T.I.M.E.
Triumphant Institute of
Management Education Pvt. Ltd.

Ref: AIMCAT1104-Form-4

INSTRUCTIONS

1. Read the instructions given at the beginning/end of each section or at the beginning of a group of questions very carefully.

2. This test has three sections with 60 questions – 20, 20, and 20 respectively in the first, second and third sections. The TOTAL TIME available for the paper is 135 minutes. The student may apportion this time among various sections as he/she wishes. However, the student is expected to show his/her competence in all the three sections.

3. All questions carry three marks each. Each wrong answer will attract a penalty of one mark.

SECTION – I
Number of Questions = 20

DIRECTIONS *for questions 1 to 20:* Answer the questions independently of each other.

1. 2 pens or 3 erasers or 4 sharpeners all cost the same. If the cost of an eraser increases by 20% and that of a sharpener increases by 30%, find the approximate percentage increase in the total cost of 6 pens, 4 erasers and 3 sharpeners.
(1) 7.67% (2) 8.33% (3) 9.67% (4) 11.33%

2. The base radius and height of a right circular cone C_1 are equal to the height and radius of a cylinder L_1 respectively. The height and radius of C_1 are interchanged to get another cone C_2 and similarly the height and radius of L_1 are interchanged to get another cylinder L_2. If the volume of L_1 is 9 times the volume of C_1, what is the ratio of the volumes of L_2 and C_2?
(1) 1 : 9 (2) 1 : 3 (3) 1 : 1 (4) 3 : 1

3. Zoysa and Yuva can travel from P to Q in 3 hours and 6 hours respectively. They both start from P, go towards Q, reach Q and return to P. If they both start at 9:00 a.m. from P, when will they cross each other?
(1) 1:00 p.m. (2) 11:00 a.m.
(3) 2:00 p.m. (4) 3:00 p.m.

4. If n is a natural number less than 100 and k is any whole number, for how many values of n is $n^2 = 24k + 1$?
(1) 32 (2) 33
(3) 34 (4) None of these

5. Of 64 boxes of apricots, each box contains at least 60 and at most 81 apricots and not more than three boxes have the same number of apricots. What is the least number of apricots that can be there in all the boxes together?
(1) 4,532 (2) 4,391 (3) 4,491 (4) 4,492

6. An expression E is defined as $E = 2x^2 + 3y^2 - 6x + 9y + 15$. What is the least integral value of E?
(1) 6 (2) 5 (3) 3 (4) 4

7. Vessel 1 contains 5 litres of alcohol; vessel 2 contains 5 litres of water. From vessel 1, one mug of alcohol is taken and added to vessel 2. One mug of the mixture is poured back into vessel 1. What can be said about the percentage of alcohol in vessel 2 and the percentage of water in vessel 1?
(1) The former is greater than the latter.
(2) The two are equal.
(3) The latter is greater than the former.
(4) Nothing can be said as volume of the mug is not known.

8. A triangle is drawn on the x-y plane with its vertices at (3, 3), (3, 53) and (53, 3). The number of points with integer co-ordinates lying inside the triangle, including all the points on the boundary, is
(1) 1540 (2) 1326 (3) 1236 (4) 1425

9. Find the area (in sq.cm) of a right-angled triangle whose inradius is 4 cm and circumradius is 10 cm.
(1) 96 (2) 100 (3) 108 (4) 120

10. If $N = 2^{1500}$, what is the remainder when N is divided by 13?
(1) 1 (2) 2 (3) 4 (4) 12

11. Ravi forgot a telephone number which he wanted to dial. However, he remembered the following details about it:
(a) The number was a seven-digit number.
(b) The digit 1 appeared exactly once in the number.
(c) The other six digits were three non-zero digits, each appearing exactly twice.
What is the minimum number of different numbers that Ravi would have to dial, to be certain of dialling the right number?
(1) 35280 (2) 25872 (3) 17640 (4) 28224

12. All reputed B-schools fleece their students and one-sixth of all B-schools that fleece their students are reputed. Also, one-fourth of all B-schools that are recognised, fleece their students. There are exactly six reputed B-schools which are also recognised, and 39 B-schools which are recognised but do not fleece their students. If there are a total of 78 B-schools which fleece their students, then how many of these are neither recognised nor reputed?
(1) 55 (2) 56 (3) 57 (4) 58

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13. $|2x - 5| \le 9$ and $|4y - 7| \le 21$. What is the maximum value of $|x| - |y|$?
(1) 7 (2) 5 (3) 7/2 (4) 3

14. One day, an enterprising bumble-bee starts its own colony by giving birth to two enterprising bumble-bees. Every bumble-bee of this colony, as soon as it is one day old, starts to give birth to exactly two offspring each day, which in turn continue the process. As a natural phenomenon, every such colony splits up into five equal groups after exactly eight weeks of its inception. The remaining bees if any, commit mass suicide for having been left out. How many bees commit suicide after one such split?
(1) 4 (2) 3 (3) 2 (4) 1

15. Five friends A_1, A_2, A_3, A_4 and A_5 take up an assignment. It is known that, for $i = 1$ to 4, A_i, when working alone, takes $(i + 1)$ times as much time as the other four would take, when working together. If all the five friends work together on the assignment and they earn a total of Rs.600, what is the share of A_5?
(1) Rs.40 (2) Rs.20 (3) Rs.25 (4) Rs.30

16. Consider the following sum of 2^{32} terms:

$$S = 1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}+\frac{1}{6}+\frac{1}{7}+.....+\frac{1}{2^{32}},$$

Which of the following statements is true?
(1) $5 < S < 8^1/_2$ (2) $9 < S < 16^1/_2$
(3) $17 < S < 32^1/_2$ (4) $33 < S < 64^1/_2$

17. Mr. Shyam manufactures and sells pens in a market. The cost, in rupees, of producing x units is $\frac{x^2}{75} + 0.1x$, whereas the selling price, in rupees, of x units is $10 + 0.5x$.
How many units should Mr. Shyam manufacture and sell to maximize the profit?
(1) 14 (2) 18 (3) 15 (4) 17

18. A natural number N has four factors. The sum of the factors of N, excluding one and itself, is 56. Find the sum of all the values that N can assume.
(1) 1724 (2) 1764 (3) 1754 (4) 1784

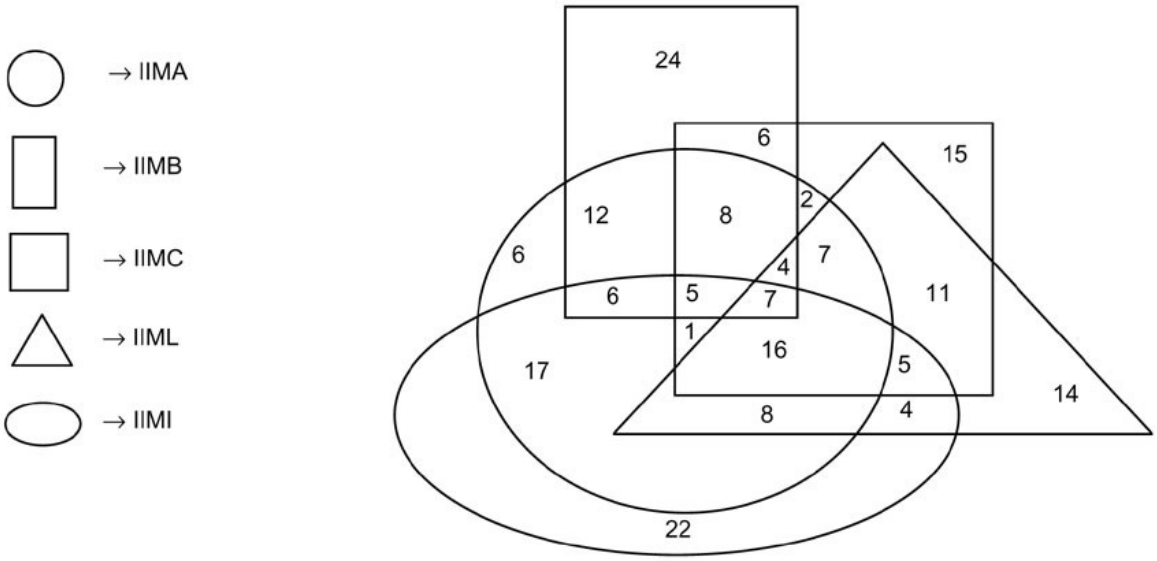
19. The area (in sq.units) enclosed by the graph of $|x - 1| + |y - 1| = 2$, is
(1) 16 (2) 4 (3) $4\sqrt{2}$ (4) 8

20. A set of several consecutive natural numbers beginning with 1 was written on the board. A number out of those numbers written was erased and the average of the remaining numbers was found to be $28\frac{4}{9}$. Find the number that was erased.
(1) 3 (2) 4 (3) 5 (4) 6

SECTION – II
Number of Questions = 20

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

The diagram given below represents the distribution of the number of students from a well known institute of CAT coaching in India getting admissions at five prestigious Institutes of Management in India.



