

CAT 2012 SOLVED PAPER

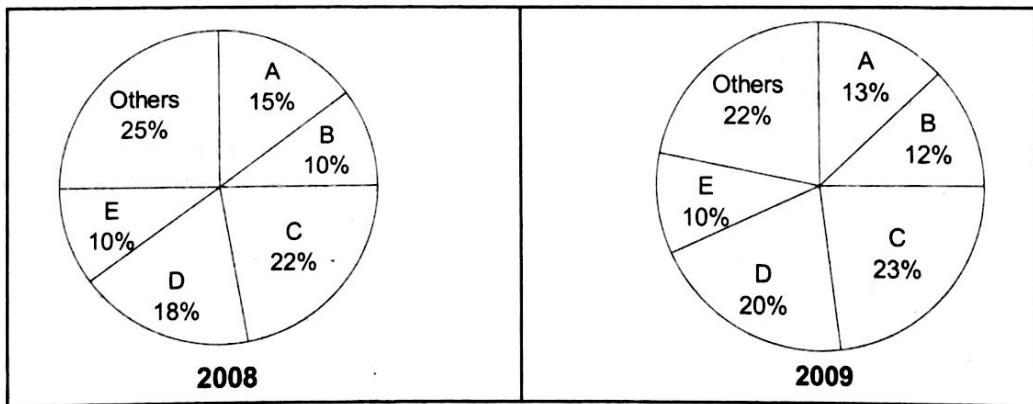
(Memory Based)

Directions for Questions 5 to 7: Answer the following questions on the basis of the information given below.

The following table gives the sales turnover (in crore Rs.) of the five major detergent brands A, B, C, D, E and others in the 4 regions East, West, North and South of India. The data is for the years 2008 and 2009. The pie chart gives the breakup of the sales of the same brands in terms of the number of units sold. The total number of units sold for 2008 and 2009 was the same.

Region →	East		West		North		South		Total	
Brand ↓	2008	2009	2008	2009	2008	2009	2008	2009	2008	2009
A	165	172	180	192	167	190	213	180	725	734
B	75	90	62	75	53	72	17	77	207	314
C	212	182	207	222	153	162	137	120	709	686
D	101	115	121	134	113	121	178	190	513	560
E	90	105	87	95	73	92	67	92	317	384
Others	250	310	152	175	143	162	57	83	602	730
Total	893	974	809	893	702	799	669	742		

Volumewise Breakup of Brands All India



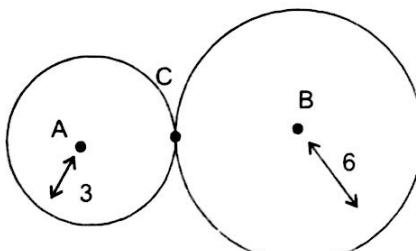
9. $ax^2 + bx + c = 0$ is a quadratic equation with rational coefficients such that $a + b + c = 0$, then which of the following is necessarily true?

 - (a) Both the roots of this equation are less than 1.
 - (b) One of the roots of the equation is c.
 - (c) One of the roots of the equation is $\frac{c}{a}$.
 - (d) Exactly one of the roots is 1.

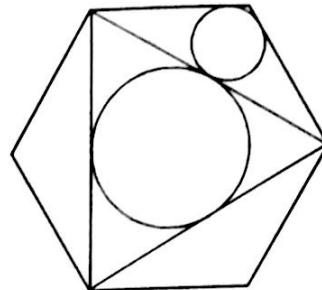
- 10.** What is the probability that the product of two integers chosen at random has the same unit digit as the two integers?

- (a) $\frac{3}{10}$ (b) $\frac{1}{25}$
 (c) $\frac{4}{15}$ (d) $\frac{7}{15}$

11. Two circles with centers A and B touch each other at C. The radii of the two circles are 3 m and 6 m respectively. Ramu and Shamu start simultaneously from C with speeds 6π m/s and 3π m/s and travel along the circles with centers A and B respectively. If Ramu gives Shamu a start of 2 seconds, what time (in seconds) after Ramu's start would they be separated by a distance of 18 m?



