CAREERS 360

PRACTICE Series

CAT 2024

Sample Paper

Mock CAT

Section – I

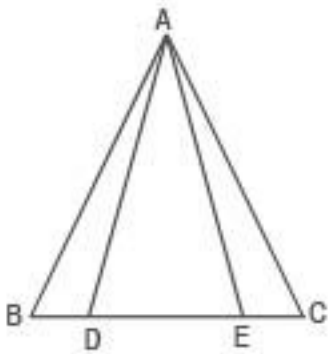
1. What is the remainder when $1! + 2 \times 2! + 3 \times 3! + 4 \times 4! + \ldots + 12 \times 12!$ is divided by 13?
(a) 1 (b) 12 (c) 11 (d) 0

2. The average of five natural numbers is 150. A particular number among the five exceeds another by 100. The rest three numbers lie between these two numbers and they are equal. How many different values can the largest number among the five take?
(a) 59 (b) 19 (c) 21 (d) 42

3. The question given below is followed by two statements, A and B. Mark the answer using the following instructions:
Mark (a) if the question can be answered by using one of the statements alone, but cannot be answered by using the other statement alone.
Mark (b) if the question can be answered by using either statement alone.
Mark (c) if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.
Mark (d) if the question cannot be answered even by using both the statements together.

Q. What is the total number of students in the class?
A. The number of boys is 5 more than twice the number of girls in the class.
B. If 60% boys leave the class, the number of boys would become equal to the number of girls in the class.

4. In the figure given below, AD = AE = 4 cm and BD = CE = 2 cm. If BC is a straight line and $\angle ADE = 60°$, find the length of AB.



(a) $2\sqrt{7}$ cm (b) 5 cm $\sqrt{5}$ cm (d) None of these

5. If 'a' and 'b' are the roots of the equation $x^2 + 7x + 4 = 0$, where $a > b$, then find the value of $\left(\frac{3}{2a+7}\right)^2 + \left(\frac{4}{2b+7}\right)^2$.

(a) $\frac{25}{33}$ (b) $\frac{25}{49}$ (c) $\frac{49}{25}$ (d) $\frac{169}{225}$

6. A contractor agreed to finish a piece of work in 150 days. He employed 75 men and made them work for 8 hours per day. However, after 90 days, he realized that only $\frac{2}{7}$th of the work was completed. How many more men would he need to employ to complete the work on time if he intended to make everybody work for 10 hours per day henceforth?

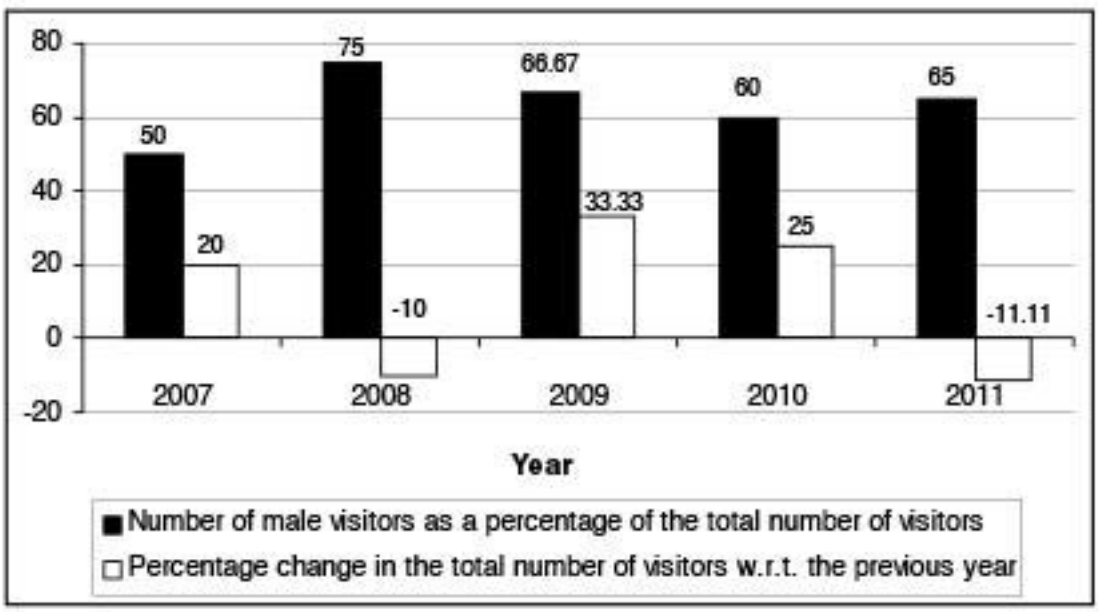
(a) 75 (b) 100 (c) 150 (d) 225

7. A cube is painted with red colour and then cut into 64 small identical cubes. If two cubes are picked randomly from the heap of 64 cubes, what is the probability that both of them have exactly two faces painted red?

(a) $\frac{23}{168}$ (b) $\frac{47}{84}$ (c) $\frac{1}{4}$ (d) $\frac{31}{63}$

Directions for questions 8 to 10: Answer the questions on the basis of the information given below.

The bar graph given below shows the data related to the number of people visiting the famous 'Ancient Wax Museum' in Putlabad from the year 2007 to the year 2011.



8. If the total number of visitors in the year 2006 was 46850, what was the number of female visitors in the year 2011?

(a) 28110 (b) 26236 (c) 37480 (d) None of these

9. Which of the following statements is true?
(a) The only year in the given period when the number of female visitors decreased as compared to the previous year was 2008.
(b) There was a growth of 40% in the number of male visitors from 2008 to 2009.
(c) There was a growth of 50% in the number of female visitors from 2009 to 2010.
(d) The year 2008 onwards, there was an increase each year in the number of male visitors as compared to the previous year.

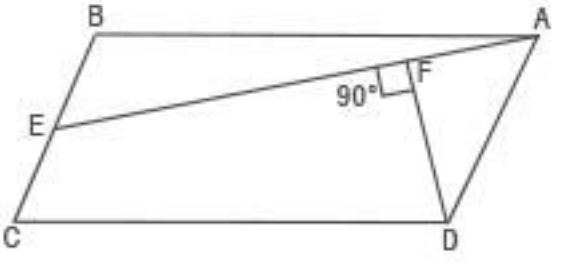
10. The difference between the number of male visitors and the number of female visitors in a year is called "Gender Gap". For which of the following pairs of years is Gender Gap equal?
(a) 2008 and 2011 (b) 2009 and 2010 (c) 2008 and 2010 (d) 2009 and 2011

11. What is the highest possible value of 'n' for which $3^{1024} - 1$ is divisible by 2^n?
(a) 13 (b) 10 (c) 11 (d) 12

12. Two friends – Prakash and Arpit – started running simultaneously from a point P in the same direction along a straight running track. The ratio of the speeds of Prakash and Arpit was 2 : 5 respectively. Two hours later, Arpit turned back and started running backwards at one-fifth of his original speed. He met Prakash at a distance of 10 km from the point P. What was Prakash's running speed?
(a) 1.25 km/hr (b) 2.5 km/hr (c) 3.75 km/hr (d) 6.25 km/hr

13. A quadrilateral is formed by the lines $x = 0$, $y = 0$, $x + y = 1$ and $6x + y = 3$. What is the equation of the diagonal of the quadrilateral that passes through the origin?
(a) $3x + 2y = 0$ (b) $2x - 3y = 0$ (c) $3x - 2y = 0$ (d) $2x + 3y = 0$

14. In the figure given below, ABCD is a parallelogram. E is the midpoint of the side BC. DF is drawn perpendicular to AE. If AB = 5.6 cm and BC = 2.8 cm, find the length of CF.