21. Of the students who did not get admission into IIMA, how many did not get admission into IIMB or did not get admission into IIML but did manage to get admission into IIMC?
(1) 34 (2) 35
(3) 37 (4) None of these

22. How many students got admission into exactly two or into exactly three of the given institutes?
(1) 87 (2) 90
(3) 91 (4) None of these

23. How many students got admission into exactly four of the given institutes?
(1) 25 (2) 30
(3) 32 (4) None of these

24. How many students got admission into at least two of the given institutes?
(1) 199 (2) 188
(3) 119 (4) None of these

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

A boy purchased exactly four items. The cost of each item was a two-digit prime number, such that these four numbers together consist of eight different digits.

25. If the boy purchased items worth Rs.47 and Rs.29, what is the amount spent for purchasing all the four items?
(1) Rs.190 (2) Rs.220
(3) Rs.271 (4) Cannot be determined

26. Which of the following statements is false?
(1) The boy did not purchase an item costing Rs.43.
(2) The total amount spent is divisible by ten.
(3) The boy must have purchased an item costing Rs.61 or Rs.67.
(4) If the boy purchased an item costing Rs.23, he could not have purchased an item costing Rs.89.

27. What is the difference (in Rs.) between the least possible amount spent and the highest possible amount spent by the boy on purchasing all the four items put together?
(1) 30 (2) 40 (3) 50 (4) 60

28. The difference (in Rs.) between the cost of the costliest item and that of the cheapest item, is at least
(1) 32 (2) 44 (3) 36 (4) 66

DIRECTIONS *for question 29:* Each problem contains a question and two statements, A and B, giving certain data. You have to mark the correct answer from (1) to (4), depending on the sufficiency of the data given in the statements to answer the question.

Mark (1) if the question can be answered by using one of the statements alone but cannot be answered by using the other statement alone.
Mark (2) if the question can be answered by using either statement alone.
Mark (3) if the question can be answered by using both the statements together but cannot be answered by using either statement alone.
Mark (4) if the question cannot be answered even by using both the statements together.

29. If $x + 2y + z = 8$ and $2x + y + z = 7$, what are the values of x, y and z?
A. x, y and z are positive integers.
B. x, y and z are distinct numbers.

DIRECTIONS *for question 30:* Each question is followed by two statements, A and B. Answer each question using the following instructions:

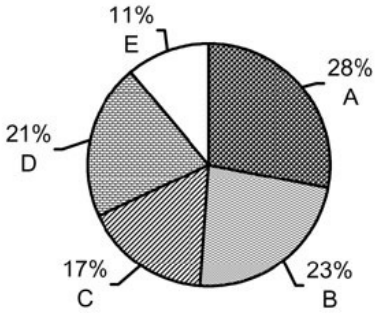
Mark (1) if the question can be answered by using statement A alone but not by using statement B alone.
Mark (2) if the question can be answered by using statement B alone but not by using statement A alone.
Mark (3) if the question can be answered by using both the statements together but not by either of the statements alone.
Mark (4) if the question cannot be answered on the basis of the two statements.

30. On which day of the week did Venus play?
A. 26th January of year X is a Sunday.
B. She played on 25th February of year X, 15 days before Serena, who played on Tuesday.

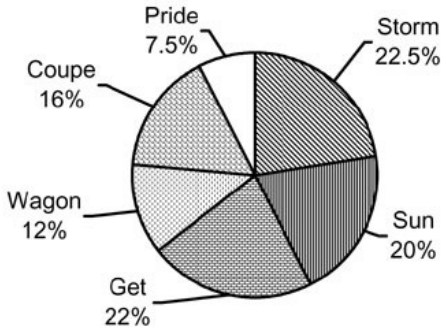
DIRECTIONS *for questions 31 to 34:* Answer the questions on the basis of the information given below.

Pie chart -1 gives the dealerwise break-up of the number of cars sold by XYZ motors in Chennai by its five dealers – A, B, C, D and E – and Pie-chart -2 gives the modelwise break-up of the number of cars sold in Chennai by all the five dealers of XYZ motors.

Pie chart -1



Pie chart - 2



Note : All questions pertain only to the sales (by volume) of XYZ motors in Chennai.

31. At least how many models of cars did dealer A sell, if it was known that for any model sold by dealer A, the sales of that model by dealer A accounted for at least one-third of the total sales of that model in Chennai?
(1) 2 (2) 3 (3) 4 (4) 5

32. If for any dealer, sales of the model Coupe accounted for at most 30% of the total sales, then at least how many dealers sold this model?
(1) 2 (2) 3 (3) 4 (4) 5

33. If dealer D sold an equal number of all the six models of cars, the share of sales of any model by dealer D in the total sales of that model in Chennai is at most
(1) 20% (2) 25%
(3) 33.33% (4) None of these

34. If the dealers A and B sold only the lower and mid-size models, i.e., Sun, Storm and Get, at least what percentage of the total sales of Storm in Chennai are sold by these two dealers?
(1) 50% (2) 40% (3) 30% (4) 25%

DIRECTIONS *for questions 35 and 36:* Each question is followed by two statements, A and B. Answer each question using the following instructions:

Mark (1) if the question can be answered using statement A alone but not by using statement B alone.

Mark (2) if the question can be answered using statement B alone but not by using statement A alone.

Mark (3) if the question can be answered using either of the statements alone.

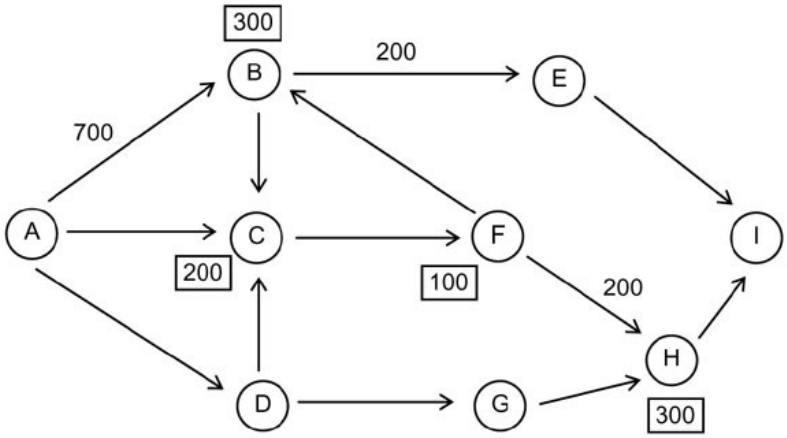
Mark (4) if the question can be answered by using both the statements together but not by either of the statements alone.

35. In an island, there live three types of tribes – Truth-Tellers, who always tell the truth, Liars, who always lie and Alternators, who always tell a truth and a lie, alternately, in any order. A, B and C are three persons who belong to that island. If A says "B and C belong to different tribes. I am an Alternator", to which tribe does C belong?
A. B says "Both A and C are Truth-Tellers. I am not a Truth-Teller".
B. C says "A is not a Truth-Teller. I am not a Liar".

36. Eight friends – A through H, sit around a circular table. Who is the only person who sits between B and D?
A. It is known that A sits in between F and H, and that C sits neither adjacent nor opposite to B.
B. It is known that D sits neither adjacent to B nor opposite to H and that E sits opposite to F and to the left of C.

DIRECTIONS *for questions 37 to 40:* Answer the questions on the basis of the information given below.

Given below is a network of water pipelines and nine hubs – A through I. The requirement of water at the hubs is exactly met by the flow in the pipelines. The flow in some of the pipelines and the requirement at some of the hubs is also mentioned. A is the only hub which is a source hub, i.e. the hub A does not have any requirement of its own but it supplies the requirements of all the other hubs.



It is also known that
i. The maximum capacity of any pipeline is 1000.
ii. The requirement at any hub except A and I is equal to the flow in exactly one of the pipelines directly connected to it.
iii. No two pipelines directly connected to the same hub carry the same amount of water.
iv. The flow in none of the pipelines shown above is zero.

37. What is the requirement at the hub I?
(1) 100 (2) 200 (3) 300 (4) 400

38. What is the amount of water carried by the pipeline D-G?
(1) 500 (2) 600 (3) 700 (4) 800

39. What is the total requirement that should be supplied by A?
(1) 1800 (2) 1900 (3) 2100 (4) 2500

40. What is the amount of water carried by the pipeline C-F?
(1) 100 (2) 300 (3) 400 (4) 600

SECTION – III
Number of Questions = 20

DIRECTIONS *for question 41:* The following question consists of four sentences on a topic. Some sentences are grammatically incorrect or inappropriate. Select the option that indicates the grammatically correct and appropriate sentence(s).

