.

b) The older non-predominant strain has not been detected in Egypt but the new predominant strain has been detected in Egypt. Both of them belong to the same family of viruses.

c) The newer predominant virus is an upgraded or mutant version of the older non-predominant virus and both of them belong to clade 2.2.1.1

d) Like the non-predominant strain, the newer predominant virus is a part of the clade 2.2.1.2 and belongs to the same cluster. It also shows increased binding to human type flu virus receptors.

Q22. Which of the following statements most corresponds to what the passage relates?

a) The H5N1 strain was not observed before but emerged in recent times in Egypt.

b) The H5N1 strain was predominant right from the start in Egypt.

c) The H5N1 strain has become predominant in recent times in Egypt.

d) The H5N1 is an avian virus adapted to killing birds and not people.

Q23. Which of the following can be understood from the passage?

a) The passage presents a case study and its source is the medical journal *Eurosurveillance*.

b) The H in H5N1 stands for Haemophilus paragallinarum.

c) The research findings mentioned in the passage can be classified under the fields: Biostatistics, Genetics, Phylogenetics, Virology and Ornithology.

d) The new strain of H5N1 virus has spread widely in Egypt's poultry and two recent H5N1 isolates from human patients fall into the same cluster.

Q24. According to the passage, which of the following is/are true?

(a) As compared to earlier strains, the new H5N1 virus strain has an increased potential of affecting animals and thereby increases the risk of its transmission to humans.
(b) Earlier the H5N1 virus had less capability to jump from birds to humans but the new strain has increased chances.
(c) The possibility that the emerging phylotype of H5N1 virus has an increased zoonotic potential and, thereby, the risk of transmission to humans cannot be ruled out.
(d) Statistical evidence indicates that people are increasingly affected due to maintaining contact with poultry and further research will prove whether the virus is jumping from poultry to humans.

- a) a, c and d
- b) a and c
- c) b and d
- d) Only c

DIRECTIONS *for questions 1 to 4*: In the following question, there are sentences or fragments of sentences that form a paragraph. Identify the sentence(s) or fragments of sentence(s) that is/ are **correct** in terms of grammar and usage, including spelling, punctuation and logical consistency. Enter the number corresponding to the sentence(s) or fragments of sentence(s) in the input box provided below the question. [Note: Enter your answer in increasing order only. For example, if you think that the fragments (2) and (4) are **correct**, then enter 24 (but not 42) in the input box.]

Q25. (1) Strange as it may seem, the modern Olympic games may owe its existence to the sport of rugby.
(2) In 1883, 11 years before finding the International Olympic Committee (IOC), Pierre de Coubertin observed how
(3) "organised sport can create moral and social strength" on playing fields
(4) of Rugby School – where the game was invented. Coubertin himself refereed the first-ever French rugby championship final in 1892
(5) and helped introduce the sport on the Olympic schedule.

Q26. (1) Economists love to debunk the analogy that is often drawn between the government's budget and a household.
(2) Much of the government's debt is held by its own taxpayers; households borrows from outside sources exclusively.
(3) But there is another equally flawed analogy to which Donald Trump subscribes: that writing economic policy
(4) is comparable to making business decisions. Mr Trump's thirteen strong team of economic advisers announced on Friday,
(5) is packed full of rich businessmen (and only men). Just three have backgrounds relevant to economics.

Q27. (1) The Minoan civilization was Aegean Bronze Age civilization that arose on the island of Crete and other Aegean islands
(2) and flourished from approximately 3650 to 1400 BCE. It belongs in a period of Greek history preceding
(3) both the Mycenaean civilization as well as Ancient Greece. It was rediscovered at the beginning of the 20th century
(4) through the work of British archaeologist Arthur Evans. Historian Will Durant dubbed the Minoans as "the first link in the European chain,"
(5) and their civilization has been referred to as the earliest of its kind in Europe.

Q28. (1) Niagara Falls is the collective name for three waterfalls that straddle across the international border between Canada and the United States.
(2) From largest to smallest, the three waterfalls are the Horseshoe Falls, American Falls and Bridal Veil Falls.
(3) The Horseshoe Falls lie mostly on the Canadian side and the American Falls on the American side entirely, separated by Goat Island.

(4) The smaller Bridal Veil Falls are also on the American side, separated from the other waterfalls by Luna Island.
(5) Located on the Niagara River, which drains Lake Erie into Lake Ontario, the combined falls form the high flow rate of any waterfall in the world.

DIRECTIONS *for questions 5 to 8*: Read the following paragraph and answer the question given below.

Q29. A few days back, Pearl declined Desmond's invitation to a party saying that it wouldn't be appropriate for her to socialize with her immediate subordinates at work. However, she accompanied Kenneth, another of her immediate subordinates, to a film the next day, thus giving the lie to her concern for appropriateness.

The argumentative structure of which one of the following most closely parallels that of the argument in the passage?

a) Sharmila's father insists that she never miss lunch at work, since this would adversely affect her health. Yet, he hardly ever has lunch at work himself. Clearly he is not absolutely convinced of the connection between regular meals and good health.

b) Dr. Charmaine has told students that she wants them to submit only type-written assignment papers, since most handwriting is difficult to read. However, she uses handwritten notes for her lectures. This being so, she must have certain other reasons for her instructions to students.

c) The Commerce minister announced today that we have severed economic ties with Dystopea because of their blatant protectionism. That it is not protectionism that bothers us is clear from the fact that we continue to engage in trade with certain other states despite their unapologetic discrimination in favour of indigenous manufacture and trade.

d) When he plays cricket with his friends, Sohail insists on batting first since the bat belongs to him. He must have bought a new ball for the game today, since he has insisted on bowling first.