(a) 4.2 cm (b) 5.6 cm (c) 4.8 cm (d) 5.4 cm

15. A function f(x) is defined as $(x + 1) \times f(x + 1) + x \times f(x) + (x - 1) \times f(x - 1) = 0$ for $x \geq 2$. If $f(1) = 40$ and $f(6) = 180$, find the value of f(14).
(a) –80 (b) –160 (c) –1120 (d) Cannot be determined

16. A 100 ml flask contains 30% acid solution. What quantity of the solution should be replaced with 12% acid solution so that the resultant solution contains 21% acid?
(a) 50 ml (b) 44.44 ml (c) 33.33 ml (d) 64 ml

17. A school having 270 students provides facilities for playing four games – Cricket, Football, Tennis and Badminton. There are a few students in the school who do not play any of the four games. It is known that for every student in the school who plays at least N games, there are two students who play at least (N – 1) games, for N = 2, 3 and 4. If the number of students who play all the four games is equal to the number of students who play none, then how many students in the school play exactly two of the four games?
(a) 30 (b) 60 (c) 90 (d) 120

Directions for questions 18 to 20: Answer the questions on the basis of the information given below.

The table given below shows the values (in lakh units) of Production, Exports, Total Sales and Inventory, and the Average Selling Price in domestic market of different products manufactured by ABC Tech. Pvt. Ltd. in the year 2010.

Product	Production	Exports	Total Sales	Inventory (at the beginning of 2010)	Average Selling Price (in ₹/unit)
LCD	16232	1340	7650	2296	19,500
Desktop	12556	4282	11922	5484	16,400
Laptop	21004	3998	9798	4212	21,300
Tablet	10536	5001	8833	3668	23,500
Netbook	11472	3126	7356	6620	18,750
Smartphone	12488	2420	10540	6846	15,000
Digital Diary	19996	4953	9960	3244	16,500
MP3 Player	18564	10345	14245	2342	12,200

Note: (i) Inventory (at the end of a year) = Inventory (at the beginning of the year) + Production during the year – Total Sales during the year
(ii) Total Sales = Exports + Domestic Sales

18. For how many of the given products is the Inventory at the end of the year 2010 less than half the Production in the year 2010?
(a) 4 (b) 5 (c) 2 (d) 3

19. For which of the following products is the Revenue generated by Domestic Sales in the year 2010 the highest?
(a) Laptop (b) LCD (c) Smartphone (d) Desktop

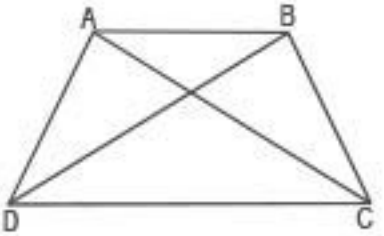
20. ABC Tech. Pvt. Ltd. reduces the Production by 75% for each of the given products in the year 2011 as compared to the year 2010. The Total Sales for which of the following products in the year 2011 can register a growth of more than 100% over the year 2010?
(a) Netbook (b) Laptop (c) Digital Diary (d) None of these

21. Some numbers can be expressed as the sum of three of their factors. E.g. 12 can be expressed as the sum of 2, 4 and 6. How many other such numbers are there which are less than 100?
(a) 16 (b) 15 (c) 7 (d) 2

22. There are three watches – W1, W2 and W3. Once an alarm goes off in W1, it rings continuously for 20 seconds, then pauses, then starts ringing again after 2 minutes, and so on. The respective values for W2 are 50 seconds and 5 minutes, and for W3 are 1 minute and 6 minutes. An alarm is set in each of the three watches for 06:00 am. At what time after 06:00 am will the three alarms go off simultaneously for the first time?
(a) 06:35 am (b) 06:42 am (c) 06:30 am (d) None of these

23. If $\log_c a = \frac{1}{2}$, $\log_d b = \frac{1}{3}$, where a, b, c and d are distinct natural numbers and $a < b < c < d$, what is the minimum possible value of $a + b + c + d$?
(a) 10 (b) 22 (c) 34 (d) 36

24. In the figure given below, AD = BC and BD = AC. Which of the following is not true?

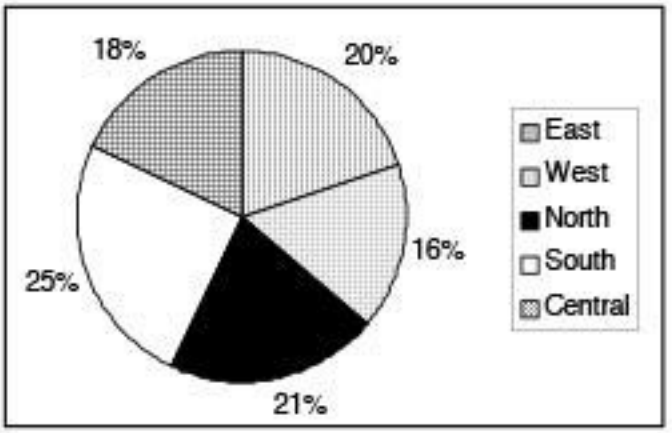


(a) ∠ADB = ∠ACB (b) ∠ABD = ∠ACD (c) ∠ACD = ∠BAC (d) ∠ADB = ∠CAD

25. Anu and Prem started running simultaneously from diametrically opposite points on a circular track. They ran in opposite directions and met after 12 minutes for the first time. If the distance between them exactly 't' minutes after they start is equal to a quarter of the length of the track, which of the following is not a possible value of 't'?
(a) 42 (b) 78 (c) 90 (d) 144

Directions for questions 26 and 27: Answer the questions on the basis of the information given below.

The pie chart given below shows the percentage break-up of students who participated from five different regions in the Sports Week organized by Dharma Public Association in the year 2011.



The partially filled-in table given below shows the number of students who participated from the five regions in the six events conducted during the Sports Week.

Activity	East	West	North	South	Central
Swimming	23		42	64	19
Lawn Tennis	45	27		46	31
Cycling	39		41	18	45
Badminton	52	49	23	38	
Hockey	21	24	37		25
Football		16	32	34	30

Note:

(i) Each student who came to the Sports Week participated in exactly one of the six events.
(ii) At least one student from each region participated in each of the six events.
(iii) Six cells in the table are left blank. The sum of the six missing values is 279.

26. Which of the following is not a possible ratio of the number of students who participated from the West region in Swimming and Cycling respectively?
(a) 7 : 8 (b) 3 : 5 (c) 5 : 7 (d) 1 : 9

27. Which of the six events witnessed the highest participation from the students of the five regions put together?
(a) Swimming (b) Cycling (c) Badminton (d) Cannot be determined

28. For how many values of 'a' are x log a, y log 2a and z log 3a in arithmetic progression? (x, y, z and a are natural numbers.)
(a) 0 (b) 1 (c) 2 (d) More than 2

29. Rohan sold a table at a profit of 15%. Had he bought it at 10% less and sold it for ₹21 less, he would have gained 25%. At what price (in ₹) had he bought the table?
(a) 800 (b) 840 (c) 420 (d) 640

30. An unsharpened cylindrical pencil consists of a layer of wood surrounding a solid cylinder of graphite. The radius of a pencil is 7 mm, the radius of the graphite cylinder is 1 mm and the length of the pencil is 10 cm. Find the cost of the material used in a pencil, if the cost of wood is ₹0.70/cm^3 and that of graphite is ₹2.10/cm^3.
(a) ₹8.76 (b) ₹10.02 (c) ₹11.22 (d) ₹13.74

Section – II

Directions for questions 31 to 33: The passage given below is followed by a set of questions. Choose the most appropriate answer to each question.

That there is an irrelevant representative or descriptive element in many great works of art is not in the least surprising. Representation is not of necessity baneful, and highly realistic forms may be extremely significant. Very often, however, representation is a sign of weakness in an artist. A painter too feeble to create forms that provoke more than a little aesthetic emotion will try to eke that little out by suggesting the emotions of life. To evoke the emotions of life he must use representation. Thus a man will paint an execution, and, fearing to miss with his first barrel of significant form, will try to hit with his second by raising an emotion of fear or pity. But if in the artist an inclination to play upon the emotions of life is often the sign of a flickering inspiration, in the spectator a tendency to seek, behind form, the emotions of life is a sign of defective sensibility always. It means that his aesthetic emotions are weak or, at any rate, imperfect.