12. In the regular hexagon shown below, what is the ratio of the area of the smaller circle to that of the bigger circle?



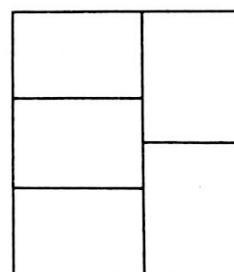
- (a) $3:7+2\sqrt{3}$ (b) $3:7+\sqrt{3}$
 (c) $3:16+4\sqrt{3}$ (d) $3:7+4\sqrt{3}$

13. A sequence of terms is defined such that

What is the value of $a_1 + a_2 + a_3 + a_4 + \dots + a_{50}$?

14. $500! + 505! + 510! + 515!$ is completely divisible by 5^n , where n is a natural number. How many distinct values of n are possible?

15. A rectangle with perimeter 88 m is partitioned into 5 congruent rectangles, as shown in the diagram given below. The perimeter of each of the congruent rectangles is



Directions for Questions 16 to 18: Answer the questions on the basis of the information given below.

The bar charts given below shows the details of the "Budgeted I-Tax" collections and the "Actual I-Tax" collections of India in each of the years from 2004-05 to 2008-09. Bar Chart-I shows the details of the **Total I-Tax** collections and bar chart-II shows the details of the **Corporate I-Tax** collections. There are only two categories of taxpayers in India "Individual Taxpayers" and "Corporate Taxpayers". All the figures are in Rs. crores.

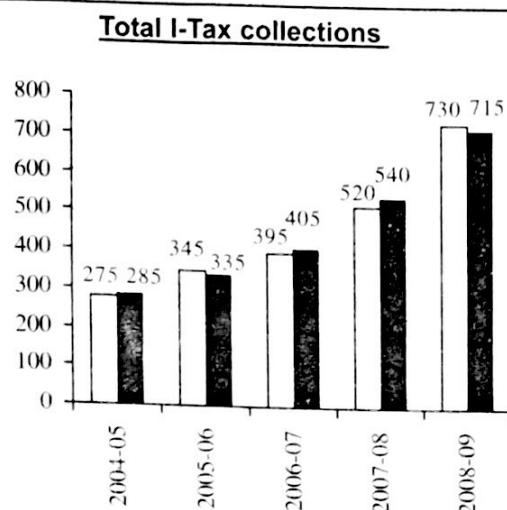


Chart I

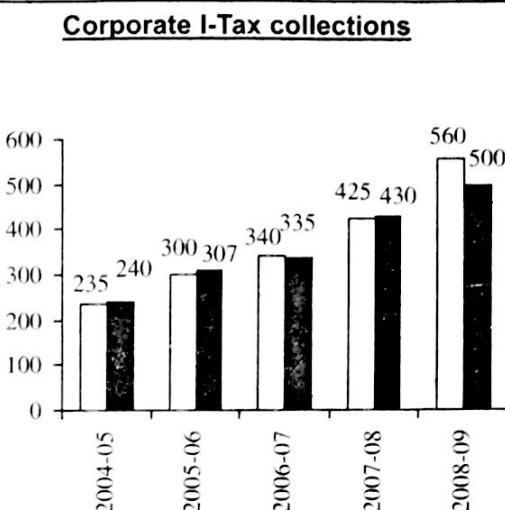


Chart II

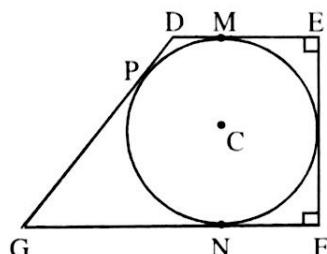
$$\text{Efficacy Ratio} = \left(\frac{\text{Budgeted I-Tax Collections}}{\text{Actual I-Tax Collections}} \right)$$

- 22.** A function $F(n)$ is defined as $F(n - 1) = \frac{1}{(2 - F(n))}$

for all natural numbers 'n'. If $F(1) = 2$, then what is the value of $[F(1)] + [F(2)] + \dots + [F(50)]$?