Q30. Eating healthy starts with having healthy stuff on hand. Always make a list so that you'll be following a well-planned nutritional diet plan. There are numerous benefits of including organic produce: it's more eco-friendly, less exposed to pesticides, and more often flavourful.

Which of the following, if true, would weaken the claim for inclusion of organic produce in the diet?

(a) Organic produce has more nutrients since it is not artificially grown using chemicals as used in conventional produce.
(b) Wild food products gathered directly are more nutrient-rich than farmed food products.
(c) A frozen meal mixed with organic products will be more nutritional than the canned products.
(d) Organic produce is found to carry detectable traces of harmful bacteria as well as certain levels of illegal pesticide residue on them.
(e) Organic produce can be slightly expensive and thus is unaffordable for the majority of people.

a) b and d

b) a and e

c) b and c

d) Only d

Q31. For reasons best known to Indian historians and their publishers, maps have played only a marginal role in pedagogic endeavours; their inclusion in textbooks has been narrowly political. Which student or teacher has not groaned at the stern warning in small print by the Survey of India about the rightful boundaries of our beleaguered nation?

Which of the following is a valid inference from the paragraph?

a) There is a scope to increase the usage of maps for educational purposes in India.

b) The Survey of India has not depicted the rightful boundaries of India.

c) The country has to redeem itself it wants to let go of the 'beleaguered' tag.

d) Indian historians and publishers do not know the reasons for maps playing a marginal role in pedagogic endeavours.

Q32. No project can be properly executed without a clear set of objectives supported by a feasible plan. The Baseball Stadium Project in Future City was originally supposed to make ready the venue for the Baseball Premier League tournament. But when the tournament was unexpectedly shelved, another purpose was thought of. It was decided to turn it into a hockey stadium, even though a beautiful hockey stadium already exists. Clearly, the new stadium should not come up.

The reasoning in the argument is flawed because the argument

a) concludes that a shortcoming is fatal, having produced evidence only of the possibility of that shortcoming.

b) attacks the end rather than the means.

c) is based on a prejudice.

d) faults planners for not foreseeing a certain event, when in fact that event was not foreseeable.

DIRECTIONS *for questions 9 to 11*: The sentences given in the following question, when properly sequenced, form a coherent paragraph. Each sentence is labeled with a number (1, 2, 3, 4 or 5). Decide on the proper order for the sentences and key in this sequence of five numbers as your answer.

Q33. (1) Just as mankind has evolved over the centuries, our means of communication have followed suit.
(2) Effective spoken communication is essential as it serves to inform, motivate, establish authority and control, and allows for emotive expression.
(3) What began as primitive cave paintings and signed language has morphed into an endless variety of ways to express oneself to other humans.
(4) All animal species have perfected a system of communication, but humans are the only species capable of spoken language.
(5) For humans in particular, spoken communication is also vital for creating a sense of social cohesion.

Q34. (1) We spoke of war, old age, the vocation of the painter; then he opened the door of his studio to let me go in first.
(2) He has worked hard throughout his life – but he has only produced, as far as the world knows, a few drawings and one large canvas which is in the National Museum.

(3) Just outside Amsterdam there lives an old, well-known, and respected Dutch painter.
(4) The huge canvases were white; after years of work he had calmly destroyed them that day.
(5) I went to see his second major work, a triptych of the war.

Q35. (1) The story is untrue, but Galileo did do something equivalent: he rolled balls of different weights (which did not have much air resistance) down a smooth slope.
(2) It is said that Galileo demonstrated that Aristotle's belief was false by dropping weights from the leaning tower of Pisa.
(3) Galileo's measurements indicated that each ball increased its speed at the same rate, no matter what its weight.
(4) So no one until Galileo Galilei bothered to see whether bodies of different weights did in fact fall at different speeds.
(5) The Aristotelian tradition held that one could work out all the laws that govern the universe by pure thought: it was not necessary to check by observation.

DIRECTIONS *for questions 12 to 14*: Four alternative summaries are given below the text. Choose the option that best captures the essence of the text.

Q36. Is Indian thinking about management, leadership or global strategy shaped by classical Indian literature such as the Bhagavad Gita? The Bhagavad Gita is a wise and wonderful poem, with much thoughful commentary about both the conduct and the examination of life. The philosophical ideas it encapsulates have had a pervasive influence on Indian culture through the centuries and it is astonishing that a work of literature composed two and a half millennia ago should have such resonance today. While most Indians can recite a few shlokas (verses) from the Gita and some aspire to some of its wisdom, the custom of attributing one's inspiration for ideas to the Gita seems to me to cheapen the influence, if for no other reason than the fact that most of these ideas are unlikely to match either the grandeur or the longevity of the Gita.

a) The Bhagavad Gita rises above any claim of influence connected with it even as it is primarily responsible for the ethos governing Indian managers.

b) Many Indians recite the shlokas from the Gita because they believe that it has a profound influence on the Indian culture.

c) The Bhagavad Gita is an old epic that deals with the conduct and the examination of life and still has an influence on the Indian culture. One's desire for ideas should not be attributed to the Gita because the former may not equal the greatness of the Gita.

d) The Bhagavad Gita throws light on the conduct and the examination of life but it does not in any way influence the decision making process of Indian managers.