Before a work of art people who feel little or no emotion for pure form find themselves at a loss. They are deaf men at a concert. They know that they are in the presence of something great, but they lack the power of apprehending it. They know that they ought to feel for it a tremendous emotion, but it happens that the particular kind of emotion it can raise is one that they can feel hardly or not at all. And so they read into the forms of the work those facts and ideas for which they are capable of feeling emotion, and feel for them the emotions that they can feel—the ordinary emotions of life. When confronted by a picture, instinctively they refer back its forms to the world from which they came.

They treat created form as though it were imitated form, a picture as though it were a photograph. Instead of going out on the stream of art into a new world of aesthetic experience, they turn a sharp corner and come straight home to the world of human interests. For them the significance of a work of art depends on what they bring to it; no new thing is added to their lives, only the old material is stirred. A good work of visual art carries a person who is capable of appreciating it out of life into ecstasy: to use art as a means to the emotions of life is to use a telescope for reading the news. You will notice that people who cannot feel pure aesthetic emotions remember pictures by their subjects; whereas people who can, as often as not, have no idea what the subject of a picture is. They have never noticed the representative element, and so when they discuss pictures they talk about the shapes of forms and the relations and quantities of colours. Often they can tell by the quality of a single line whether or not a man is a good artist. They are concerned only with lines and colours, their relations and quantities and qualities; but from these they win an emotion more profound and far more sublime than any that can be given by the description of facts and ideas.

31. According to the passage, an artist whose painting of an event looks like a photograph is likely to be
    (a) a great artist.
    (b) a flawed artist.
    (c) a plagiarist.
    (d) someone who cannot be called an artist.

32. "Deaf men at a concert" suggests that the author
(a) believes that some people cannot appreciate art because they try too hard.
(b) believes that some people do not understand art and aesthetics.
(c) believes that concerts can be appreciated only by experts.
(d) believes that the common man cannot understand or appreciate art.

33. According to the passage, a person who cannot remember the subject of a picture is likely to be
(a) capable of really appreciating art and feeling pure aesthetic emotions.
(b) not capable of really appreciating art and feeling pure aesthetic emotions.
(c) a deaf man at a concert.
(d) a person who uses a telescope to read the news.

Directions for questions 34 to 36: Answer the questions on the basis of the information given below.

Each of the five friends – Aakash, Balram, Chhaya, Darpan and Ekansh – has some gold coins with him/her. The total number of gold coins with the five of them is 225. It is also known that:

(i) Each of them has at least 15 coins.
(ii) The number of coins with Aakash is the square of a natural number.
(iii) The ratio of the number of coins with Darpan and Ekansh is 3 : 5 respectively.
(iv) The number of coins with Chhaya is 4 more than the square of a natural number.
(v) The sum of the number of coins with Darpan and Ekansh is equal to the number of coins with Aakash.
(vi) Balram has an even number of coins.

34. Who among the five friends has the highest number of coins?
(a) Aakash (b) Balram (c) Chhaya (d) Cannot be determined

35. What can be the difference between the number of coins with Balram and Chhaya?
(a) 17 (b) 39 (c) 57 (d) None of these

36. The sum of the number of coins with Aakash and Darpan is
(a) 104 (b) 66 (c) 88 (d) 80

Directions for questions 37 to 39: The passage given below is followed by a set of questions. Choose the most appropriate answer to each question.

The idea of dead scientists engaging in an experiment in eugenics is incredible enough. Yet the most striking feature in this episode is the power that is ascribed to science itself. While spiritualism evolved into a popular religion, complete with a heavenly "Summerland" where the dead lived free from care and sorrow, the intellectual elite of psychical researchers thought of their quest as a rigorously scientific inquiry. But if these Victorian seekers turned to science, it was to look for an exit from the world that science had revealed. Darwinism had disclosed a purposeless universe without human meaning; but purpose and meaning could be restored, if only science could show that the human mind carried on evolving after the death of the body. All of these seekers had abandoned any belief in traditional religion. Still, the human need for a meaning in life that religion once satisfied could not be denied, and fuelled the faith that scientific investigation would show that the human story continues after death. In effect, science was used against science, and became a channel for belief in magic.

Much of what the psychical researchers viewed as science we would now call pseudo-science. But the boundaries of scientific knowledge are smudged and shifting, and seem clear only in hindsight. There is no pristine science untouched by the vagaries of faith. The psychical researchers used science not only to deal with private anguish but also to bolster their weakening belief in progress. Especially after the catastrophe of the First World War, the gradual improvement that most people expected would continue indefinitely appeared to be faltering. If the scripts were to be believed, however, there was no cause for anxiety or despair. The world might be sliding into anarchy, but progress continued on the other side. Many of the psychical researchers believed they were doing no more than show that evolution continues in a post-mortem world. Like many others, then and now, they confused two wholly different things. Progress assumes some goal or direction. But evolution has neither of these attributes, and if natural selection continued in another world it would feature the same random death and wasted lives we find here below.

Darwinism is impossible to reconcile with the notion that humans have any special exemption from mortality. In Darwin's scheme of things species are not fixed or everlasting. How then could only humans go on to a life beyond the grave? Surely, in terms of the prospect of immortality, all sentient beings stand or fall together. Then again, how could anyone imagine all the legions of the dead – not only the human generations that have come and gone but the countless animal species that are now extinct – living on in the ether, forever?

Science could not give these seekers what they were looking for. Yet at the same time that sections of the English elite were looking for a scientific version of immortality, a similar quest was under way in Russia among the "God-builders" – a section of the Bolshevik intelligentsia that believed science could someday, perhaps quite soon, be used to defeat death.

37. How was "science used against science" according to the author?
    (a) People sought science to seek an exit from the world created by science.
    (b) Science was used to spread the belief of life after death or eternal life.
    (c) Science was used to destroy the very essence of science.
    (d) Scientists used the scientific techniques to spread unscientific ideas.

38. What is the confusion of past and present day psychical researchers?
    (a) They confuse progress with immortality.
    (b) They confuse evolution with progress.
    (c) They think progress in evolution leads to development.
    (d) They confuse evolution with progress in life in another world.

39. Which of the following is the most appropriate title for the passage?
    (a) Science and immortality
    (b) The limits of science
    (c) Attempts to deny man's mortality
    (d) Incredible science

Directions for questions 40 to 42: The passage given below is followed by a set of questions. Choose the most appropriate answer to each question.

Many Americans have a vague sense that their lives have been distorted by a giant cultural bias. They live in a society that prizes the development of career skills but is inarticulate when it comes to the things that matter most. The young achievers are tutored in every soccer technique and calculus problem, but when it comes to their most important decisions—whom to marry and whom to befriend, what to love and what to despise—they are on their own. Nor, for all their striving, do they understand the qualities that lead to the highest achievement. Intelligence, academic performance, and prestigious schools don't correlate well with fulfillment, or even with outstanding accomplishment. The traits that do make a difference are poorly understood, and can't be taught in a classroom, no matter what the tuition: the ability to understand and inspire people; to read situations and discern the underlying patterns; to build trusting relationships; to recognize and correct one's shortcomings; to imagine alternate futures. In short, these achievers have a sense that they are shallower than they need to be.

Help comes from the strangest places. We are living in the middle of a revolution in consciousness. Over the past few decades, geneticists, neuroscientists, psychologists, sociologists, economists, and others have made great strides in understanding the inner working of the human mind. They are giving us a better grasp of emotions, intuitions, biases, longings, predispositions, character traits, and social bonding, precisely those things about which our culture has least to say. Brain science helps fill the hole left by the atrophy of theology and philosophy.

A core finding of this work is that we are not primarily the products of our conscious thinking. The conscious mind gives us one way of making sense of our environment. But the unconscious mind gives us other, more supple ways. The cognitive revolution of the past thirty years provides a different perspective on our lives, one that emphasizes the relative importance of emotion over pure reason, social connections over individual choice, moral intuition over abstract logic, and perceptiveness over I.Q. It allows us to tell a different sort of success story, an inner story to go along with the conventional surface one.

Deciding whom to love is not an alien form of decision-making, a romantic interlude in the midst of normal life. Instead, decisions about whom to love are more intense versions of the sorts of decisions we make throughout the course of our existence, from what kind of gelato to order to what career to pursue. Living is an inherently emotional business.