41. (A) Aamod, which means joy in Sanskrit, lives up to its name.
(B) It is a place so still where birds usher in the dawn with an orchestra of their own.
(C) Sitting by the window, I watch tiny drops of gentle rain fall off from the leaves of walnut trees outside my cottage.
(D) Just behind the mountains, the sun fades away, bowing in respect one last time.
(1) A, C and D (2) B and C
(3) A and D (4) B, C and D

DIRECTIONS *for question 42:* There are two blanks in the following sentence. From the pairs of words given below, choose the pair that fills the blanks most appropriately.

42. In the post-modern world where 'borrowings' are acceptable and the concept of 'global-local' is commonplace, the suggestion that contemporary Indian sculptors should consider western influence a/an _____ and look solely to indigenous tradition may seem _____.
(1) boon . . . heartening
(2) encumbrance . . . ironical
(3) anathema . . . risible
(4) bugbear . . . paradoxical

DIRECTIONS *for questions 43 to 46:* Read the following passage and answer the questions that follow it.

Banning the burqa is a hot-button issue in Europe, and several countries in the continent have already pressed it. However, across the Channel, mainline British parties won't touch it for fear of burning their fingers. Is it then worth the risk? Why not look the other way and get along with democracy as usual? Are there lessons in here for India?

For Europeans, in general, the burqa symbolises an anti-democratic way of life. This is why they find it so repugnant. Many have argued that European burqa-baiters are Christian fanatics, but that is an exaggeration. Whether conservative or radical, when it comes to the burqa there is near unanimity in the main streets of Europe, including the crossroads to the right and the left. According to most Europeans, the only way democracy can condone the burqa is either to don one itself or stick its head in the sand. There is no third option!

Unsurprisingly, banning the burqa has been relatively easy in Europe. Belgium's Lower House unanimously passed it; in France, Nicolas Sarkozy is putting all his weight behind it; Italy has already tabled a Bill on it; and in socialist-ruled Spain burqa wearers might soon face criminal charges. Municipalities like those in Barcelona, Tarragon and Llieda had banned the burqa earlier. That the burqa does not have religious sanction in the most sacred texts of Islam has come in useful. Nevertheless, there is little doubt ordinary Europeans find the veiling of half the world inherently contrary to the basic principles of democracy. This perception has led the governments of France, Italy, Belgium and Spain to brave the ire of radical Islamicists and their diaspora mullahs.

If Turkey's admission to the European Union has met with popular reluctance in Europe, the reason is simply this. At the street level, most Europeans feel that while they are moving away from religion, Turkey is not. It is not as if the EU is full up to the rafters, but it is the veil that blocks the North from seeing eye to eye with Turkey. Jose Manuel Barroso, European Commission President, is unhappy about this, but his is a minority voice. Of course, it would be good if Turkey were to have organic links with Europe; this might even give its politics a westward shift. But most people don't think that far.

Many religious bigots in Europe might rejoice over this popular secular mood. Some may even draw symbolic energy from the 16th century paintings in the Venetian Academy that depict veiled Turkish women watching St Mark's martyrdom. Such artistic licence notwithstanding, Christian conservatives in Europe today are facing tough times, especially in their native lands.

To contextualise the widespread opposition to the burqa in Europe, it is necessary to see how Christianity has fared on the continent. Citizens of Madrid recently won a decision in court opposing a church-sponsored building project that would have taken over 20,000 square km of public gardens. The European Council of Human Rights will examine a case in Italy where a family has objected to the presence of the crucifix in public schools.

Spain, once rock-solid Catholic, is today steadily curbing the presence of religious symbols, most notably of the Church, in schools and other public places. Just over three decades ago, Franco's dictatorship in Spain artfully used the Falangists and Christianity to prop itself up. At that time it seemed as if the Spanish state would always remain irrevocably religious. Yet, the day that dictatorship died and Antonio Hernandez Gil took over as chief of the Cortes, his first act was to remove the crucifix from his office. It is not unlikely that estates owned by the Catholic Church in Spain might soon have to pay income tax.

Predictably, these secular moves in Spain have met with opposition from the Catholic hierarchy. Reminiscent of the way Pope Pius X reacted to the 1906 French Bill shackling the clergy, this time too the Church is crying foul. It has likened the Spanish move to "persecution" and "cultural suicide", but with little impact. If these words are echoing anywhere at all it is only in the empty halls of the church. This should make it evident that the modern European sentiment opposing religion in public life began its career by attacking the Church, before it turned against the burqa.

What Europe teaches us is that democracy cannot make exceptions, least of all for religion. In India, on the other hand, many politicians ridicule the burqa but speak with a forked tongue. They are ready to condemn practices popularly associated with Islam, but stop right there. They will not oppose ethnic killings, misdeeds of sants or the public display of Hindu symbols. If their opposition to the burqa is to be convincing they must look inwards first, even if that hurts. As this is what Christians are doing in Europe, Turkey will have to wait.

43. Which of the following ideas can be surmised from the passage?
(1) Most Europeans can't stand the burqa.
(2) In Europe political parties of all shades feel that the burqa is undemocratic.
(3) Some European countries have done way with the burqa.
(4) All of the above.

44. The writer uses the term forked tongue to mean that
(1) Indian politicians condemn Islamist practices while condoning their own extremities.
(2) Indians would never dare to condemn the burqa.
(3) Indians condemn some Islamist practices but condone the burqa.
(4) India must look inwards before it looks at the burqa.

45. Europe has reacted to the church's protests against secular moves with
(1) acquiescence. (2) hostility.
(3) indifference. (4) concern.

46. All of the following statements are true EXCEPT:
(1) Christian conservatives can no longer draw comfort from the 16th century paintings in the Venetian Academy.
(2) Turkey does not fit harmoniously into Europe.
(3) There is little room for religion in public affairs in Europe today.
(4) France has banned the burqa.

DIRECTIONS *for question 47:* The following question has a paragraph with one italicised word that does not make sense. Choose the most appropriate replacement for that word, from the options given below the paragraph.

47. Modern man does not experience himself as a part of nature but as an outside force destined to dominate and conquer it. He even talks of a battle with nature forgetting that, if he won the battle, he would find himself on the losing side. Until quite recently, the battle seemed to go well enough to give him the *emlem* of unlimited powers, but not so well as to bring the possibility of total victory into view.
(1) hallucination (2) conviction
(3) fallacy (4) illusion

DIRECTIONS *for question 48:* In the following question, the word at the top is used in four different ways, numbered 1 to 4. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

48. SCENE
(1) One of Leonardo Da Vinci's paintings depicts a scene in Milan.
(2) There was a scene at home when Venu announced his decision to marry against his parents' wishes.
(3) The second scene of the fifth act reveals the twist in the tale.
(4) There were scores of people who worked untiringly behind the scene to make FIFA 2010 a grand success.

DIRECTIONS *for questions 49 and 50:* Read the following passage and answer the questions that follow it.

The entire process of living consists of various physical, chemical, biological, physiological and psychological activities that are being carried out simultaneously, in sequence and in stages - the total culmination of which constitutes active human existence.

Chemistry is concerned with the interaction of elements and compounds which react with one another in what are known as inorganic and organic chemical reactions. Such reactions take place in the plant and animal kingdom, resulting in the production of more complex organic chemicals with newer properties. Thus we come to possess additional capabilities - which are due to the building up of more complex organic compounds.

Assuming that the Big Bang theory is the accepted one, we can theorise that the earth consisted of only a few inorganic elements to start with. These elements began to combine resulting in the build up of inorganic chemicals. Later carbon was added to these, resulting in organic compounds. These organic compounds reacted with one another, building up more complex molecules with each having some additional properties. Thus what we call living matter is nothing but a pack of multiple organic chemicals reacting with one another simultaneously and in sequence and as complementary to one another.

Recent research has given ample evidence to show that most of the human body can be seen as a combination of millions of chemicals reacting with one another. It is said that God made man out of clay in his own image and breathed life into him. Meaning that by breathing life into man, God actually pumped oxygen inside and took out carbondioxide,

thus bringing into existence life as it is. This is the process of oxygenation and decarbonisation which constituted life. One can presume that life came into existence by these chemical reactions.

When it comes to the human body, human beings possess various highly complex chemical compounds not found in lower animals or plants. Evidently these compounds came into existence as a result of synthesis from other smaller molecules only.