Q37. Religious beliefs and practices are found in all human groups and go back to the very beginnings of human culture. Instead of searching for the origin of religion in general human urges, psychologists, anthropologists, and neuroscientists focus on the mental machinery activated in acquiring and representing religious concepts. Do people know what their religious concepts are? This may seem an absurd question, but it is in fact an important question in the psychology of religion, and whose true answer is probably in the negative. In most domains of mental activity, only a small part of what goes on in our brains is accessible to conscious inspection. For instance, we constantly produce grammatical sentences in our native tongue with impeccable pronunciation, often without any idea how this is done. Or we perceive the world around us as

made up of three-dimensional objects, but we are certainly not aware of the ways in which our visual cortex transforms two retinal images into this rich impression of solid objects out there.

a) It seems strange to ask whether people know what their religious concepts are. But psychology has shown that in many mental processes, such as language and vision, we are consciously aware of only part of what actually goes on in the brain. The same applies to our understanding about religion.

b) People believe in religious concepts without necessarily knowing what they are. The reason for our perception of the world in three dimensions or the ability to speak fluently in our mothertongue is unclear because only a tiny part of the events in our brain can be inspected.

c) People should know what their religious concepts are but they do not. Similarly, they have no awareness about the mental processes in the brain responsible for the functions of complex vision and language.

d) Psychologists, anthropologists, and neuroscientists concentrate on the mental machinery activated in acquiring and representing religious values but do not focus on their origin. Just as we do not know how mental activities like vision and language functions actually take place in the brain, we do not know what our religious concepts are.

Q38. It can be extremely interesting to use musical influences from India in an organic way: it depends on how one thinks artistically. I play the piano, so it is natural for me to think "harmonically" a lot of the time. It is not that natural for me to think about melodies on my instrument without thinking of harmony (for jazz and classical players, the melodic aspect of the music is not separate from the harmony). Technically, I cannot bend notes on a piano so I cannot play ragas. For guitar players, it is easy to bend notes, so it is possible to have ragas as a natural part of one's thinking (based on the training). However, for an expert flamenco or blues guitar player, the thinking would be very different from a Hindustani or Carnatic guitar/ mandolin player since a different knowledge system was internalised. Even if the knowledge systems are different, musical bridges can be built by musicians who have different ways of thinking, provided they find ways to communicate with each other — the key issue is that the work of art is inspired.

a) Music influences thought processes. A different training process and the use of different instruments leads to a different approach while playing the same instrument. Musicians, therefore, need to find a common ground to communicate with each other.

b) Music can influence people in their way of thinking. Knowledge systems are inherent and cannot be learned. The same instrument can be played differently. Music builds bridges that depend on the appropriation of different music genres by musicians.

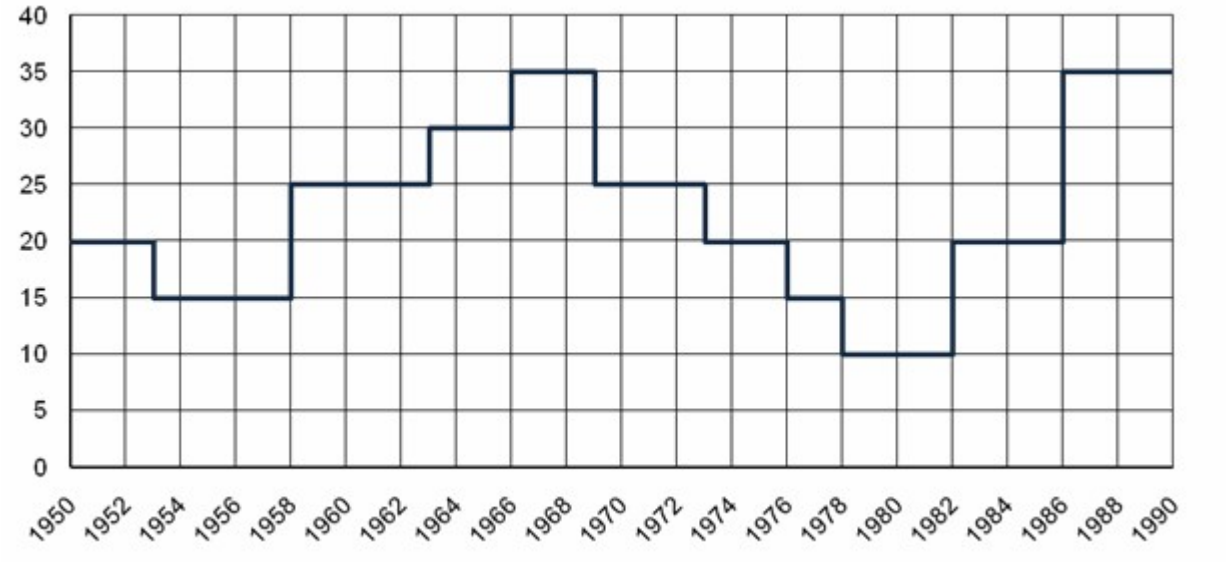
c) Music is an integral part of people's lives and in this respect it is pertinent that music can also influence actions. Though Western music is limited in its ability to adapt to Indian influences, few musicians using instruments like the guitar have made substantial progress in bridging the gap between the two systems.

d) Music is an important part of people's lives, with the ability to build bridges. Musicians are limited in the way they respond to music due to their training, which may differ from one system to another. Thus, the same system can be played differently.