40. The primary purpose of the author is to
    (a) analyze the process of decision making in the human mind.
    (b) argue that the process of making a decision, whether about a gelato or a career, remains the same.
    (c) discuss how the advances in brain science help in understanding the human mind.
    (d) critique research studies on the human mind.

41. Which of the following is true according to the passage?
    (a) The author believes that success in one's career does not lead to happiness.
    (b) The author believes that the achievers in America are shallower than they need to be.
    (c) The author believes that American society gives undue importance to certain unimportant traits.
    (d) The author believes that developments in brain science help in understanding traits needed for personal fulfillment.

42. The author mentions the instance of the decision of whom to love in order to
(a) highlight the different types of decision making one comes across in life.
(b) highlight the problems one faces in making decisions.
(c) illustrate a point about the decisions we make in life.
(d) demonstrate the intensity of love.

Directions for questions 43 and 44: Answer the questions on the basis of the information given below.

During a political rally, seven leaders of a party – Ajeet, Ambika, Azad, Kamal, Kapil, Mukul and Pranab – are sitting on seven chairs arranged in a row, not necessarily in the same order. It is also known that:
(i) Ambika is sitting beside Kapil.
(ii) Pranab is the party president and so he is sitting in the middle of the row.
(iii) Either Ajeet or Kamal, but not both, is sitting at one of the ends of the row.
(iv) Azad and Mukul are sitting as far as possible from each other, without violating other conditions.

43. If 'n' represents the number of leaders sitting between Ajeet and Azad, which of the following is not a possible value of 'n'?
(a) 0 (b) 2 (c) 3 (d) 5

44. Which two leaders, among the given pairs, cannot sit adjacent to each other?
(a) Mukul and Kamal (b) Azad and Ambika (c) Kamal and Kapil (d) Ajeet and Mukul

45. A paragraph is given below from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.

What is bad writing? One definition of bad writing is that it only entertains but does not edify. It does not raise 'important questions' regarding political or social ills but, instead, runs away from them. Put simply, bad writing reinforces popular attitudes even if it's at the cost of harming a cultural fabric. Bad writing's goals are self-serving. _____

(a) It aims to make money for its publisher and author and win popularity for its writer without caring two hoots about the greater common good or making the reader think beyond the text.
(b) Good writing - especially fiction – on the other hand - is as man-made and culturally-constructed method of enquiry used to analyse and judge one's views.
(c) However, no text - and, by extension, an author - is universally or eternally good or bad.
(d) Thus, if good writing is to prevail, 'good writers' must slug it out in the open with 'bad writers'.

46. A paragraph is given below from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.

Policy failures come in many shapes and sizes. But they are almost invariably accentuated by the choices that have to be made in periods of financial shortage. Yesterday the coalition government found itself confronted by two of them, one in policing policy and the other in higher education. The failures are radically different in many details. But they have this in common: they are both serious failures, and they were both foreseeable. They could both have been mitigated by clearer policymaking at an earlier stage. _____

(a) On the policing cuts, it is the opinion that Britain has more police officers than it needs.
(b) Instead each has been allowed to fester and become more difficult to solve politically.
(c) Downing Street must be thanking Prince Andrew for providing some distraction.
(d) Police numbers have increased without proper regard to social need.

47. A paragraph is given below from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.

It seems Prime Minister Manmohan Singh's top scientific adviser CNR Rao and his band of merry men - three reputed scientists from top scientific institutions of the country - have been cherry picking some interesting material from the work of other scientists and passing them off as their own. This is not the first time, people - reputed (and talented) people that is - have been caught doing such things. Often people - the kind-hearted ones - say imitation is actually the sincerest form of flattery. _____

(a) But the truth is, not many people find it amusing when they find that their work has been picked up by someone else without giving them any credit.
(b) To cut a long and not-a-plagiarized-story short, the Indian scientists have apologized to Advanced Materials, a prestigious journal, for "reproduction of text from an article" that appeared in another journal, Applied Physics Letters, in 2010.
(c) In other words, the scientists forgot to issue a 'footnote' that the four contentious lines were picked up from another source.
(d) But the thing about plagiarism is that it is considered so if the offenders are caught.

48. Five sentences are given below, labeled A, B, C, D and E. They need to be arranged in a logical order to form a coherent paragraph/passage. From the given options, choose the most appropriate one.

A. It is demanding that any party it backs should establish a working group on violence against women and children in the assembly.
B. In the run-up to the January 28 polls, for instance, members of Women Action for Development (WAD) are organising camps in all constituencies.
C. Ironically, Manipur has many activist groups led by women.
D. True empowerment will only happen when women enter the assembly in good numbers.
E. Conflict Widows' Forum is a group made up of women who have lost their husbands to civil violence in the state.

(a) DBCEA (b) CBADE (c) BDCEA (d) CBEAD

49. Five sentences are given below, labeled A, B, C, D and E. They need to be arranged in a logical order to form a coherent paragraph/passage. From the given options, choose the most appropriate one.

A. This made me think again about my own cynicism about Web activism.
B. Dodd said that he believes that some sort of compromise on the content of the film will be reached so that young people can see the film without seeking their parent's permission.
C. I called Christopher Dodd, the former senator who now runs the motion picture association.
D. Sure hash tags come and go but they probably make the world, the one beyond the keyboard, a better place.
E. I expected him to suggest that all the online petitioners have failed to grasp the nuance and importance of the rating system.

(a) DCBEA (b) ADCEB (c) DCEBA (d) CEBAD

50. Five sentences are given below, labeled A, B, C, D and E. They need to be arranged in a logical order to form a coherent paragraph/passage. From the given options, choose the most appropriate one.

A. These are not art galleries or the studio of an art lover, but restaurants that believe that a dash of artwork can do-up their interiors, simultaneously promoting the works of an artist.
B. For over two years now, Tangerine restaurant has been promoting works of artists who are looking for a platform or budding artists who needs to add to their collection.
C. Restaurants in the city are converting their walls into an exhibition space, displaying the works of different budding artists periodically.
D. The once plain walls here have a new aura as frames holding different colours, themes and mediums adorn them.
E. The works are exhibited on a no-cost basis, but the select works do go through "some amount of objective judging", by Illango's Artspace.

(a) DACBE (b) BCEDA (c) ABCDE (d) ADCBE

51. There are exactly three distinct pairs of siblings and four other children in a group comprising ten children – Sam, Joe, Tim, Ron, Ken, May, Bob, Ian, Den and Emy. No two children in the group, apart from the three pairs of siblings, are related to each other. Mr. Max selects one pair from the three pairs of siblings and two children from the four other children in the group to make a team of four children. He repeats the exercise several times. Some of the teams selected by him are shown in the table given below.

Teams					
	I	Sam	Tim	Den	May
	II	Ken	Ron	Joe	Bob
	III	Tim	Ian	Bob	Emy
	IV	May	Bob	Den	Sam

Which among the following is definitely a pair of siblings?
(a) Den and Sam (b) Ian and Emy (c) Tim and Bob (d) None of these

52. There are two gaps in the sentence/paragraph given below. From the pairs of words given, choose the one that fills the gaps most appropriately.

Desertification, the creation of desert-like conditions where none had existed before, is the result of the _____ of weather and climate or the mismanagement of the land or, in most cases, some _____ of both.

(a) vagaries, combination
(b) caprice, notion
(c) predictability, olio
(d) omination, synthesis

53. There are two gaps in the sentence/paragraph given below. From the pairs of words given, choose the one that fills the gaps most appropriately.

Recent years have brought minority-owned businesses in the United States _____opportunities - as well as new and _____risks.

(a) unprecedented, significant
(b) preternatural, vast
(c) unparalleled, conventional
(d) idiosyncratic, sententious

54. There are two gaps in the sentence/paragraph given below. From the pairs of words given, choose the one that fills the gaps most appropriately.

Unemployment does not have the same _____consequences today as it did in the 1930's when most of the unemployed were primary breadwinners, when income and earnings were usually much closer to the margin of subsistence, and when there were no _____social programs for those failing in the labor market.