(Here, $[x]$ is equal to the greatest integer less than or equal to ' x ')

23. A trapezium DEFG is circumscribed about a circle that has centre at C. If $DM = 1\text{ cm}$, $GN = 4\text{ cm}$ and the measure of $\angle DEF = \angle EFG = 90^\circ$, then find the radius of the circle.



- 24.** The list price of an article was increased by 10%. It was then decreased by 10%. If the final price became Rs. 20, then find the initial list price (in Rs.)

$$(a) \frac{10 \times 100^2}{100^2 - 20^2}$$

$$(b) \frac{20^2 \times 10^2}{100^2 - 10^2}$$

$$(c) \frac{20 \times 100^2}{100^2 - 10^2}$$

$$(d) \quad 20 \times \left(\frac{100^2 - 10^2}{100^2} \right)$$

Directions for Questions 25 to 27: Answer the questions on the basis of the information given below.

The following table provides partial details about the comparison of the increase in the number of applicants among four streams in education viz. Engineering, Medical Science, Commerce and Arts in the year 2008 as compared to the year 2007. The increase in the number of applicants in the Commerce stream in 2008 as compared to 2007 is 70000 and the average number of applicants in the four streams in 2008 is 400000. Assume that these are the only four streams in the education system. In the given table, the number 20000 under the title 'Commerce' means that the increase in the number of applicants in the Commerce stream in 2008 as compared to the year 2007 is 20000 less than the corresponding increase in the Engineering stream. All the other data in the table should be interpreted similarly.

	Engineering	Medical Sciences	Commerce
Engineering		69000	20000
Medical Sciences	A		B
Commerce	D	C	
Arts	E	59000	F

25. Which of the following is not true?

(a) $E + F = 0$ (b) $C = 49000$
(c) $E + 10000 = 0$ (d) None of these

26. The total number of applicants in the four given streams in 2007 was

(a) 1339000 (b) 1739000
(c) 1439000 (d) 1349000

27. The total increase in the number of applicants in the Arts stream in 2008 as compared to 2007 as a percentage (approximate) of the total number of applicants in the four given streams in 2007 is

(a) 9% (b) 6%
(c) 8% (d) 5%

28. The radius of the cross-sections of pipes P_1 and P_2 are 7 m and 14 m respectively. Water flows through P_1 at a constant rate of 10 m/s and it can alone fill a tank in 2 hours. If P_1 is used as the inlet pipe and P_2 as the outlet pipe then together they fill the tank in 4 hours. What is the rate of water flow (in m/s) through P_2 ?

(a) 1.00 (b) 1.25
(c) 1.50 (d) 2.00

29. The number 44 is written as a product of 5 distinct integers. If 'n' is the sum of these five integers then what is the sum of all the possible values of n?

(a) 11 (b) 23
(c) 26 (d) 32

30. Three men are gambling in Casino Royal. They start with sums of money in the ratio 7 : 6 : 5 and finish with sums of money in the ratio 6 : 5 : 4, in the same order as before. One of them won \$ 12. How many dollars did he start with? [The three men gambled amongst each other only]

(a) \$1080 (b) \$420
(c) \$210 (d) None of these

SECTION - 2

31. Given below are five sentences that form a paragraph. Identify the sentence(s) or part(s) of sentence(s) that is/are correct in terms of grammar and usage (including spelling, punctuation and logical consistency). Then, choose the most appropriate option.

 - A. A tarot is one of the most wonderful of human inventions.
 - B. Despite all the outcry of philosophers, this pack of pictures,
 - C. in whom destiny is reflected as in a mirror with multiple facets,
 - D. remains so vital and exercises so irresistible an attraction on

Note

- (a) The author included a note on the usage of the term.

(b) The chess player of note was invited to inaugurate the Sports Complex.

(c) Her photograph rings a note but I still can't remember who she is.

(d) There was a note of sorrow in her manner.