In the human body, a large number of known chemicals have been found to be involved in the transmission of impulses from one tissue or cell to another. Adrenalinenor-adrenaline, dopamine histamine, acetylecholine and the recently discovered endorphins and encephalins are some in this category. Elevation or depletion of any one of these chemicals, interferes with the normal functioning of cells and tissues, resulting in a diseased state of the body. Restoration of their supply cures the disease. The deficiency of acetylecholine leads to Alzheimer's disease, while a decrease in dopamine leads to Parkinson's disease and its elevation causes schizophrenia, a well-known mental disorder. Endorphines and encephalines are morphine-like and produce sensations like pleasure and reduction of pain sensitivity. In a depressed person, there are lower levels of serotonin, adrenaline and 5-Hydroxy-tryptamine in the body. Exercise and meditation lead to the release of endorphins which produce a sense of calmness and pleasure. As for love, the brain releases a chemical substance called phenyl ethylene which acts like amphetamine and increases mental alertness and physical energy. People with low levels of these chemicals develop a craving for foods like chocolate, which are rich in such compounds.

It is evident that all chemical activities taking place on the planet's surface are really meant to transfer or transmit the energy of the sun, resulting in the building up of more complex molecules which can exhibit higher qualities as years pass by. This has happened over the past 4,000 million years. Thus capturing Sun's energy to build up higher organic compounds with newer capabilities constitutes in essence the chemistry of living.

49. The writer has introduced God into the argument to
(1) seek a divine explanation of life.
(2) illustrate the process of oxygenation ad decarbonisation.
(3) explain the chemical reactions that constitute life.
(4) link the terrestrial to the extraterrestrial.

50. Which of the following is the most suitable title for the passage?
(1) The theory of life (2) The equation of life
(3) The chemistry of life (4) God and life

DIRECTIONS *for questions 51 to 54:* Read the following passage and answer the questions that follow it.

"The frustrating thing about India", I was told by one of my teachers, the great Cambridge economist Joan Rohinson, "is that whatever you can rightly say about India, the opposite is also true".

Is India a successful democracy? Certainly. Its multiparty democracy with free elections, free speech and civil liberties has been functioning well, and it has had fine side-results such as the elimination of famines (a frequent occurrence in British India–the last, in 1943, was just four years before independence). But no, it cannot have been entirely successful, since democratic rights have not eliminated undernourishment, ill health and other deprivations. Is the India economy doing very well? Yes, it is growing fast and there is a lot of new income around. But poverty is still very grave. Is Indian education a great success? Yes, of course, India has a large, well-educated and highly trained population and it provides skilled labour for academia, for science, for technology, for literature, for music and the fine arts, for administration, for management, for medicine–both within India and across the world. Yet nearly a third of the population is still illiterate.

Faced with this divided reality we can take Buddha's advice and try to "be moderate in speech". But there are also important and affirmative things that can be said about India that are not as clearly recognised as they could be. The practice of democracy is one of them.

When India became the first poor country in the world to opt for a fully democratic system, the air was thick with scepticism. Winston Churchill is reputed to have found the idea very funny. The scepticism continued for quite a while. The Indian correspondent of the *Times* reported after one of the regular general elections—in 1967—that he had just witnessed what must be the "last" democratic election in India, since Indian democracy could not last much longer.

That was nearly 40 years ago. The doom did not come. Systematic elections have continued to occur. Political parties have come into office after winning the elections and have left quietly after losing them. The newspapers have remained largely free. People criticise the government and each other with abandon and some gusto. The soldiers have stayed well inside the barracks, where they belong.

India's commitment to democracy is sometimes attributed simply to the impact of British influence. And yet if that were the primary reason, it would not be clear why such an influence should not have worked similarly for a hundred other countries which also emerged from the same empire on which the sun used not to set.

Democracy is, ultimately, the practice of public reasoning in the broadest sense. Voting is part of a much larger process which includes open public discussion and uncensored criticism. Traditions of public reasoning exist across the world and are not a monopoly of the West or of any other civilisation or culture. But India has been particularly fortunate in

having a long and powerful argumentative tradition. Some of the earliest open general meetings in the world aimed specifically at settling disputes, through discussion between holders of different points of view, took place in India, from the sixth century BC onwards, in the series of so-called "Buddhist councils", where adherents of different points of view gathered together to argue out their differences. Emperor Ashoka, who hosted the largest of these councils in the capital city of Patna in the third century BC, also attempted to codify and promote what must have been among the earliest formulations of rules for public discussion.

I have tried to discuss all this in a book called "The Argumentative Indian", tracing the tradition of dissent from agnostic and atheistic arguments presented in ancient literature, including the epics and even the "Rigveda" (meant to be the cradle of Hinduism), through the long history of India. For example, the first systematic public discussions in the world between holders of different religious views were arranged by the great Moghul emperor Akbar in Agra in the 1590s, at a time when the Inquisitions were still going on in Europe.

Democracy is already doing more in India than is sometimes acknowledged. For example, it is helping to protect minority rights, through public criticism of violations and electoral penalties for violators (as happened in the general election in May 2004, in which the targeting of minorities in the Gujarat riots of 2002 became an important rallying point). It contributes also to the stability of Indian secularism and resistance to sectarian politics. There is some significance even in the fact that a country in which more than 80% of the electorate happen to be Hindu has chosen a Sikh prime minister (Manmohan Singh), a Muslim president (Abdul Kalam) and a Christian leader of the ruling Congress party (Sonia Gandhi).

Important as public reasoning, political liberty, civil rights, consolidation of secularism and prevention of disasters (such as famines) are, democracy can, and must, do a lot more still, by bringing persistent inequalities and deprivations more into effective public discussion. This is beginning to happen, but it must go much further. It is in the public commitment to democracy and its extensive use that India—as it finds its feet in the world, and the world pays some attention—has something really important to offer to contemporary global ideas and practice.

51. The writer's answer to the three questions raised in the second para seems to be
(1) an emphatic 'No'.
(2) a resounding 'yes'.
(3) 'We still have some way to go'.
(4) 'We have a long way to go'.

52. Which of the following views will the author of this passage least subscribe to?
(1) India has proved her worth as the most successful democracy in the world.
(2) The British have played a key role in nurturing Indian's commitment to democracy.
(3) The rights of minorities have been protected in India.
(4) India is a land of paradoxes.

53. The writer cites evidence from Ashoka's and Akbar's era to support the contention that
(1) India was committed to democracy even before the advent of British influence.
(2) religious differences were thrashed out in public discussions.
(3) India has a long argumentative tradition.
(4) there were no cases of witchhunting in India.

54. In this passage, the author
(1) discusses India's track record as a democracy.
(2) traces the origin of democracy in India.
(3) showcases India as a role model of democracy to the world.
(4) highlights the areas of concern in India's political system.

DIRECTIONS *for question 55:* There are two blanks in the following sentence. From the pairs of words given below, choose the pair that fills the blanks most appropriately.

55. While a constitutional monarchy or republic was the characteristic political institution of the moderate or small nations of Europe, _____, the arbitrary or _____ rule by fear of an all-powerful autocrat over a docile and servile populace, is the normal and distinctive political institution of the East during the medieval ages.
(1) democracy . . . tyrannical
(2) autocracy . . . radical
(3) dictatorship . . . reformist
(4) despotism . . . capricious

DIRECTIONS *for question 56:* In the following question, there are five sentences. Each sentence has pairs of words/phrases that are italicised and highlighted. From the italicised and highlighted word(s)/phrase(s), select the most appropriate word(s)/phrase(s) to form correct sentences. Then, from the options given, choose the best one.

56. (i) ***Continual*** (A) / ***continuous*** (B) power cuts have become de rigueur in cities, particularly during summer.
(ii) The new rule becomes ***effectual*** (A) / ***effective*** (B) from the 1st of next month.
(iii) She had an ***incredible*** (A) / ***incredulous*** (B) expression on her face when I told her that I lost two kgs in a month's time.
(iv) A ***complimentary*** (A) / ***complementary*** (B) box of chocolates was given to each guest.
(v) I could ***infer*** (A) / ***imply*** (B) from his talk that he is not very happy with his new job.
(1) BBAAA (2) BBBBA (3) ABBAA (4) ABAAA

DIRECTIONS *for question 57:* The following question has a paragraph with one italicised word that does not make sense. Choose the most appropriate replacement for that word, from the options given below the paragraph.

57. Neither sociologists nor economists have been happy with the spreading use of the term, 'social capital' the former because they see it as part of the

broader conquest of the social sciences by economics and the latter because they regard it – as a *matistic* concept that is difficult, if not impossible to measure.

(1) recondite (2) abstruse
(3) nebulous (4) arcane

DIRECTIONS *for questions 58 and 59:* Each of the following questions has a paragraph from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.