(a) dire, countervailing
(b) calamitous, offset
(c) cornucopian, balancing
(d) ominous, invalidated

Directions for questions 55 to 57: Answer the questions on the basis of the information given below.

H1, H2, H3 and H4 are four horses that participated in each of the four different races – Race-I, Race-II, Race-III and Race-IV – during an annual horse-racing event in Goa. Each horse is owned by a different owner among Rahul, Dharma, Dablu and Ritesh, in no particular order. None of the four horses finished at the same position in more than two of the four races. In each race the four horses were given ranks 1, 2, 3 and 4 according to the positions at which they finished in the race. It is also known that:

(i) In Race-I, H2 finished third and Ritesh's horse finished first. Interestingly, in Race-II, H2 finished first and Ritesh's horse finished third.
(ii) In Race-IV, H2 finished third and H3 finished fourth.
(iii) Dablu's horse finished at the same position in Race-I and Race-II, and also in Race-III and Race-IV.
(iv) In Race-IV, H1 and H3 interchanged the positions at which they had finished in Race-II.
(v) In Race-III, H3 finished fourth and H4 finished second.
(vi) Rahul's horse did not finish first in any of the four races.

55. Who are the owners of H3 and H4 respectively?
(a) Ritesh and Rahul (b) Dablu and Ritesh (c) Rahul and Dablu (d) Cannot be determined

56. Whose horse finished third in Race-III?
(a) Rahul (b) Ritesh (c) Dharma (d) Either Rahul or Dablu

57. If the horse with the lowest sum of ranks in the four races won a Jackpot of ₹1 crore, which horse won the Jackpot?
(a) H1 (b) H2 (c) H3 (d) H4

58. The word given below has been used in sentences in four different ways. Choose the option corresponding to the sentence in which the usage of the word is *incorrect or inappropriate.*

SHOW
(a) The latest computers will be on show at the exhibition.
(b) She had shown herself unable to deal with money.
(c) It just goes to show what you can do when you really try.
(d) He showed me away by snoring during the concert.

59. The word given below has been used in sentences in four different ways. Choose the option corresponding to the sentence in which the usage of the word is *incorrect or inappropriate.*

JOB
(a) There was a job of work waiting for him that he was not looking forward to.
(b) That cup of tea was just the job.
(c) Sorting these papers out is going to be a tall job.
(d) He got six months for that last job he did.

60. Four statements are given below, labeled a, b, c and d. Of these, three statements need to be arranged in a logical order to form a coherent paragraph/passage. From the given options, choose the option that does not fit the sequence.

(a) The exceptions allowed are few and clearly specified.
(b) They extend to regional trade agreements, preferential treatment for developing countries, and the invocation of a non-application clause by an existing member against a newly acceding country.
(c) The *Most-Favoured-Nation* rule applies to all issues included within the mandate of the World Trade Organisation.
(d) This same principle of reciprocity, however, has been a sore point in the relations of developed and developing countries in the World Trade Organisation.

Mock CAT
Answers and Explanations

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

1. b $1! + 2 \times 2! + 3 \times 3! + 4 \times 4! + \ldots + 12 \times 12!$
$= (2! - 1!) + (3! - 2!) + (4! - 3!) + \ldots + (13! - 12!)$
$= 13! - 1$
So the remainder $= -1$ i.e. 12

2. b Let the smallest number be x and the three equal numbers be y. Then,

$$\frac{x + 3y + x + 100}{5} = 150$$

$$\Rightarrow 2x + 3y = 650 \Rightarrow x = 325 - \frac{3}{2}y$$

Hence, y can take only even values.

$$\text{Also, } 325 - \frac{3}{2}y < y < 325 - \frac{3}{2}y + 100$$

$$\Rightarrow 325 < y + \frac{3}{2}y < 425$$

$$\Rightarrow 130 < y < 170$$

As y is even, the number of possible values of y

$$= \frac{168 - 132}{2} + 1 = 19$$

Hence, the number of different possible values of the largest number i.e. (x + 100) is also 19.

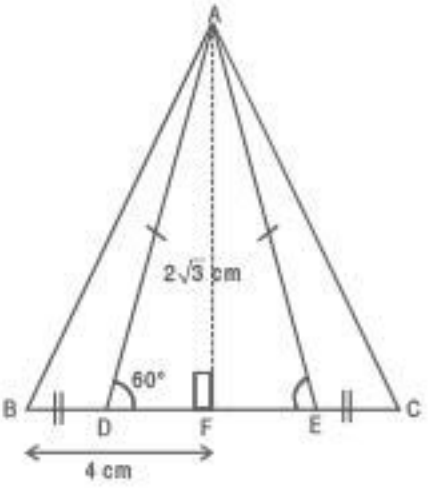
3. c Let the number of boys be x and the number of girls in the class be y.

From statement A:
$x = 2y + 5$
We cannot find the exact values of x and y. Hence, Statement A alone is not sufficient.

From statement B:
$0.4x = y$
We cannot find the exact values of x and y. Hence, Statement B alone is not sufficient.

From statements A and B:
Solving, we get $x = 25$ and $y = 10$.
So the total number of students in the class = 35
Hence, both the statements together are required to answer the question.

4. a



Let's draw AF perpendicular to BC.

In ΔADE, as $AD = AE$
$\angle AED = \angle ADE = 60°$
$\Rightarrow \angle DAE = 60°$

Hence, we can conclude that ΔADE is an equilateral triangle.

$$\Rightarrow AF = \frac{\sqrt{3}}{2} \times 4 = 2\sqrt{3} \text{ cm and } DF = FE = 2 \text{ cm}$$

In ΔABF, using Pythagoras' Theorem,

$$AB = \sqrt{AF^2 + BF^2} = \sqrt{(2\sqrt{3})^2 + 4^2} = 2\sqrt{7} \text{ cm.}$$

5. a As 'a' and 'b' are the roots of the given equation,
$a^2 + 7a + 4 = 0$ and $b^2 + 7b + 4 = 0$.
Now, $(2a + 7)^2 = 4a^2 + 49 + 28a$
$= 4(a^2 + 7a) + 49$
$= 4 \times (-4) + 49 = 33$
Similarly, $(2b + 7)^2 = 33$
The value of the given expression

$$= \frac{3^2}{(2a+7)^2} + \frac{4^2}{(2b+7)^2} = \frac{9}{33} + \frac{16}{33} = \frac{25}{33}.$$

6. c $\frac{m \times d \times h}{w} = \text{constant, where}$
m = number of men
d = number of days
h = number of hours
w = amount of work

Let the number of additional men required be x.

$$\therefore \frac{75 \times 90 \times 8}{2} = \frac{(75 + x) \times 60 \times 10}{5} \text{ or } x = 150$$

Hence, 150 additional men would be required.

7. a The number of ways of picking two small cubes

$= {}^{64}C_2 = 32 \times 63$

The number of small cubes with exactly two faces painted red

$= 2 \times 12 = 24$ (Since two such cubes will be obtained from each edge of the large cube.)

The number of ways of picking two such cubes

$= {}^{24}C_2 = 23 \times 12$

So the required probability $= \frac{23 \times 12}{63 \times 32} = \frac{23}{168}$.

For questions 6 to 10:

The data given in the bar graph can be tabulated as shown below.

Let the total number of visitors in the year 2006 be 100x.

Year	Total number of visitors	Number of male visitors	Number of female visitors
2007	120x	60x	60x
2008	108x	81x	27x
2009	144x	96x	48x
2010	180x	108x	72x
2011	160x	104x	56x

8. b The total number of female visitors in the year 2011 $= 56x = 56 \times 468.50 = 26236$

9. c Percentage growth in the number of female visitors from 2009 to 2010

$= \frac{72x - 48x}{48x} \times 100 = 50\%$

10. d Gender Gap in
the year 2009 $= 96x - 48x = 48x$
the year 2011 $= 104x - 56x = 48x$

Hence, it is equal in 2009 and 2011.