DILR

DIRECTIONS *for questions 1 to 5*: Answer these questions on the basis of the information given below.

The population of Geometric Tortoise, a rare species of tortoise, in a zoological park was monitored from 1950 to 1990. Their population was determined at the beginning of each year. The following chart presents this data:



Assume that the population of the tortoises remained constant during the year and changed only at the beginning of each year. For example, the population of the tortoises throughout 1958 was 25.

Q1. DIRECTIONS *for questions 1 to 5*: Select the correct alternative from the given choices.

In how many years did the population of the tortoises decrease by more than 20% as compared to the previous year?

- a) 10
- b) 6
- c) 5
- d) 4

Q2. DIRECTIONS *for questions 1 to 5*: Select the correct alternative from the given choices.

In which year was the percentage increase in the population of the tortoises as compared to the previous year the highest?

- a) 1958
- b) 1982
- c) 1986
- d) 1963

Q3. DIRECTIONS *for questions 1 to 5*: Select the correct alternative from the given choices.

What is the average population of the tortoises across the given period?

- a) 21.78
- b) 22.93
- c) 23.5
- d) 21.57

Q4. DIRECTIONS *for questions 1 to 5*: Select the correct alternative from the given choices.

For the given period, if *x* is the number of years in which the population of the tortoises was greater than 20, what is the value of *x* as a percentage of the total number of years given?

- a) 48.8%
- b) 50%
- c) 51.3%
- d) 46.7%

Q5. DIRECTIONS *for questions 1 to 5*: Select the correct alternative from the given choices.

What is the maximum number of tortoises that would have survived for the entire duration given?

- a) 15
- b) 10
- c) 20
- d) 0

DIRECTIONS *for questions 6 to 9*: Answer these questions on the basis of the information given below.

Five teams – A through E – participated in a football league in which each team played against each of the other teams exactly once. In any match, the winning team was awarded three points and the losing team was not awarded any points. In case of a draw, each of the two teams was awarded one point. The following table presents the total points scored by each team in the league:

Team	Points
A	7
B	3
C	1
D	6
E	12

Q6. DIRECTIONS *for questions 6 to 9*: Select the correct alternative from the given choices.

How many matches were drawn in total?

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

Q7. DIRECTIONS *for questions 6 to 9*: Select the correct alternative from the given choices.

If A scored a total of two goals in the league, how many goals would C have scored against A?

- a) 0
- b) 1
- c) 2
- d) Cannot be determined

Q8. DIRECTIONS *for questions 6 to 9*: Select the correct alternative from the given choices.

Which of the following statements is true?

- a) B lost to C.
- b) A won against C.
- c) D won against B.
- d) C drew with B.

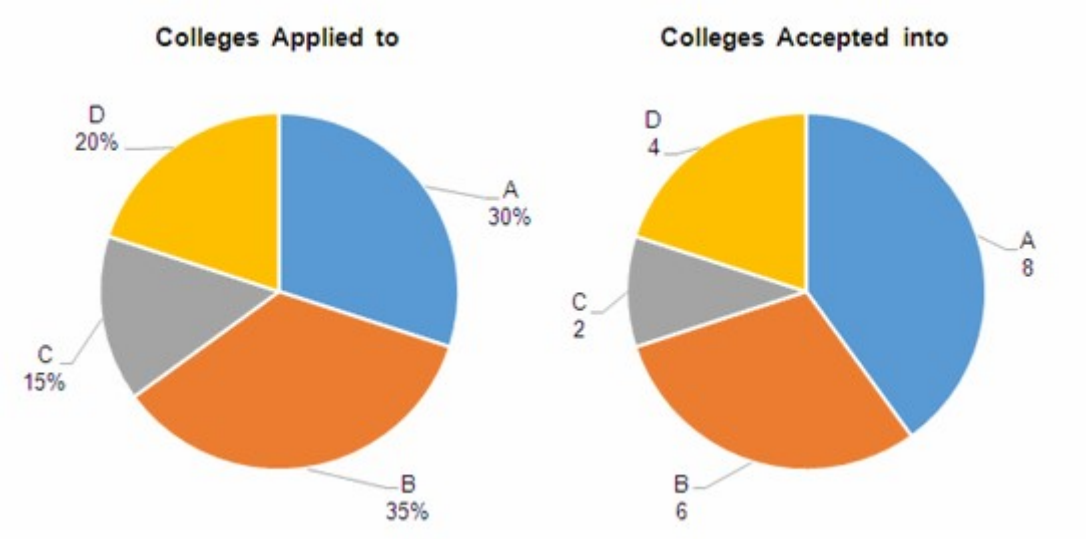
Q9. DIRECTIONS *for questions 6 to 9*: Select the correct alternative from the given choices.

How many teams lost at least two matches in the league?

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

DIRECTIONS *for questions 10 to 13*: Answer these questions on the basis of the information given below.

Divya applied to colleges in four different countries – A, B, C and D – to pursue her post-graduation. Among these colleges, she was accepted into a few colleges, while she was rejected from the remaining. The first pie chart below gives the percentage breakup of the number of colleges that she applied to, by the country in which the college is present. The second pie chart gives the breakup of the number of colleges, by country, into which she was accepted.



Q10. DIRECTIONS *for questions 10 to 13*: Select the correct alternative from the given choices.

What is the minimum number of colleges that Divya could have applied to (considering the percentages breakup in the first pie chart to be exact)?