58. India will need to carve its own unique path. Aping the US, or China won't help. India's emergence as a services-driven economy–bypassing the industrial development stage-demonstrates this. IT services off-shoring has made the prosperous world change the lens it views the nation with. Today, India is recognised for its talent pool, not just the Taj Mahal.

_____

(1) A small car, Nano, revolution could be one.
(2) But, leapfrogging a few levels won't come from doing what the country's economic constituents have been doing.
(3) Her growth will be fuelled by superior demographics, rising levels of domestic investment whose power is accentuated through continued economic liberalisation.
(4) The country will need similar innovative, path-breaking moves to expand into global markets.

59. Creativity is known to be associated with an increased risk of depression, schizophrenia and bipolar disorder. Similarly, people who have mental illness in their families have a higher chance of being creative. Professor Fredrick Ullen looked at the brain's dopamine (D2) receptor genes which experts believe govern divergent thought.

_____

(1) Creativity is certainly about not being constrained by rules or accepting the restrictions that society places on us; the more people break the rules, the more likely they are to be perceived as 'mentally ill'.
(2) Fewer D2 receptors probably means a lower degree of signal filtering, and thus a higher flow of information.
(3) Professor Ullen believes that it is the barrage uncensored information that ignites the creative spark.
(4) Professor Ullen found highly creative people who did well on tests of divergent thought had a lower than expected density of D2 receptors as do people with schizophrenia.

DIRECTIONS *for question 60:* The following question consists of four sentences on a topic. Some sentences are grammatically incorrect or inappropriate. Select the option that indicates the grammatically correct and appropriate sentence(s).

60. (A) American cinema is omnivorous.
(B) It has almost swallowed every subject from the trivial to great historical events and then spewed them up.
(C) However, there is one subject it has refused to tackle directly – the bombing of Hiroshima and their consequences.
(D) As it is now 65 years since the historic event, the omission seems even more astounding.

(1) A and D (2) B and C
(3) A, C and D (4) A, B and D

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(Key and Solutions for AIMCAT1104-Form-4)

Key

1. 3	7. 2	13. 1	19. 4	25. 4	31. 1	37. 4	43. 4	49. 3	55. 4
2. 3	8. 2	14. 4	20. 2	26. 4	32. 2	38. 4	44. 1	50. 3	56. 3
3. 1	9. 1	15. 4	21. 3	27. 4	33. 4	39. 2	45. 3	51. 4	57. 3
4. 2	10. 1	16. 3	22. 1	28. 1	34. 2	40. 3	46. 4	52. 2	58. 4
5. 3	11. 1	17. 3	23. 1	29. 1	35. 3	41. 3	47. 4	53. 3	59. 4
6. 4	12. 4	18. 2	24. 3	30. 2	36. 3	42. 4	48. 4	54. 1	60. 1

Solutions

SECTION – I

Solutions for questions 1 to 20:

1. Let the cost of 2 pens = cost of 3 erasers = cost of 4 sharpeners = Rs.12
$\Rightarrow$ Cost of 1 pen = Rs.6, 1 eraser = Rs.4 and 1 sharpener = Rs.3. Therefore cost of 6 pens, 4 erasers and 3 sharpeners $= 6 \times 6 + 4 \times 4 + 3 \times 3$ = Rs.61.
Now, new prices after the increase are 1 pen = Rs.6, 1 eraser = Rs.4.8, 1 sharpener = Rs.3.9.
Therefore new cost of 6 pens, 4 erasers and 3 sharpeners $= 6 \times 6 + 4 \times 4.8 + 3 \times 3.9$ = Rs.66.9
$\Rightarrow$ Percentage increase required = $\frac{66.9-61}{61} = \frac{5.9}{61}$ which is slightly less than 10% Choice (3)

2. The data is tabulated below.

	Cone (C_1)	Cylinder (L_1)
Height	H	r
Base Radius	r	h
	(C_2)	(L_2)
Height	r	h
Base Radius	h	r

Volume of $L_1 = \pi h^2 r$; Volume of $C_1 = \frac{1}{3}\pi r^2 h$

Given $\pi r^2 h = 9\left(\frac{1}{3}\right)\pi r^2 h \Rightarrow h = 3r$

Volume of $L_2 = \pi r^2 h$; Volume of $C_2 = \left(\frac{1}{3}\right)\pi h^2 r$

$$\Rightarrow \frac{\text{Volume of } L_2}{\text{Volume of } C_2} = \frac{\pi r^2 h}{\left(\frac{1}{3}\right)\pi h^2 r} = \frac{3r^2 h}{h^2 r} = 3\left(\frac{r}{h}\right) = 1:1$$

Choice (3)

3. Let the distance PQ = 1. When Zoysa and Yuva to meet they together cover a distance of 2 PQ i.e. 2.
Speed of Zoysa = $\frac{1}{3}$ and the speed of Yuva = $\frac{1}{6}$

$\therefore$ The time taken by them to together cover 2PQ = $\frac{2}{\frac{1}{3}+\frac{1}{6}}$

= 4 hours
So, they will meet at 1:00 p.m. Choice (1)

4. If $n^2 = 24k + 1$, then n^2 when divided by 24 leaves a remainder of 1. Any perfect square (i.e., n^2) which leaves a remainder of 1 when divided by 24 must be the square of a natural number (i.e., n) which is of the form $n = 6p \pm 1$ where p is a whole number. In the problem given, least number in the form $6p \pm 1$ is $1 = 6(0) + 1$ and the greatest number in this form is $97 = 6(16) + 1$.
$\therefore$ A total of 16 values of p are possible.
$\therefore$ A total of $1 + 2(16) = 33$ natural numbers satisfy the given conditions.

Note: It can be shown that $(6p \pm 1)^2 = 36p^2 \pm 12p + 1 = 12p(3p \pm 1) + 1$, where $12p(3p \pm 1)$ is always a multiple of 24 (since $p(3p \pm 1)$ is always even).
Hence $(6p \pm 1)^2 = 24k + 1$ Choice (2)

5. We have 22 different numbers (60 to 81) available to us to fill in the boxes. Since each number can go into a maximum of 3 boxes, out of 64 boxes we have to use 21 numbers (each occurring in 3 boxes) to fill in 3 boxes. Since we want the least number of apricots, we will use the 21 numbers from 60 to 80. The 64th box will be filled with 81 apricots.
Total number of apricots = $3 \times (60 + 61 \ldots\ldots 80) + 81$
$= \frac{3(60+80)}{2}(21) + 81 = 4{,}410 + 81 = 4{,}491$

Choice (3)

6. Given $E = 2x^2 + 3y^2 - 6x + 9y + 15$
$= 2x^2 - 6x + 3y^2 + 9y + 15 = 2(x^2 - 3x) + 3(y^2 + 3y) + 15$

$$= 2\left(x-\frac{3}{2}\right)^2 + 3\left(y+\frac{3}{2}\right)^2 + 15 - 2\left(\frac{9}{4}\right) - 3\left(\frac{9}{4}\right)$$

$$= 2\left(x-\frac{3}{2}\right)^2 + 3\left(y+\frac{3}{2}\right)^2 + \frac{15}{4}$$

So, if $x = \frac{3}{2}$ and $y = \frac{-3}{2}$, E has its minimum value, i.e., $\frac{15}{4}$. The smallest integer greater than $\frac{15}{4}$ is 4.
$\therefore$ The minimum integral value of E is 4. Choice (4)

7. In the two vessels, at any stage, there is a total of 5 litres of alcohol and 5 litre of water.
At the end of the two transfers, let the quantities of alcohol and water be as tabulated below.

	Vessel 1	Vessel 2
Alcohol	x	$5 - x$
Water	$5 - x$	x

Percentage of alcohol in vessel 2 = $\left(\frac{5-x}{5}\right)100\%$

Percentage of water in vessel 1 = $\left(\frac{5-x}{5}\right)100\%$

These two percentages are equal. Choice (2)

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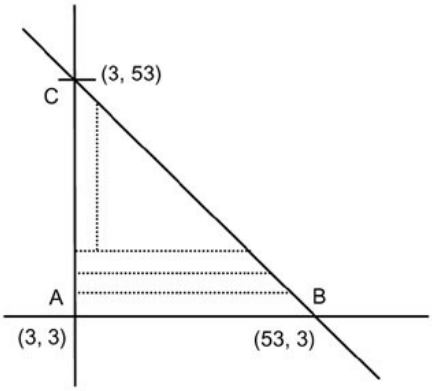
8. The triangle formed by the vertices as (3, 3) (3, 53) and (53, 3) is as follows:



This is equivalent to the case when the vertices are (0, 0) (0, 50) and (50, 0)

Hence, the points on $\overline{AB}$ with integer coordinates are (0, 0) (1, 0) ..... (50, 0), i.e., 51 points. Consider the line parallel to $\overline{AB}$ and one unit above it, this will have exactly 50 points, and then the line above it will have 49 points and so on till 1 point (that will be C). Hence, the total number of points with integral coordinates is 51 + 50 + ... 2 + 1

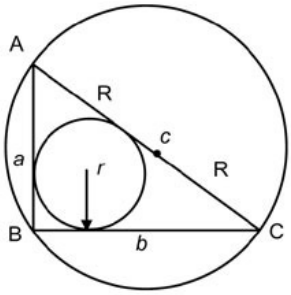
$= \frac{51 \times (52)}{2} = 1326.$ Choice (2)

9. The area of a right-angled triangle whose inradius is r and circumradius is R is given by $(r^2 + 2Rr)$. In the given problem, $r = 4$ cm and R = 10 cm.