11. d $3^{1024} - 1 = 3^{2^{10}} - 1 = \left(3^{2^9} + 1\right)\left(3^{2^9} - 1\right)$

$= \left(3^{2^9} + 1\right)\left(3^{2^8} + 1\right)\left(3^{2^8} - 1\right)$

$= \left(3^{2^9} + 1\right)\left(3^{2^8} + 1\right) \times \ldots \times \left(3^{2^2} + 1\right)\left(3^{2^2} - 1\right)$

$= \left(3^{2^9} + 1\right)\left(3^{2^8} + 1\right) \times \ldots \times \left(3^{2^1} + 1\right) \times \left(3^{2^0} + 1\right) \times \left(3^{2^0} - 1\right)$

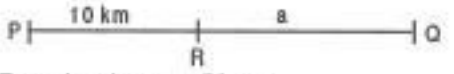
$= \left(3^{2^9} + 1\right)\left(3^{2^8} + 1\right) \times \ldots \times \left(3^{2^1} + 1\right) \times 2^2 \times 2^1$

Now, $3^{2^n} + 1$ when divided by 2^2, always gives a remainder of 2. Therefore, the highest power of 2 which can divide each of the terms

$\left(3^{2^9} + 1\right), \left(3^{2^8} + 1\right), \ldots, \left(3^{2^1} + 1\right)$ is 1.

Hence, $3^{1024} - 1$ is divisible by $2^9 \times 2^2 \times 2^1$ and so the highest power of 2 by which it is divisible
$= 9 + 2 + 1 = 12$

12. b Let the speeds of Prakash and Arpit be 2x and 5x respectively. Let's assume that Arpit turned back from point Q as shown in the figure given below, ran at a speed of x after turning back and met Prakash at point R, 't' hours after they started running.



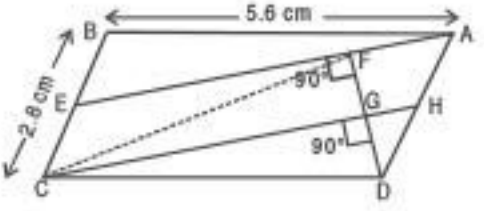
From the given conditions,
$2x \times t = 10 = 5x \times 2 - x \times (t - 2)$
$\Rightarrow t = 4$
So the running speed of Prakash

$= 2x = \frac{10}{4} = 2.5$ km/hr.

13. c It is given that (0, 0) is one of the ends of the diagonal. The point of intersection of the other two lines $x + y = 1$ and $6x + y = 3$ is $\left(\frac{2}{5}, \frac{3}{5}\right)$, which should be the other end of the diagonal.
The required equation is given by:

$\frac{y - 0}{x - 0} = \frac{\frac{3}{5} - 0}{\frac{2}{5} - 0}$ i.e. $3x - 2y = 0$.

14. b



Let's draw CH parallel to AE intersecting DF at G.

As CE II AH and AE II CH, AECH is also a parallelogram. Hence, CE = AH and H is the midpoint of AD.

In ΔADF, GH II AF, therefore, G is the midpoint of FD. (Basic Proportionality Theorem)

In ΔCFD, since EF II CG and $\angle CGF = 90°$, CG is the median as well as the altitude. Hence, ΔCDF is an isosceles triangle and CF = CD = 5.6 cm.

15. a $(x+1)\times f(x+1)+x\times f(x)+(x-1)\times f(x-1)=0$ ...(I)

In the above equation, replacing x by $x-1$, we get
$x\times f(x)+(x-1)\times f(x-1)+(x-2)\times f(x-2)=0$ ...(II)

From equations (I) and (II), we get
$(x+1)\times f(x+1)=(x-2)\times f(x-2)$ ...(III)

Replacing x by $x+2$ in equation (III), we get
$x\times f(x)=(x+3)\times f(x+3)=(x+6)\times f(x+6)$ and so on...

Hence, $f(1)=4f(4)=7f(7)\ldots$, $2f(2)=5f(5)=8f(8)\ldots$ and $3f(3)=6f(6)=9f(9)\ldots$
Also, $3f(3)=6f(6)\Rightarrow f(3)=2f(6)$
$\Rightarrow f(3)=180\times 2=360$
By putting the values of f(1) and f(3) in $f(1)+2f(2)+3f(3)=0$, we get $f(2)=-660$

Also, $2f(2)=14f(14)\Rightarrow f(14)=\frac{f(2)}{7}=-60$

16. a Let x ml of the solution be replaced with 12% acid solution. Therefore,

$$\frac{30}{100}\times(100-x)+\frac{12}{100}\times x=\frac{21}{100}\times 100$$
$$\Rightarrow x=50$$

17. b Let there be 'a' students who play exactly four games. Then there will be '2a' students who play at least three games i.e. either three or four games. Hence, we can say that 'a' students play exactly three games. Similarly, there are '2a' students who play exactly two games and '4a' students who play exactly one game. Also, since 'a' students play all four games, the number of students playing none of the four games should also be 'a'.
Hence, $a+4a+2a+a+a=270$ i.e. $a=30$.
So the number of students who play exactly two games is 2a i.e. $2\times 30=60$.

18. c Let Production, Total Sales and Inventory at the beginning of 2010 for a product be represented by P, T and I respectively. Therefore,

$$I+(P-T)<\frac{P}{2} \text{ or } P<2(T-I)$$

By plugging in the values from the table we can see that the condition is satisfied for just two of the given products – Desktop and MP3 player.

19. d Revenue generated by Domestic Sales in the year 2010 is the highest for Desktop among the given four products.
Domestic Sales (in lakh units) of Desktop
$= 11922-4282=7640$
Revenue generated by Domestic Sales
$= 7640\times 16400 \approx$ ₹12.5 lakh crores

20. b Production (in lakh units) of Laptop in 2011

$$=\frac{21004}{4}=5251$$

Inventory (in lakh units) of Laptop at the end of 2010
$= 21004-9798+4212=15418$
Total availability (in lakh units) of Laptop in 2011
$= 15418+5251=20669$
As the availability of Laptop in the year 2011 is more than twice the Total Sales of Laptop in the year 2010 i.e. 9798, the Total Sales of Laptop in the year 2011 can register a growth of 100% over the previous year.

21. b Let N be one such number. The factors of N in the decreasing order can be listed as $\frac{N}{2}, \frac{N}{3}, \frac{N}{4}, \frac{N}{5}, \ldots$

If N is not divisible by 2, then the three largest factors of N can be $\frac{N}{3}, \frac{N}{5}, \frac{N}{7}$. Since their sum is less than N, $\frac{N}{2}$ must be a factor of N.

Similarly, if N is not divisible by 3, then the next two largest factors of N after $\frac{N}{2}$ can be $\frac{N}{4}$ and $\frac{N}{5}$. Again, since their sum is less than N, $\frac{N}{3}$ must be a factor of N.

Now, $\frac{N}{2}$ and $\frac{N}{3}$ must be added to $\frac{N}{6}$ to get N. Hence, N must be divisible by 6.
The total number of multiples of 6 below 100 are 16, including the number 12. So there are 15 such numbers other than 12.

22. a LCM of (120 + 20), (300 + 50) and (360 + 60) is 2100. Therefore, the three alarms will go off simultaneously 2100 seconds or 35 minutes after 06:00 am i.e. at 06:35 am.

23. d $\log_a b=\frac{1}{2}$ or $c=a^2$ ...(I)

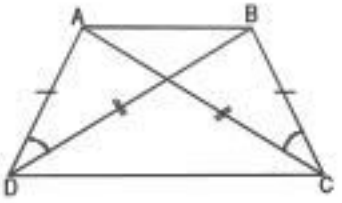
$\log_d b=\frac{1}{3}$ or $d=b^3$ ...(II)

Clearly, 'a' and 'b' cannot be equal to 1.

Therefore, $a_{min.}=2$ and $b_{min.}=3$

The minimum possible value of $a+b+c+d$
$= 2+3+4+27=36$

24. d



In ΔADB and ΔBCA, we have
AD = BC,
BD = AC,
AB is the common side.
By SSS congruency, ΔADB = ΔBCA
→ ∠ADB = ∠ACB ...(i)
We can see that ABCD is a cyclic quadrilateral.
→ ∠ABD = ∠ACD ...(ii)
In ΔACD and ΔBDC, we have
AD = BC,
BD = AC,
CD is the common side.
By SSS congruency, ΔACD = ΔBDC
→ ∠ACD = ∠BDC
Since ∠BDC = ∠BAC , ∠ACD = ∠BAC. ...(iii)

25. d Let the length of the track be 4x meters.
As they together cover 2x meters in 12 minutes, they will together cover 4x meters in 24 minutes and x meters in 6 minutes.