- a) 20
- b) 14
- c) 27
- d) 40

Q11. DIRECTIONS *for questions 10 to 13*: Select the correct alternative from the given choices.

If Divya was rejected by exactly two-thirds of the colleges that she applied to in C, how many colleges would she have applied to in all?

- a) 20
- b) 40
- c) 60
- d) 80

Q12. DIRECTIONS *for questions 10 to 13*: Select the correct alternative from the given choices.

If Divya was rejected by a total of 40 colleges, how many colleges in D rejected her?

- a) 4
- b) 5
- c) 6
- d) 8

Q13. DIRECTIONS *for questions 10 to 13*: Select the correct alternative from the given choices.

If Divya was rejected by 12 colleges in D, what percentage of colleges that she applied to in C would have rejected her?

- a) 83.33%
- b) 16.67%
- c) 66.67%
- d) 33.33%

DIRECTIONS *for questions 14 to 17*: Answer these questions on the basis of the information given below.

The table below gives partial information about the number of days for which each student attended school during five months. The last column gives the average number of days attended per month for each student and the final row gives the average number of days attended per student for each month.

Student	Month					Average
	June	July	August	September	October	
Abhinav	20	21	14	12	16	**16.60**
Amar	16	10	15			**14.00**
Ankur	18	19	13	16	13	**15.80**
Gaurav		18	16	21		**17.00**
Gautam	24	14	18	24	20	**20.00**
Hari	21	18	17	20	21	**19.40**
Jai	22	16	21	18	24	**20.20**
Kamal	12	21	19	17	23	**18.40**
Krishna			23	13	20	**18.60**
Pavan	16	24	21	10	18	**17.80**
Piyush	11	17	22		19	**16.20**
Priya	2	19	20	5	17	**12.60**
Ramesh	15	15	14	14	13	**14.20**
Ramya	14	11	19	21		**17.20**
Satish	13	10	9	14	10	**11.20**
Sirish	18		8	12	9	**11.20**
Tarun	19	8	24	14	14	**15.80**
Uday	9	15	12	21	16	**14.60**
Venu	22	14	21	20	21	**19.60**
Wasim	23	21	14	11	23	**18.40**
Average	**16.40**	**16.15**	**17.00**	**15.45**	**17.20**	

Q14. DIRECTIONS *for questions 14 to 17*: Type in your answer in the input box provided below the question.

How many students attended school for less than 15 days in September?

Q15. DIRECTIONS *for questions 14 to 17*: Type in your answer in the input box provided below the question.

For how many days did Krishna attend school in June?

Q16. DIRECTIONS *for questions 14 to 17:* Type in your answer in the input box provided below the question.

Among the students who attended school for more than 90 days across the five months combined, how many students attended school for at least 20 days in July?

Q17. DIRECTIONS *for questions 14 to 17*: Type in your answer in the input box provided below the question.

For how many days did Amar attend school in October?

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

Ravi purchased a smartphone in which the available storage was 16 GB. He wanted to install a few apps from four different categories – Games, Productivity, Shopping, Media – on his phone. Each app has a different size and the total size of all the apps that he installs on his phone should not exceed 16 GB. The following table gives the list of apps, by category, from which Ravi can choose and install a few on his phone:

Games		**Productivity**	
Name	**Size (in GB)**	**Name**	**Size (in GB)**
Run Run	2	Office	6
Clash of Villagers	4	Calendar	3
Monument	6	Postbox	2
Shopping		**Media**	
Name	**Size (in GB)**	**Name**	**Size (in GB)**
Kart	3	Metube	4
Amazin	5	Audio cloud	5

The following information is known about the apps that Ravi wants to install:

(i) He wants to install at least one app from each category.
(ii) If he installs Monument on his phone, he will not install Metube.
(iii) He will install Calendar, if and only if he installs Run Run.
(iv) If he installs Kart, he will not install Clash of Villagers.

Q18. DIRECTIONS *for questions 1 and 2*: Type in your answer in the input box provided below the question.

What is the maximum number of apps that Ravi can install on his phone?

Q19. DIRECTIONS *for questions 1 and 2*: Type in your answer in the input box provided below the question.

In how many ways can Ravi install apps on his phone such that the 16 GB of storage in his phone is completely used up?

Q20. DIRECTIONS *for question 3*: Select the correct alternative from the given choices.

Which app cannot be installed by Ravi on his phone?

- a) Monument
- b) Audio cloud
- c) Office

- d) Amazin

Q21. DIRECTIONS *for question 4*: Type in your answer in the input box provided below the question.

What is the maximum possible storage (in GB) that can remain unused after Ravi installs the apps on his phone?

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

Bolton Ramsay, a renowned chef, wanted to cook a dessert which had seven ingredients – Mangoes, Caramel, Milk, Cream, Bread, Sugar and Strawberries. The seven ingredients should be added to a pot of boiling water in a specific sequence one after the other. However, Bolton forgot the exact sequence in which each ingredient must be added. But he did remember the following information:

(i) Bread, which is not the last ingredient to be added, must be added after adding Sugar.
(ii) The Strawberries must be added immediately before adding the Mangoes but immediately after adding the Milk.
(iii) Cream is not the first ingredient to be added but it must be added immediately before adding the Caramel.
(iv) The first ingredient is added before adding the Milk and the last ingredient is added after adding the Caramel.

Q22. DIRECTIONS *for questions 5 to 8*: Select the correct alternative from the given choices.

What is the first ingredient that must be added?