∴ The area is 96 sq.cm.

Proof:

Consider the right-angled triangle ABC shown below, wherein radius = r and circumradius = R



Let AB = a, BC = b and AC = c

Then area = A = $\frac{1}{2}ab = \frac{1}{2}r(a + b + c)$

$\Rightarrow 2A = r(a + b) + rc$

But $c = 2R$ and $a + b$

$= \sqrt{(a+b)^2} = \sqrt{a^2+b^2+2ab} = \sqrt{(2R)^2+4A}$

$\Rightarrow 2A = r\sqrt{4R^2+4A} + 2Rr$

$\Rightarrow A - Rr = r\sqrt{R^2+A}$

$\Rightarrow A^2 - 2ARr + R^2r^2 = R^2r^2 = r^2R^2 + r^2 \Rightarrow A = R^2 + 2Rr$

Now, given $r = 4$ and R = 10

$\Rightarrow r^2 + 2Rr = 96$

Alternative solution:

It can be noted that for a 3/4/5 right-angled triangle, inradius = 1 cm (i.e., because $rs = 1/2\ ab$ OR $\frac{r(3+4+5)}{2} = \frac{1}{2} \times 3 \times 4$) and circumradius = 10 cm.

Hence for the given right-angled triangle, each parameter has become exactly four times that for a 3/4/5 right-angled triangle. Hence, the ratio of the dimension is 1 : 4 $\left(\text{i.e.,} \frac{10}{25} = \frac{4}{1} = 4\right)$ and the ratio of areas will be 1 : 16.

Hence, the area of the given triangle = $16 \times \left(\frac{1}{2} \times 3 \times 4\right) =$ 96 sq.cm Choice (1)

10. Consider $13 \times 5 = 65 = 2^6 + 1$

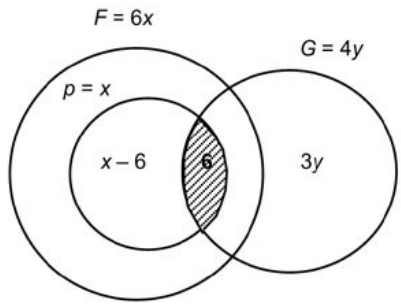
First, find the remainder of $\frac{2^{1500}}{65} = \frac{(2^6)^{250}}{2^6+1}$, the remainder of which is $(-1)^{250} = 1$

Since the remainder of 2^{1500}, when divided by 65 (which is a multiple of 13, is 1), the remainder when 2^{1500} is divided by 13 will also be 1. Choice (1)

11. The number of ways of choosing the three non-zero and non-unity digits out of 8 digits = ${}^8C_3$ = 56. These can be arranged in $\frac{6!}{2! \times 2! \times 2!}$ = 90 ways and the digit 1 can be placed in any of the seven possible locations with respect to the six digits ($7 \times 56 \times 90$ as 35280)

∴There are 35280 trials that are needed. Choice (1)

12.



From the given information, the above diagram can be drawn, where F is set of all B-schools which fleece their students = $6x$ B-schools.

P is the set of all B-schools which are reputed = x B-schools.

G = set of all B-schools which are recognised = $4y$ B-schools.

Now the shaded region is given as 6 B-schools.

and $3y = 39 \Rightarrow y = 13$

also $6x = 78 \Rightarrow x = 13$

$\Rightarrow x - 6 = 7$ and $y - 6 = 7$

$\Rightarrow F - (P \cup G) = 78 - (7 + 6 + 7) = 58.$ Choice (4)

13. For $|x| - |y|$ to be maximum, $|x|$ must be maximum and $|y|$ minimum.

For $|x|$ to be maximum given $|2x - 5| \le 9$, $-9 \le (2x - 5) \le 9$

i.e., $-2 \le x \le 7 \Rightarrow |x| \le 7$ and $|y|$ can be zero, which still satisfies $|4y - 7| \le 21$.

(i.e., $|-7| \le 21$)

∴ maximum value of $|x| - |y| = 7 - 0 = 7$ Choice (1)

14. There are 3 bumble bees on the 1st day, 9 on the second, 27 on the 3rd etc. After 8 weeks i.e. 56 days there will be 3^{56} bees.

Now we need the remainder when 3^{56} is divided by 5 which is 1. Choice (4)

15. For a given work, A_1 takes 2 times the time taken by the other four together.

∴We have	A_1		$A_2A_3A_4A_5$
Ratio of time	2	:	1
and ratio of work done	1	:	2

$\therefore A_1$ does 1/3rd total work done.

Similarly,	A_2		$A_1A_3A_4A_5$
Ratio of time	3	:	1
Ratio of work done	1	:	3

$\therefore A_2$ does 1/4th total work done.

Similarly, A_3, A_4 do 1/5th and 1/6th of total work respectively.

A_1 receives $\frac{1}{3} \times 600 = 200$

A_2 receives $\frac{1}{4} \times 600 = 150$

A_3 receives $\frac{1}{5} \times 600 = 120$

A_4 receives $\frac{1}{6} \times 600 = 100$

570

$\therefore A_5$ receives Rs.600 – 570 = Rs.30 Choice (4)

16. $S = 1 + \frac{1}{2} + \frac{1}{3} + ... + \frac{1}{2^{32}}$

$$\therefore S = \underbrace{(1)}_{T_0} + \underbrace{\left(\frac{1}{2}\right)}_{T_1} + \underbrace{\left(\frac{1}{3} + \frac{1}{4}\right)}_{T_2} + \underbrace{\left(\frac{1}{5} + \frac{1}{6} + \frac{1}{7} + \frac{1}{8}\right)}_{T_3} + ...$$

$$+ \underbrace{\left(\frac{1}{2^{31}+1} + \frac{1}{2^{31}+2} + ... + \frac{1}{2^{32}}\right)}_{T_{32}}$$

Each term from T_2 onwards in the above series will be greater than the preceding term and also lie between $\frac{1}{2}$ and 1.

$\Rightarrow \left[1 + \frac{1}{2} + (32-1)\frac{1}{2}\right] < S < \left[1 + \frac{1}{2} + (32-1)1\right]$ i.e., S is greater than 17 and less than $32\frac{1}{2}$. Choice (3)

17. The profit (P) of Mr. Shyam for 'x' units is given by

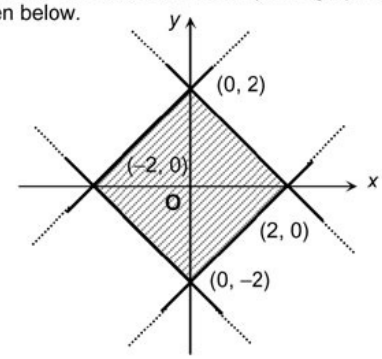
$P = S.P. - C.P. = (10 + 0.5x) - \left(\frac{x^2}{75} + 0.1x\right)$

$\Rightarrow P = \frac{-x^2}{75} + 0.4x + 10$

Clearly, P is a quadratic in x and hence P will be maximum at $x = \frac{-(0.4)}{2\left(-\frac{1}{75}\right)} = 15$ units Choice (3)

18. Let the number be $N = a^p.b^q.c^r$ ..... with $p > q > r$ .....
Where a, b, c, ... are prime numbers and p, q and r are natural numbers.
Number of factors $N = (p + 1)(q + 1)(r + 1)$ ..... = 4
4 = (1) (4) = (2) (2)
$\therefore$ the possibilities are
$p + 1 = 4$ OR
$p + 1 = q + 1 = 2$
$\therefore p = 3$ or $p = q = 1$
$\therefore$ Either $N = a^3$ or $N = ab$. In either case, sum of the factors of n excluding 1 and N is 56.
If $N = a^3$, $a + a^2 = 56$
$\Rightarrow a = 7$. N = 343
if $N = ab$, $a + b = 56$
Assuming $a < b$, $(a, b) = (3, 53), (13, 43)$ or $(19, 37)$.
$\therefore$ required sum = 343 + (3)(53) + (13)(43) + (19)(37)
= 343 + 159 + 559 + 703 = 1764 Choice (2)

19. Consider the area enclosed by the graph of $|x| + |y| = 2$, given below.



The area of the shaded region will be $\left(\frac{\text{The product of the diagonals}}{2}\right) = \frac{4 \times 4}{2}$ = 8 sq.units

This graph can be shifted in the plane (without changing its size and shape), from the origin as its centre, to any point (a, b) as its centre.
Then the new (shifted) graph will be $|x - a| + |y - b| = 2$
[Note: The area enclosed by such a graph is independent of the values of a and b).
Hence the area enclosed by the graph $|x - 1| + |y - 1| = 2$ is also 8 sq.units. Choice (4)

20. Let the largest natural number written be n and let the erased number be x.

$$\frac{\frac{n(n+1)}{2} - x}{(n-1)} = 28\frac{4}{9} = \frac{256}{9}$$

$\Rightarrow (n - 1)$ is a multiple of 9.