Case I: When they are x meters apart while running towards each other and about to meet.
Required time in minutes = 6 + 24k
(Here k will be the number of times they have met after the start.)

Case II: When they are x meters apart while running away from each other after meeting.
Required time in minutes = 12 + 24k + 6 = 18 + 24k
(Here k+1 will be the number of times they have met after the start.)

Among the given options, 144 cannot be obtained for any integer value of k.

For questions 26 and 27:
Let the number of students who participated from East, West, North, South and Central regions be 20k, 16k, 21k, 25k and 18k respectively, where 'k' is a natural number.
The total number of students who participated from the five regions is equal to 100k.
→ (180 + 116 + 175 + 200 + 150) + 279 = 100k
→ 100k = 821 + 279 → k = 11

Let the number of students who participated in Swimming and Cycling from the West region be x and y respectively, where x + y = 60.

The final table is given below.

	East	West	North	South	Central
Swimming	23	x	42	64	19
Lawn Tennis	45	27	56	46	31
Cycling	39	y	41	18	45
Badminton	52	49	23	38	48
Hockey	21	24	37	75	25
Football	40	16	32	34	30

26. b The sum of the number of students who participated from the West region in Swimming and Cycling is 60. Since 60 when divided in the ratio 3 : 5 does not give integer values, 3 : 5 is the answer.

27. c The number of students who participated in
Lawn Tennis = 205
Badminton = 210
Hockey = 182
Football = 152

In case of Swimming the number will be highest if x = 59, y = 1, and in case of Cycling the number will be highest if x = 1, y = 59. However, the number of students who participated in Badminton will still be the highest among the six events.

28. a $x \log a + z \log 3a = 2y \log 2a$
→ $a^x \cdot (3a)^z = (2a)^{2y}$

→ $a^{x+z-2y} = \frac{4^y}{3^z}$

As x, y, z and a are natural numbers, $\frac{4^y}{3^z}$ must be either a natural number or the reciprocal of a natural number.

Case I: $\frac{4^y}{3^z}$ is a natural number.

It can happen only if z = 0, which is not possible.

Case II: $\frac{4^y}{3^z}$ is the reciprocal of a natural number.

It can happen only if y = 0, which is not possible.
Hence, we can say that the given condition is not true for any value of 'a'.

29. b Let the CP of the table be ₹100x.
SP of the table = ₹115x
According to the question,
$90x \times 1.25 = 115x - 21$
$\Rightarrow x = 8.4$
So the answer = ₹100x = ₹840.

30. c Volume of a cylinder = $\pi r^2 h$, where
r = radius of the cylinder
h = height of the cylinder
Volume of the graphite cylinder

$$= \pi\left(\frac{1}{10}\right)^2 \times 10 = \frac{\pi}{10}\ cm^3$$

Volume of the layer of wood

$$= 10\pi\left[\left(\frac{7}{10}\right)^2 - \left(\frac{1}{10}\right)^2\right] = \frac{48\pi}{10}\ cm^3$$

Cost of the material in a pencil

$$= \frac{\pi}{10} \times 2.10 + \frac{48\pi}{10} \times 0.70 = ₹11.22$$

31. b According to the author, representation is a sign of limitations of an artist who is too feeble to create forms that provoke more than a little aesthetic emotion. Refer to the first paragraph of the passage "....representation is a sign of weakness in an artist..." The author says that representation is not wrong or baneful but reveals a weakness of the artist. This weakness or limitation is the flaw. Hence flawed artist is correct. Option (a) is incorrect as the author uses representation in art as a point of criticism for the artist and hence this cannot lead to 'A great artist'. 'Plagiarism' means passing off someone else's work as your own. The author does not talk about plagiarism but about representation and creation of realistic forms that more often than not are not so significant in great works of art. Hence option (c) is incorrect. Option (d) is too strongly worded. The author does not deny the claim of being called an artist for a person who uses representation but merely criticizes the undue importance attached to representation in works of art.

32. b The author states that when people sometimes know that they are in company of something great but are unable to appreciate this greatness. They then try to look for those meanings and emotions in this piece of art that they are capable of feeling. They may try too hard but that is a consequence, not the cause, of not being able to appreciate art. Hence option (a) is incorrect. In the second paragraph the author talks of those people who cannot feel emotion in the presence of pure form. In the third, the author mentions "A good work of visual art carries a person who is capable of appreciating it out of life into ecstasy". Clearly the author believes some people can understand and appreciate art and aesthetics whereas others can't. This makes option (b) correct. Option (c) and (d) are incorrect because the author talks neither about experts nor about the common man.

33. a Refer to lines in the last paragraph, where the author says "you will notice that people who cannot feel pure aesthetic emotions remember pictures by their subjects; whereas people who can, as often as not, have no idea what the subject of a picture is." This makes option (a) correct. According to the passage, the person who notices and remembers the subject of art is likely to be like 'a deaf man at the concert' because both are unable to appreciate art. Option (c) is contrary to this idea and is incorrect.

For questions 34 to 36:
Let 3x and 5x be the number of coins with Darpan and Ekansh respectively, where x is a natural number.
Then, the number of coins with Aakash = 3x + 5x = 8x
Since the number of coins with Aakash is a perfect square, the value of 8x is 16, 64 or 144.
$\Rightarrow$ x = 2, 8 or 18
Now, x = 18 is not possible. In this case the total number of coins will exceed 225. x = 2 is also not possible. In this case, the number of coins with Darpan as well as Ekansh will be less than 15.
Therefore, only x = 8 satisfies all the given conditions.
Hence, the number of coins with Aakash, Darpan and Ekansh are 64, 24 and 40 respectively.
The number of coins with Balram and Chhaya together
= 225 – (24 + 40 + 64) = 97
As Balram has an even number of coins, the number of coins with Chhaya must be odd.
The number of coins with Chhaya is either 29 or 53 and so the number of coins with Balram is either 68 or 44.

The conclusions drawn above can be tabulated as shown below.

Friend	Aakash	Balram	Chhaya	Darpan	Ekansh
Case I:	64	44	53	24	40
Case II:	64	68	29	24	40

34. d Either Aakash or Balram has the highest number of coins.

35. b The difference between the number of coins with Balram and Chhaya can be 68 – 29 = 39.

36. c The sum of the number of coins with Aakash and Darpan = 64 + 24 = 88.

37. b The author states that the most striking feature of this discussion was the power ascribed to science. Science and Darwin's theory of evolution had revealed a world that looked meaningless and in order to satisfy the human need of 'meaning in life', the researchers were now trying to use science to confirm the existence of life after death. The author says that science became a channel for belief in magic (life after death) and this is how science was used against science. This means that science was used to propagate the believe in life after death. Hence correct option is (b).The passage states that researchers turned to science in order to find an exit from the world that science had revealed (not created).Hence option (a) is incorrect.

38. b The author says that the psychical researchers confused evolution with progress when they argued about the logic of having life after death. Many of the psychical researchers believed they were doing no more than show that evolution continues in a post-mortem world. Like many others, then and now, they confused two wholly different things. Progress assumes some goal or direction. But Darwinism or evolution does not give humans exemption from mortality. The idea of evolution denied the researchers and people in general the idea of life after death .This, they thought, signifies waste that cannot lead to progress. Hence for them, it was important to prove that mind continues even after the person dies.

39. c Throughout the passage the author has argued how scientists attempted to find ways in which they could demonstrate that human lives had a purpose and meaning that continued after death. Option (c) comes closest to capturing the essence of the passage. The passage fails to comment on the power or the limitations of science. This makes options (b) and (d) incorrect. Although the author talks about mortality in the passage, the passage is not focused on mortality as the topic of discussion but on the attempts of psychical researchers to deny it (using science).This makes option (a) incorrect.