- a) Sugar
- b) Milk
- c) Cream
- d) Cannot be determined

Q23. DIRECTIONS *for questions 5 to 8*: Select the correct alternative from the given choices.

What is the sixth ingredient that must be added?

- a) Caramel
- b) Cream
- c) Strawberries
- d) Bread

Q24. DIRECTIONS *for questions 5 to 8*: Select the correct alternative from the given choices.

If Bread is to be added before Caramel, what is the third ingredient that must be added?

- a) Caramel
- b) Cream
- c) Milk
- d) Sugar

Q25. DIRECTIONS *for questions 5 to 8*: Select the correct alternative from the given choices.

If exactly five ingredients are to be added after adding Cream, what is the fourth ingredient to be added?

- a) Sugar
- b) Milk
- c) Mangoes
- d) Bread

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

Seven ships, each of a different nationality among Indian, British, American, Chinese, French, Japanese and German, were anchored in a circle around an islet, facing it, such that the distance between any two ships adjacent to each other was equal. On the islet, there is a lighthouse operated by an operator, Karan. The light in the lighthouse rotates in the clockwise direction at a uniform speed and completes one full rotation in exactly seven minutes. Further, any ship will be visible to Karan (for a brief moment) only when the light from the lighthouse exactly shines upon the ship. Karan observed the following from the lighthouse:

(i) The British ship was visible at 10:05 p.m. and the Indian ship was visible at 10:15 p.m.
(ii) The French ship was visible at 10:30 p.m. and the German ship was visible at 10:56 p.m.
(iii) The American ship was not anchored adjacent to the British ship but was anchored adjacent to the Chinese ship.

Q26. DIRECTIONS *for questions 9 to 12*: Select the correct alternative from the given choices.

Which ship was to the left of the Indian ship?

- a) French ship
- b) American ship
- c) Japanese ship
- d) British ship

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

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(iii) The American ship was not anchored adjacent to the British ship but was anchored adjacent to the Chinese ship.

Q27. DIRECTIONS *for questions 9 to 12*: Select the correct alternative from the given choices.

Which of the following ships would have been visible at 11:00 p.m.?

- a) British ship
- b) Chinese ship
- c) Indian ship
- d) French ship

Q28. DIRECTIONS *for questions 9 to 12*: Select the correct alternative from the given choices.

Which of the following pairs of ships were anchored adjacent to each other?

- a) French ship and German ship
- b) Indian ship and American ship
- c) Chinese ship and Indian ship
- d) Japanese ship and German ship

Q29. DIRECTIONS *for questions 9 to 12*: Select the correct alternative from the given choices.

The shortest possible distance between which of the following pairs of ships is the maximum?

- a) British ship and French ship
- b) French ship and American ship
- c) Japanese ship and Chinese ship
- d) British ship and German ship

DIRECTIONS *for questions 13 to 17*: Answer these questions on the basis of the information given below.

Amar has six friends – Rakesh, Satish, Tarun, Umesh, Virat and Wasim. Each friend plays exactly one sport such that exactly two friends play Badminton, two play Hockey and two play Football. Also, two of his friends are

Doctors, two are Engineers and two are Lawyers. Amar made the following statements about the professions of his friends and the sports that they play. It is known that all the statements made by Amar are false.

(i) Neither Rakesh nor Wasim is a lawyer.
(ii) None of the doctors play Badminton.
(iii) Among Satish, Tarun and Umesh, there is at least one engineer.
(iv) Rakesh does not play Badminton or Wasim does not play Football.
(v) Virat is an engineer and Tarun does not play Hockey.
(vi) The lawyers play different sports.
(vii) Umesh is not a lawyer.

Q30. DIRECTIONS *for questions 13 to 17*: Select the correct alternative from the given choices.

Who among the following is a lawyer?

- a) Virat
- b) Rakesh
- c) Wasim
- d) Satish

Q31. DIRECTIONS *for questions 13 to 17*: Select the correct alternative from the given choices.

Which of the following pairs of people are of the same profession?

- a) Rakesh, Satish
- b) Umesh, Tarun
- c) Rakesh, Virat
- d) Virat, Wasim

Q32. DIRECTIONS *for questions 13 to 17*: Select the correct alternative from the given choices.

Which of the following statements is false?

- a) Rakesh is an engineer.
- b) Umesh plays football.
- c) Wasim is a lawyer.
- d) Tarun plays Badminton.

Q33. DIRECTIONS *for questions 13 to 17*: Select the correct alternative from the given choices.

Who among the following plays Badminton AND is not an Engineer?

- a) Satish
- b) Rakesh
- c) Tarun
- d) Umesh

Q34. DIRECTIONS *for questions 13 to 17*: Select the correct alternative from the given choices.

Who among the following plays Badminton?

- a) Tarun
- b) Rakesh
- c) Umesh
- d) Wasim

QA

Q1. If x and y are non-zero real numbers, such that $x^y = y^x$ and $y = 2x$, find the value of the product xy.

Q2. A is five years older than B and five years younger than C. If the average of the ages of A, B and C is 19 years, what is the age of B?

- a) 14 years
- b) 9 years
- c) 19 years
- d) 13 years

Q3. Every day on his way to college, Supandi crosses a bus coming from the opposite direction, at a certain point on the way. One day Supandi was late by 15 minutes and as a result he crossed the bus five minutes after the usual time. What is the ratio of the speed of the bus to that of Supandi?