33. Given below is 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.

It might not sound like a recipe for success – but this is the most important piece of theatre happening anywhere in the country. Some 40 years ago, director Augusto Boal began experimenting with invisible theatre – rehearsing and performing semi-improvised pieces in public spaces to the unsuspecting public. Meanwhile in the bohemian lofts of New York City, a new generation of visionaries were embedding their art ever further into the everyday. Lurking in the corner of a diner, Vito Acconci sat quietly rubbing his arm to produce a sore, while Allan Kaprow created instructions for almost unseen activities to be carried out on the streets of the city.

- (a) Such theatre is not as successful as that which happens in an auditorium.
 - (b) Even audiences were transformed, no longer limited to those who knew they were an audience.
 - (c) In this way, theatre broke free of the auditorium, art tore itself from the gallery and the museum.
 - (d) Theatre veterans are least bothered about praise or criticism.

places: the island of Bali, the world of the Arabian Nights, the age of the troubadours and even Manhattan. Advertising links it with the effects of lipstick, perfume and soap. If we could ask the advertising genius who, fifty years ago came up with the brilliant cigarette campaign, "blow some my way," he may have responded with "it's romantic."

These meanings cause few problems in every day life — indeed, few of us wonder about the meaning of Romanticism at all. Yet we use the expression freely and casually ("a romantic, candle-lit dinner"). But literary historians and critics as well as European historians have been quarreling over the meaning of the word Romanticism for decades. One of the problems is that the Romantics were liberals and conservatives, revolutionaries and reactionaries. Some were preoccupied with God; others were atheistic to the core. Some began their lives as devout Catholics, lived as ardent revolutionaries and died as staunch conservatives. The expression Romantic gained currency during its own time, roughly 1780-1850. However, even within its own period of existence, few Romantics would have agreed on a general meaning. Perhaps this tells us something. To speak of a Romantic era is to identify a period in which certain ideas and attitudes arose, gained currency and in most areas of intellectual endeavor, became dominant. That is, they became the dominant mode of expression. Which tells us something else about the Romantics: expression was perhaps everything to them — expression in art, music, poetry, drama, literature and philosophy. Just the same, older ideas did not simply wither away. Romantic ideas arose both as implicit and explicit criticisms of 18th century Enlightenment thought. For the most part, these ideas were generated by a sense of inadequacy with the dominant ideals of the Enlightenment and of the society that produced them.

Romanticism appeared in conflict with the Enlightenment. You could go as far as to say that Romanticism reflected a crisis in Enlightenment thought itself, a crisis which shook the comfortable 18th century *philosophe* out of his intellectual single-mindedness. The Romantics were conscious of their unique destiny. In fact, it was self-consciousness which appears as one of the keys elements of Romanticism itself.

The *philosophes* were too objective — they chose to see human nature as something uniform. The *philosophes* had also attacked the Church because it blocked human reason. The Romantics attacked the Enlightenment because it blocked the free play of the emotions and creativity. The *philosophe* had turned man into a soulless, thinking machine — a robot. In a comment typical of the Romantic thrust, William Hazlitt (1778-1830) asked, "*For the better part of my life all I did was think.*" And William Godwin (1756-1836), a contemporary of Hazlitt's asked, "*what shall I do when I have read all the books?*"

Christianity had formed a matrix into which medieval man situated himself. The Enlightenment replaced the Christian matrix with the mechanical matrix of Newtonian natural philosophy. For the Romantic, the result was nothing less than the demotion of the individual. Imagination, sensitivity, feelings, spontaneity and freedom were stifled — choked to death. Man must liberate himself from these intellectual chains.

34. How does the author use the arguments of the *philosophes* and the Romantics attacking the church for different reasons to make a point regarding the Romantics' problem with the *philosophes*?

- (a) By mentioning how both opposed the same thing – the Church's treatment of human beings as being uniform.
- (b) By talking about how both opposed the Church on different grounds, which in the end were quite similar.
- (c) By quoting the views of the leaders of the Romantics and the *philosophes* and showing how they actually meant the same thing.
- (d) By showing how one fought for logic and the other for sentiments thereby proving the Romantics' support of the spirit opposing dependence on rationality.