The average of n natural numbers is $\left(\frac{n+1}{2}\right)$

$\therefore 28\frac{4}{9}$ should be close to $\left(\frac{n+1}{2}\right)$ as $(n - 1)$ is divisible by 9, $\therefore n$ is of the form $9k + 1$ close to $(2 \times 28) = 56$
Only value of 'n' satisfying this is $n = 55$
$\therefore n = 55$
when $n - 1 = 54 \Rightarrow n = 55$

$$\therefore \frac{\frac{55 \times 56}{2} - x}{54} = \frac{256}{9}$$

$\Rightarrow 55 \times 28 - x = 256 \times 6$
$\Rightarrow x = 1540 - 1536 = 4$ Choice (2)

Difficulty level wise summary - Section I	
Level of Difficulty	Questions
Very Easy	–
Easy	–
Medium	1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19
Difficult	4, 6, 8, 10, 12, 14, 16, 18, 20
Very Difficult	–

SECTION – II

Solutions for questions 21 to 24:

21. From observation, the number of students getting IIMC but not IIMA is (6 + 15 + 11 + 5) = 37.
Out of which 6 got IIMB 2 not L and (5 + 11) got L not B.
Since we need B or L, both these figures are taken.
Choice (3)

22. Exactly two or exactly three
= at least two – exactly five – exactly four
$\Rightarrow$ at least two = 119
$\Rightarrow$ exactly five = 7 (from figure)
$\Rightarrow$ exactly four = 25
$\therefore 119 - 7 - 25 = 119 - 32 = 87$ Choice (1)

23. Exactly four
$\Rightarrow$ all except IIMA = none
$\Rightarrow$ all except IIMB = 16
$\Rightarrow$ all except IIMC = none
$\Rightarrow$ all except IIML = 5
$\Rightarrow$ all except IIMI = 4
$\therefore 16 + 5 + 4 = 25$ Choice (1)

24. Students getting admission in at least two colleges
= Total number of students (who got at least one admission)
– Total number of students getting exactly one admission
= 200 – (22 + 14 + 15 + 6 + 24) = 200 – 81 = 119
Choice (3)

Solutions for questions 25 to 28:

Since, the cost price of each item is a two digit prime number, each of the unit's digit in the cost price has to be 1, 3, 7 or 9. Since all the digits are to be different, the tens digit of each cost price has to be one of 2, 4, 5, 6 or 8.
$\therefore$ The available prime numbers are 23, 29, 41, 47, 53, 59, 61, 67, 83 and 89.

25. If Rs.47 and Rs.29 are the cost prices of two items, then the cost price of the third item would be Rs.61 and the cost price of the fourth item can be either Rs.53 or Rs.83. Accordingly the total amount spent will be Rs.190 or Rs.220. Choice (4)

26. Choice (1) – The boy has to purchase one item costing Rs.41 or Rs.47. $\therefore$ He cannot purchase the item costing Rs.43.
Choice (2) – The units digits of all the four cost prices are 1, 3, 7 and 9, whose sum is 20. Hence, the total cost is divisible by ten.
Choice (3) – Since, the cost prices with units digit 1 or 7 are 41, 47, 61 and 67, one item costing Rs.61 or Rs.67 has to be purchased.
Choice (4) – The boy can purchase items costing Rs.23, Rs.89, Rs.61 and Rs.47. Hence choice (4) is false.
Choice (4)

27. The cost of two items must be (41, 67) or (61, 47)
$\therefore$ Total cost of these two items will be the same. The costs of one of the remaining items is 23, 53, 83 and the other is 29, 59, 89.
$\therefore$ Difference is at the most 60. Choice (4)

28. The difference will be the least if the costs of the items are 29, 47, 53, 61. In this case the difference is 32.
Choice (1)

29. Subtracting the second equation from the first, we get $y - x = 1$
From A, we get the following solution

x	y	z
1	2	3

From B, we get the following solutions, among others.

x	y	z
1	2	3
2	3	0
3	4	–3

$\therefore$ A is sufficient, but B is not. Choice (1)

Solution for question 30:

30. From A alone, unless the date on which Venus played is known, the question cannot be answered.
Hence A alone is not sufficient.
From B alone, the 15th day is Tuesday and number of odd days in one. Hence 25th February is a Tuesday.
Hence B alone is sufficient. Choice (2)

Solutions for questions 31 to 34:

31. Here, we are looking for the least value of number of models. Hence, the given condition did not play any role. So, the required sales by A can be accounted for by two models (ex: - Sun and Get).
$\therefore$ He would have sold at least two models of cars.
Choice (1)

32. To find the least number of dealers by whom the model Coupe was sold, we need to consider that it was sold by the dealers with the maximum sales.
As sales of Coupe is 16% of the total sales, even if we take the two dealers with highest sales, they will account for only 30% of 51% i.e., 15.3% is not sufficient to account for all the sales of Coupe. Hence, we need one more dealer.
$\therefore$ The model Coupe was sold by at least three dealers.
Choice (2)

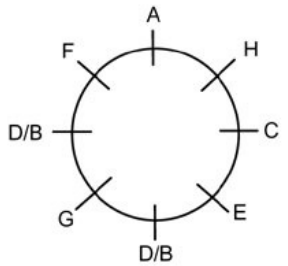
33. If dealer D sold an equal number of all the six models, he would have sold 3.5% each of the different models and it would have accounted for $\frac{3.5\%}{7.5\%} = 46\frac{2}{3}\%$ of the sales of the model Pride in the city. Choice (4)

34. Sales of Sun, Get and Strom are 20%, 22% and 22.5% respectively. Even if we assume that the entire sales of Sun and Get are by the dealers A and B, then at least 9% of the total sales i.e., $\frac{9}{22.5} \times 100 = 40\%$ of the sales of storm are by the dealers A and B. Choice (2)

Solutions for questions 35 and 36:

35. From the given statement, A cannot be a truthteller, he must be a liar or an alternator. But in any case B and C must belong to the same tribe. Using statement A alone, B cannot be a truthteller or liar.
$\therefore$ He must be an alternator and even C must be an alternator.
Using statement B alone,
C's first statement must be true. Now C must be a truth teller or alternator. But if C is an alternator, his second statement will be also true, which is a contradiction.
$\therefore$ C must be a truthteller.
Either of the statements alone is sufficient. Choice (3)

36. From A alone, we cannot determine who sits in between B and D. A alone is not sufficient.
From B alone, we cannot determine who sits in between B and D. So, B alone is not sufficient.
Combining A and B we get



G sits in between B and D. Choice (3)

Solutions for questions 37 to 40:

As no two pipelines connecting same place are carrying same amount, and at least one of the pipelines should carry same as that of the place, either H-I or G-H must carry 300. If G-H carries 300, then H-I must carry 200, which is not possible.

$\therefore$ H-I must carry 300 and G-H must carry 400.
D-G should carry 400 more than the requirement at 6.