40. c In the passage the author talks about the "cognitive revolution of the past thirty years", about the studies in the working of the human brain and how brain science helps to "fill the hole left by the atrophy of theology and philosophy'. Option (c) is the only one that can cover all these aspects. All the other options are too specific. The author talks about the process of decision making but he does this in light of the cognitive revolution. The author also argues that the process of decision making does not change but this is only one of the many points that the author makes and is not the central theme or the primary purpose as it is narrow in scope (w.r.t passage).

41. d In the first part of the passage the author says we don't understand the qualities needed for the highest achievements and then he talks about how understanding the working of the brain or brain science helps us get "a better grasp of emotions, intuitions, biases, longings, predispositions, character traits, and social bonding." Hence (d).Option (c) and (a) are incorrect. The author states that our society does not give importance to matters that ought to be most significant for fulfillment .The passage is silent on the merit of matters that are given importance. So, it is not possible to comment if these are unimportant or merely less important than some other aspects of our lives.

42. c The author discusses the decision regarding whom to love only as an example and he/she wishes to prove that it is no different than any other type of decision. Option (a) is incorrect as the author has argued that all decision making is essentially the same.

For questions 43 and 44:
Let 1 to 7 represent the chair numbers of the leaders from left to right. Hence, Pranab must be sitting at the chair numbered 4.

Case I: Either Ajeet or Kamal is sitting at chair numbered 1.

So Azad and Mukul must sit at chairs numbered 2 and 7, in no particular order, to be as far as possible from each other. Now, Ambika and Kapil should occupy chairs numbered 5 and 6, in no particular order.

1	2	3	4	5	6	7
Ajeet/ Kamal	Azad/ Mukul	Kamal/ Ajeet	Pranab	Ambika/ Kapil	Kapil/ Ambika	Mukul/ Azad

Case II: Either Ajeet or Kamal is sitting at chair numbered 7.

So Azad and Mukul must sit at chairs numbered 1 and 6, in no particular order, to be as far as possible from each other. Now, Ambika and Kapil should occupy chairs numbered 2 and 3, in no particular order.

1	2	3	4	5	6	7
Mukul/ Azad	Kapil /Ambika	Ambika/ Kapil	Pranab	Kamal/ Ajeet	Azad/ Mukul	Ajeet/ Kamal

43. b The value of 'n' cannot be 2.

44. c Kamal and Kapil can never sit adjacent to each other.

45. a The theme of the paragraph revolves around 'bad writing'. The author aims to define 'bad writing'. Nothing in the text suggests that the author aims to compare good writing with bad writing. Options (b) and (d) talk about 'good writing' which is a shift from the theme and hence can be eliminated. Option (a) explains the 'self-serving' goals mentions in the last sentence of the paragraph and hence seems the best fit. Option (c) brings about a contrast in the idea as presented in the passage and hence can be eliminated.

46. b The paragraph is about policy failures – specifically the policing policy and the higher education policy. The paragraph also has a negative tone. Option (c) can be ruled out as it has a tone of relief – a positive tone. Options (a) and (d) can be ruled out as they are only specific to the policing policy. Option (b) is the answer as it refers to both the policing and higher education policies. It also follows from the penultimate line in the paragraph that states that both failures could have been mitigated – option (b) logically completes the paragraph by stating that instead they were allowed to fester.

47. a The paragraph starts with a specific incidence of plagiarism and then moves to a general discussion on the topic. Hence the next line of the passage should also be general. Options (b) and (c) can be eliminated as they are referring to the specific incident. Option (d) can be eliminated as the 'so' here refers to 'plagiarism' and not to flattery. Hence it cannot be the continuation to the idea given at the end of the passage. Option (a) is clearly correct as it continues with the contrast presented in the last line of the paragraph.

48. d The 'It' in A refers to the forum in E.EA forms a mandatory pair and this helps rule out option (b). Option (a) can be ruled out because C does not follow B; however, B can be used to substantiate C – as done in option (d). Option (c) can be ruled out for the same reason as B is cited as an example and it follows C. Option (d) is the answer as C should start the sequence as the word 'Ironically' cannot otherwise be logically justified.

49. d The sequence has a CEB link – the author called a person and expected him to present a particular opinion. The person presented his own opinion and this made the author rethink his own philosophy – there is a logical flow of thought in the sequence CEBA. And D helps conclude the sequence. It is also the rethought out opinion of the author and logically follows A. In statement A "this made me think again" refers to Dodd's comment. Hence AD should come after CEB. Option (d) is the answer.

50. a DA is a mandatory pair as "the once plain walls" of D can be linked to "these are not art galleries" of A. This negates options (c) and (d). CB is another mandatory pair as "restaurants in the city" in C can be linked to the specific example of "Tangerine restaurant" in B. This negates option (b).

51. b Since Tim is the only child common between teams I and III, we can say that Tim definitely does not have a sibling in the group.

Similarly, looking at teams II and IV, we can say that Bob also does not have a sibling in the group.

Now, looking at team III, we can say that Ian and Emy definitely make a pair of siblings.

52. a The sentence explains the process of the formation of a desert and in the first blank the words provided by options (c) and (d) are not correct as per the context. Hence these options can be eliminated. Option (b) can be eliminated as the word 'notion' is incorrect in the second blank. Option (a) is correct as it refers the sudden changes (vagaries) in the weather and 'combination' as a word fits the second blank. Option b: Caprice means 'sudden change'. Option c: olio means 'a medley'. Option d : Omination means 'presaging'.

53. a The sentence draws a contrast between the two blanks and the word 'new' indicates that the opportunities referred to are also 'new'. Hence for the first blank, Options (a) and (c) seem suitable. Option (c) can be eliminated as 'conventional' means conforming or adhering to accepted standards and as the risks are new so there are no set standards for them. Hence option (a).Option b: Preternatural means 'abnormal'. Option d: idiosyncratic means 'characteristic of a person', sententious means 'self – righteous'.

54. a The first blank needs a negative word hence (Option (b)) 'calamitous' which refers to 'disastrous', (Option (a)) 'dire' which means 'dreadful' and (Option (d)) 'ominous' which refers to 'portending evil/ harm' can all fit the first blank. Option (c) can easily be eliminated as 'cornucopian' means fruitful. Option (b) is can be eliminated as grammatically 'offset' is not apt for the second blank. Option (d) is also incorrect as 'invalidated' which means 'deprived of legal force' does not match the sentence contextually. Option (a) is correct as both words match the context.

For questions 55 to 57:
After filling up the given data in a table, it can be concluded from statement (iv) that H3 could not have finished first, third or fourth in Race-II. Therefore, it must have finished second and so H4 and H1 must have finished third and fourth respectively in Race-II.

Now, H2 must have finished first in Race-III as it couldn't have finished at the same position in more than two races.

From statement (iii), Dablu's horse must be H3 and it must have finished second in Race-I.

Further analysis leads to the final tables as below.

Owner	Rahul	Dharma	Dablu	Ritesh
Horse	H1	H2	H3	H4

Rank / Race	1	2	3	4
Race-I	H4	H3	H2	H1
Race-II	H2	H3	H4	H1
Race-III	H2	H4	H1	H3
Race-IV	H4	H1	H2	H3

55. b Dablu and Ritesh

56. a Rahul

57. d The sum of the ranks of H4 was the lowest and was equal to 7. Hence, H4 must have won the jackpot.

58. d 'show' is used to depict an occasion when a collection of things are brought together for people to look at. Show is also used to make it clear that you have a particular quality. Show can be used in 'goes to show' to say that something proves something. The correct usage in (d) should be "showed me up" which means to make somebody feel embarrassed by behaving badly.

59. c 'Job of work" means a work that you are paid to do or that must be done. 'just the job' means exactly what is needed in a particular situation. The correct expression in (c) should be 'a long job" which means a particular task or piece of work that you have to do. Job can also be used as in statement (d) to describe a crime, especially stealing.

60. d 'cab' is a mandatory sequence with 'c' mentioning the *Most-Favoured-Nation* rule and 'ab' stating the exceptions to the." This same principle of reciprocity" has no reference in the text. Hence correct answer is (d).