- a) $\frac{3}{2}$
- b) 2
- c) 3
- d) $\frac{5}{2}$

Q4. The ratio of the selling prices of two articles, A and B, is 2 : 3. If the percentage profit realized on selling the articles A and B are 25% and 20% respectively, then find the ratio of the cost price of A to that of B.

- a) $\frac{3}{2}$
- b) $\frac{7}{18}$
- c) $\frac{9}{16}$
- d) $\frac{16}{25}$

Q5. Find the radius (in cm) of the circle inscribed inside a triangle with sides measuring 40 cm, 42 cm and 58 cm respectively.

- a) 10
- b) 12
- c) 14
- d) 16

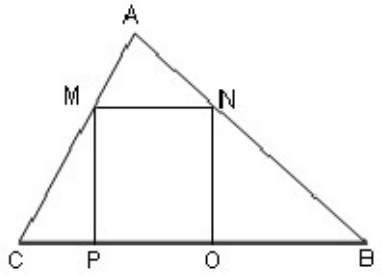
Q6. P, Q, R, S and T are five boys who were asked to come, one at a time, and make a presentation. In how many ways is it possible that P makes his presentation before Q, and Q, before R?

- a) 10
- b) 20
- c) 15
- d) 30

Q7. Find the remainder when 3^{252} is divided by 11.

- a) 1
- b) 3
- c) 9
- d) 5

Q8. In the figure below, MNOP is a square, which is inscribed in the triangle ABC, such that the base OP of the square lies on the side BC. Find the length (in cm) of the side of the square, if AB = 20 cm, BC = 25 cm and AC = 15 cm.



- a) $8\frac{4}{37}$
- b) $4\frac{14}{29}$
- c) 5
- d) 6

Q9. Find the sum of the first 100 terms of an arithmetic progression, if the 23^{rd} and the 78^{th} terms of the progression are $7\frac{11}{91}$ and $12\frac{80}{91}$ respectively.

- a) 100
- b) 150
- c) 1000
- d) Cannot be determined

Q10. If *P* is a perfect square, such that exactly 11 of its factors are less than its square root, find the number of factors of P^2.

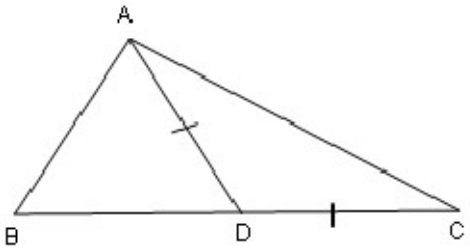
- a) 23
- b) 45
- c) 89
- d) 100

Q11. Find the value of *m* for which the roots of the quadratic equation $11x^2 - (3m + 5)x + 2m + 3 = 0$ are reciprocals of each other.

- a) 2
- b) 4

- c) $\frac{3}{2}$
- d) –7

Q12. In the figure given below, if triangle ABD is an equilateral triangle and C is a point on BD such that AD = DC, then which of the following is true regarding triangle ABC?



- a) It is an acute angled triangle.
- b) It is an obtuse angled triangle.
- c) It is a right angled triangle.
- d) Cannot be determined

Q13. In how many ways can five couples sit around a circular table such that no two persons belonging to the same gender sit in adjacent positions and no person sits opposite his or her spouse?

Q14. A data set comprises five natural numbers, 15, 4, 42, 23 and *x*. How many values of *x* exist such that the median of the above set of numbers is equal to its mean?

- a) 0
- b) 3
- c) 1
- d) 2

Q15. Find the minimum possible sum of four prime numbers which are in arithmetic progression.

Q16. Each student in a class of 120 students plays at least one of the three sports, Football, Cricket and Basket Ball. The number of students playing Football, Cricket and Basketball was 70, 90 and 80 respectively. The number of students who played exactly one sport was one-third of those who played at least two sports. If 15 students played only Football, then how many students played only Cricket and Basket Ball?

Q17. If under compound interest, a certain sum becomes eight times itself in 27 years, after how many more years will it become 16 times itself?

a) 3

b) 4

c) 9

d) 12

Q18. If n is a natural number, for how many integral values of x will $f(x) = |x - 7n| + |x - 49n^2| + |x - 2401n^4|$ assume a minimum value?

a) 1

b) $7n$

c) $49n - 2$

d) Infinite

Q19. If $f(x) = x^2 + ax + b$ ($a, b \neq 0$) is a quadratic expression, such that the positive difference between the roots of $f(x) = 0$ is three times that of $f(x) = -2$, which of the following gives the minimum value of $f(x)$?

a) $\frac{4}{3}$

b) $-\frac{7}{4}$

c) $-\frac{9}{4}$

d) Cannot be determined

Q20. When Ankita called Dipanjan in the evening, it was four times as many minutes past 4 pm as it was to 6 pm. When they hung up, it was twice as many minutes past 5 pm as it was to 7 pm. For how long did they talk?

a) 24 minutes

b) 36 minutes

c) 44 minutes

d) 50 minutes

Q21. The ratio of the curved surface areas of two cylinders A and B is 2 : 3. If the ratio of the volumes of A and B is 4 : 5, find the ratio of the heights of A and B.

a) $\frac{2}{3}$

- b) $\frac{5}{9}$
- c) $\frac{3}{9}$
- d) $\frac{2}{5}$

Q22. Starting simultaneously from the same point on a circular track, two runners, A and B, will meet for the first time after 24 seconds, if they are travelling in the same direction and after 8 seconds, if they are travelling in opposite directions. The speed of the faster runner is how many times the speed of the slower runner?