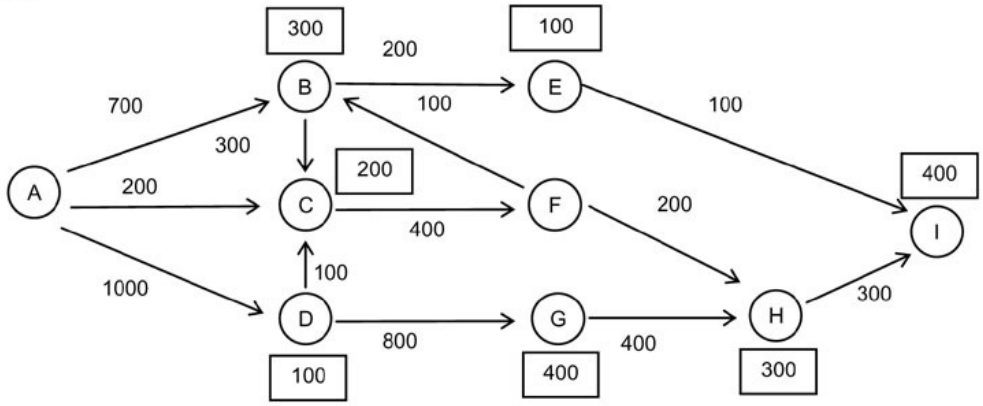
∴G's requirement must equal that of G-H.
∴Requirement at G = 400
D-G = 800

The maximum capacity of A-D is 1000.
∴D cannot be more than 100, as then A-D will be more than 1000.

∴D must be 100 and D-C must be 100.
A-D is 1000.
Similarly, E is 100 and E-I is 100.
∴ I is 100 + 300 = 400

Total requirements of all the places given is
300 + 200 + 100 + 100 + 100 + 400 + 300 + 400 i.e., 1900.
∴A-C = 1900 – (1000 + 700) = 200
Now C-F cannot be 100.

∴F-B must be 100 and B-C must be 300 and C-F is 400.
The final diagram is



37. Choice (4)

38. Choice (4)

39. Choice (2)

40. Choice (3)

Difficulty level wise summary - Section II	
Level of Difficulty	Questions
Very Easy	–
Easy	
Medium	29, 30, 31, 32, 33, 34, 35, 36
Difficult	21, 22, 23, 24, 25, 26, 27, 28, 37, 38, 39, 40
Very Difficult	–

SECTION – III

Solution for question 41:

41. Statement B is incorrect because 'so' should be followed by that. The correction is 'it is a place so still that birds.....' In statement C the use of 'from' is redundant. The correction is '...I watch tiny drops of gentle rain fall off.....' Statements A and D are grammatically consistent. Choice (3)

Solution for question 42:

42. It is evident from the sentence that Indian sculptors are not favourably disposed towards 'borrowings'. Hence we cannot say that the Indian sculptors consider it a boon, therefore option 1 is ruled out. The word encumbrance is a misfit here because 'borrowings' cannot be called an encumbrance. Hence option 2 can be eliminated. Although the word anathema may fit into the first blank, the word risible (laughable) does not make sense in the second blank. When 'borrowings' are acceptable and the concept of 'global-local' is common place in the post-modern world, it is paradoxical that the Indian scholars consider it a bug bear. Hence option 4 is most logical. Choice (4)

Solution for question 43 to 46:

Number of words and Explanatory notes for RC:

Number of words : 817

43. Refer to paras (2) and (3). Choice (1) is stated '…ordinary Europeans find the veiling … contrary to .. democracy.; Choice (2) is stated "…when it comes to the burqa … near unanimity .. to the right and left", Choice (3) is also true. 'Belgium's lower House unanimously passed it…' Choice (4)

44. Choice (1) is the answer and explains the idea conveyed through this phrase … 'ready to condemn practices … Islam … will not oppose … misdeeds …' All other choices are more or less true, but, do not address the 'forked' aspect. Choice (1)

45. The last but one para clearly states Europes' opposition to the Church's hegemony. The … 'opposition from the catholic hierarchy' has had 'little impact'. Hence 'indifference' is the best answer. The paragraphs preceding this also suggest that the political establishment, and the people strongly support a secular life. Choice (3)

46. Choice (1) is stated in the sentence 'such artistic license notwithstanding …' Choice (2) is stated, in the sentence ….' If Turkey were to have organic links with Europe …' Choice (3) is stated in the sentence, '…democracy cannot make exceptions … least of all for religion…' Choice (4) is not true yet, as the bill is being tabled in parliament. The burqa has not yet been banned in France. Choice (4)

Solution for question 47:

47. The latter half of the paragraph states that the battle went on well enough but not well enough as to bring the possibility of total victory into view i.e. the battle gave him only an illusion (false belief) of unlimited powers. Choice (4)

Solution for question 48:

48. In choice (4) the phrase 'behind the scene' is incorrect. 'Scene' in this context cannot be used in the singular. '…. Work behind the scenes is the correct expression'. To 'work behind the scenes' means to work privately or without expectation for public recognition. Choice (4)

Solutions for questions 49 and 50:

Number of words and Explanatory notes for RC:

Number of words : 597

49. Choice (3) is best supported by the 4th para of the passage …"by breathing life into man … oxygenation and decarbonisation … constituted life … these chemical reactions". Choice (3)

50. Chemistry is introduced early on in the passage. This is followed by a vivid description of how life came into existence '…in essence the chemistry of living. Hence choice (3) is the apt answer. Choice (3)

Solutions for questions 51 to 54:

Number of words and Explanatory notes for RC:

Number of words : 891

51. Choices (1) and (2) are categorical and hence ruled out. Choices (3) and (4) are probable. By reading the second para and the last para, we can arrive at choice (4) as the best pick. "Poverty is still very grave," and 'a third of the population is still illiterate' in para 2 and the phrase "it must go much further" in the last para support option (4). Choice (4)

52. Choice (2) is the answer. In para (6), the author contests the claim that the India's commitment to democracy is due to the British influence (why has this not happened in a hundred other countries which were under colonial rule). He subscribes to all the other views, at least partially. Choice (2)

53. Both examples are cited to support the point '….India… having a long … argumentative tradition' and '… the tradition of dissent. Hence, choice (3) is the answer…'. Choice (1) is not specific. Choice (2) explains what happened in the conclaves, but not the conclusion that can be drawn from the same. Choice (4) is irrelevant. Choice (3)

54. Choice (1) is the answer. The author begins by asking have we been a successful democracy, points out the areas we could have done better and concludes by stating where we stand now. Choice (2) is an easy elimination. Choice (3) – showcases India is not apt, certainly not the author's objective. Choice 4 is irrelevant. Choice (1)

Solution for question 55:

55. The word which fits into the first blank should contrast with what is stated in the first part of the sentence. While the first part of the sentence speaks about a constitutional republic (a state in which supreme power is held by the people or their elected representatives). The second part of the sentence talks about dictatorship or monarchy. The expression '....fear of an all powerful autocrat' indicates that the reference is to a dictatorial leadership. Hence we look at options 2, 3 and 4 only. But options 2 and 3 can be ruled out because an autocratic or dictatorial form of government cannot be radical or reformist. The word capricious (irregular, unpredictable) is most appropriate in the second blank. Hence choice 4. Choice (4)

Solution for question 56:

56. The word continual means happening repeatedly in an annoying or inconvenient way. The word continuous means without a pause or interruption. Only the former is appropriate in the context. Choice A.
To become effective means to come to effect or to become functional. Effectual means to be effective and successful. Only the former is effective in the given context. Hence B.
The word incredulous means not wanting or not able to believe something, and usually showing this. It fits aptly in the given sentence. The word incredible which means impossible or very difficult to believe is inappropriate in comparison.
The word complimentary is suitable in the given context. If tickets, books or other items are complimentary, they are given free, especially by a business. Only A suits the context.
If you infer something you form an opinion or guess that something is true because of the information that you have. To imply is to communicate an idea without saying it directly. Only the former suits the context. Hence A.
The correct sequence is ABBAA. Choice (3)

Solution for question 57:

57. The latter part of the sentence states that social capital is regarded as something difficult, though not impossible to measure. This implies that it is perceived as a nebulous (vague, indistinct) concept hence choice 3 suits the context perfectly. The words recondite (obscure), abstruse (perplexing) and arcane (mysterious; secret) are inapt in comparison. Choice (3)

Solutions for questions 58 and 59:

58. IT services off-shoring is a good illustration to show that India has taken up the path of innovation. Option 1 is another illustration but cannot give a good conclusion. Options 2 and 3 are deviant. Option 4 takes the thought to a progressive conclusion. Choice (4)

59. The sentence preceding the blank introduces the idea of 'divergent thought'. Hence, only option 4 logically concludes the paragraph. Options, 1, 2 and 3 are unrelated. Choice (4)

Solution for question 60:

60. Statement B is erroneous due to the inappropriate positioning of the adverb 'almost'. The correction is 'it has swallowed almost every subject.....'. In statement C the pronoun 'their' does not agree with the subject 'bombing'. The correction is '..... the bombing of Hiroshima and its consequences.' Statements A and D are free of errors. Choice (1)

Difficulty level wise summary - Section III	
Level of Difficulty	Questions
Very Easy	–
Easy	49, 50
Medium	41, 43, 44, 45, 46, 48, 51, 52, 53, 55, 58, 59, 60
Difficult	42, 47, 54, 56, 57
Very Difficult	–