35. What specific instance of the Romantics' self-consciousness is mentioned by the author in the passage?

- (a) The author talks of their acceptance of emotions and sentimentality, all of which is possible only in a faith that is about self-consciousness.
- (b) The author mentions the Romantics' insistence on ideas and concepts, which is the best expression of self-consciousness.
- (c) The author talks about the Romantics' consciousness of their ordinance nonpareil.
- (d) The author points out the anomalies between the Romantics and their *philosophes* where self-consciousness is mentioned.

36. What makes the author deduce "for the Romantics, expression was everything"?

- (a) Passion was important to the Romantics.
- (b) The Romantics opposed Enlightenment and objectivity.
- (c) The existence of atheism in the Romantics.
- (d) The romantics could not be submissive.

Directions for questions 37 to 39: Answer the questions on the basis of the information given below.

Eight teams participate in the Indian Soccer League (ISL) in which they play one another exactly once. The winner gets three points while the loser gets no points from a match. Both the teams get one point each if the match results in a draw. It is known that not more than 3 matches resulted in a draw in the tournament.

The teams are ranked in the following manner before the tournament starts:

Rank	Team
1	Deccan Kings
2	Sydney Chargers
3	Hobart Rockets
4	Delhi Challengers
5	Peshawar Pehalwans
6	Rajasthan Badshahs
7	Chennai Royals
8	Kolkata Invincibles

The new ranks of the eight teams would be decided based on their performance in the ISL, with the team scoring the maximum points ranked 1 and so on. If two or more teams score equal points at the end of the tournament, their final ranks would be decided based on the total number of goals scored in the tournament, with more goals giving a team better rank.

An "upset" is said to have happened when a lower ranked team defeats a higher ranked team in a match.

37. If Rajasthan Badshahs came in the top four teams after ISL, then what is the minimum number of upsets that must have happened?

- (a) 1
- (b) 2
- (c) 3
- (d) None of these

38. If Hobart Rockets retained Rank 3, then what is the maximum number of upsets that could have happened?

- (a) 18
- (b) 25
- (c) 26
- (d) 24

39. If 27 matches in ISL resulted in upsets, then what is the maximum number of teams who could have retained their initial ranks?

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

40. The sentences given below, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices.

- A. On the whole, we have not arrived at any general consensus over the nature and causes of fascism in our time.
 - B. Historians, sociologists, social psychologists, and political theorists have been debating this question since Mussolini's seizure of power in 1922.
 - C. However, with limited success.
 - D. What is the 'true' nature of fascism?
 - E. Is it something radically new to political experience, a unique creation of the 20th century; or is it merely old tyranny possessed of new, more efficient techniques for gaining and holding power?
- | | |
|-----------|-----------|
| (a) ABCDE | (b) DEABC |
| (c) DEBCA | (d) ADEBC |

42. The word given below is used in sentences in four different ways. Choose the option in which the usage of the word is *incorrect or inappropriate*.

HIT

- (a) In his new book he hits off the American temperament with amazing insight.
 - (b) What will happen when the story hits the front page?
 - (c) This course will hit the high spots of ancient history.
 - (d) Critics hit off at the administration's new energy policy.

Directions for Questions 43 to 46: The passage given below is followed by a set of questions. Choose the most appropriate answer to each question.

In the 1950 movie *All About Eve*, the theatre critic is a dapper, cynical charmer with the Old World moniker Addison DeWitt. He's no hero, but his wry assessments can make or break a production. Characters repeat his phrases throughout the film, in both scornful and reverent tones.

Almost a half-century later, the television show *The Critic* presented an animated schlemiel, paunchy and balding, voiced by the nerdy comic endomorph Jon Lovitz. This character's influence on the world in which he lives is nonexistent: His impact comes down to serving as the butt of jokes.

Does this series tell us something about the way the world view those who make cultural judgments for a living? In the decade since that show's run, many critics report, they've gotten even less respect. Or ceased to matter entirely.