- a) 2
- b) 3
- c) 4
- d) $\frac{3}{2}$

Q23. In a triangle ABC, two points, D and E, are chosen on sides AB and AC, such that AD : DB = 2 : 3 and AE : EC = 1 : 3. Find the area (in sq. cm) of the triangle ABC, if the area of the quadrilateral DECB is 153 sq. cm.

- a) 160
- b) 170
- c) 210
- d) 255

Q24. In a five digit number, if twice the sum of the thousands digit and the tens digit is equal to the sum of all the digits, then the number is always divisible by

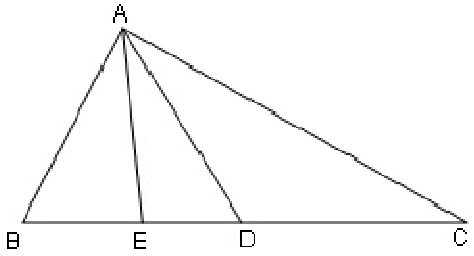
- a) 9.
- b) 11.
- c) 21.
- d) 7.

Q25. While updating the birthday status of his family members on Facebook, Abdul observed that the birthdays of all his sisters followed a specific pattern, such that three times the day (of the month) of birth when added to five times the month of birth gives a total of 100. If no two sisters of Abdul were born on the same day of the month, then the number of sisters that Abdul has can be at most

Q26. Find the equation of the line parallel to the line $2x + 3y = 6$ and having $a\ y$ intercept of 5.

- a) $2x + 3y = 13$
- b) $2x + 3y = 10$
- c) $2x + 3y = 15$
- d) $2x + 3y = 5$

Q27.



In the above figure, AB : AC = 3 : 5. If AE is the bisector of $\angle$ BAC and AD is the median to side BC, then the area of triangle ABC is how many times the area of triangle AED?

- a) 8
- b) 6
- c) 4
- d) 12

Q28. If $f(x) = x^2 - 4x + p$ has real and distinct roots, both of which lie between 1 and 3, which of the following describes the range of p?

- a) (1, 3)
- b) (−2, 4)
- c) (3, 4)
- d) (−1, 3)

Q29. If $x^2 + y^2 = 14xy$, then $\log \frac{\left(x^4 + y^4 - 2x^2 y^2\right)}{192}$ is equal to which of the following?

- a) (log x) (log y)
- b) 4 (log x – log y)
- c) 2[log x + log y]
- d) None of the above

Q30. From the four corners of a square sheet of side $4\sqrt{2}$ cm, four right angled triangles are cut away to form a regular octagon. What is the perimeter (in cm) of the octagon so formed?

- a) $32\left(\sqrt{2}-1\right)$
- b) $24\left(\sqrt{2}-1\right)$
- c) $32\left(2-\sqrt{2}\right)$
- d) $32\left(\sqrt{2}+1\right)$

Figure I

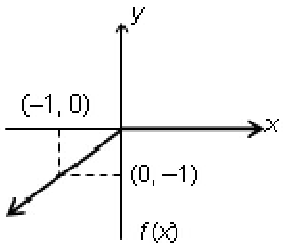
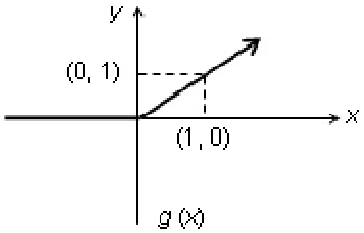


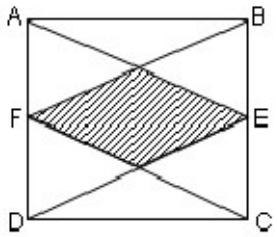
Figure II



Q31.
If figure I and figure II represent the graphs of $f(x)$ and $g(x)$, then $f(x) + g(x)$ is equal to

- a) x.
- b) $|x|$.
- c) $2x$.
- d) a constant function.

Q32. In the figure below, ABCD is a square and points E and F are the midpoints of sides BC and AD. What fraction of the area of the square is shaded?



- a) $\frac{1}{3}$
- b) $\frac{1}{4}$
- c) $\frac{2}{5}$

d) $\frac{1}{6}$

Q33. If a varies jointly with *c* and *d*, *c* varies inversely with b^2, while *d* varies inversely with $\frac{1}{b^3}$, then a varies directly with

a) *b*.

b) b^2.

c) $\frac{1}{b^5}$.

d) $\frac{1}{b}$.

Q34. If the amount at the end of 10 years on a certain sum at a certain rate of interest, compounded annually, is 44% more than that at the end of 8 years, then by what percent will the compound interest for the 6^{th} year be less than that for the 7^{th} year?

a) 20%

b) $16\frac{2}{3}\%$

c) 25%

d) $14\frac{2}{7}\%$

Q35. Find the minimum value of $\frac{(a+b+c)(ab+bc+ca)}{abc}$, if *a*, *b* and *c* are positive real numbers.

Q36. If the cost of painting the walls of a cuboidal room of length 15 ft and breadth 12 ft, at Rs.25 per sq.ft, is Rs.10,800, find the height (in ft) of the room (Ignore any doors and windows in the room).

Q37. In how many ways can the letters of the word AIMCAT be arranged, such that every arrangement starts with the letter A and no two vowels are together?

a) 18

b) 36

c) 24

d) 72

Q38. How many odd numbers between 2000 and 8000 exist, such that all the four digits of the number are distinct?