"You get arts journalists together these days," says Doug McLennan, editor of Arts Journal.com and a longtime Seattle music writer, "and it's what they talk about: their declining influence. They say Frank Rich was the last critic who could close a show." Most remember when *Time* and *Newsweek* had full rosters of arts critics.

What happened? Besides the Internet and its rash of blogs, suspected culprits include the culture of celebrity, anti-intellectual populism, stingy newspaper owners and what some critics say is a loss of vitality or visibility in their art forms. While many lament the situation, some think the decentralization of authority means the arts — and the conversation around them — will flourish without these stern, doctrinaire figures.

The nonprofit arts, with their limited marketing budgets, have typically depended more on criticism than the promotion-driven world of entertainment, which is sometimes called "critic-proof." But as late as the 1970s, the feisty Pauline Kael was spurring American outlaw filmmakers toward their most daring work.

But it's less common, critics say, for one of their kind to draw an audience's attention to an overlooked work. Some arts critics, such as Peter Schjeldahl of the New Yorker, Charles Rosen of the New York Review of Books and former Time critic Robert Hughes, continue to do this.

Part of the problem seems to be the general tarnishing of the press in recent years. "Two decades ago," concludes "Trends 2005," a Pew Research Center study, "just 16 per cent of readers said they could believe little or nothing of what they read in their daily paper; in the most recent survey, that number nearly tripled, to 45 per cent."

Dave Hickey, an art critic best known for the book *Air Guitar: Essays on Art & Democracy*, doesn't think the Internet is the problem. "But I do think that we're over," he says. "Being an art critic was one of those jobs like night-time disk jockey or sewing machine repairman: It was a one- or two-generation job."

For Hickey, art criticism lost its lustre and excitement the same time art did. "There was a sense that things had a forward tilt," he says of American art after World War II, when it seemed to be moving toward a consummation. "Jackson Pollock changed the way the world looked, Andy Warhol changed the way the world looked."

But the high couldn't last forever, and the power went to the curators

"I'm like Wolfman Jack," Hickey groans. "The times have passed me by."

- 43.** It can be inferred from the passage that the world of entertainment is less dependent now on the critics because
- the audience does not pay heed to critics.
 - their big marketing budgets get people interested irrespective of the reviews.
 - they draw people courtesy the star power which is unaffected by criticism.
 - one failure does not end an entertainment empire.
- 44.** By citing the example of Charles Rosen, what aspect of a critic's personality is being highlighted by the author?
- Controversial and opinionated
 - Capricious
 - One who draws attention towards a work which is not so well-known
 - Wine connoisseurs who want to seek the advice of a critic
- 45.** What is the author trying to prove by mentioning: "*Characters repeat his phrases throughout the film, in both scornful and reverent tones*" while talking about the critic?
- Even films acknowledged the important role of a critic.
 - People loved him or hated him, but they could not ignore him.
 - Films in earlier times tried to get favourable reviews by creating characters who were critics.
 - The critic was seen as a multidimensional individual in the earlier times.
- 46.** What is Hickey trying to say by calling art criticism "a one – or two – generation job"?
- It can be done by only one generation in a family unlike law
 - The industry he was involved in was vibrant for only a few decades
 - Such jobs only capture the fancy of one or two generations
 - Every generation has a different approach towards it
- 47.** The sentences given below, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices.
- Those who don't recognize wisdom latent in the foolishness?
 - There is always a knowing wink in these tales, but who is being laughed at?
- C.** In an imaginary East European scene, these paragons of scholarship and righteousness are shown to be fools.
- D.** The wise men of Chelm may be among the most familiar folk characters in the Jewish tradition.
- E.** The fools who don't realize they are fools?
- DCEAB
 - AEDCB
 - BDCEA
 - DCBEA
- 48.** There are two blanks in the following sentence. From the pair of words given, choose the one that fills the blanks most appropriately. The first word in the pair should fill the first blank.
- Even those who do not _____ Mahatma Gandhi's ideas _____ him as a champion who has daringly refused give up his convictions.
- shrink from..... condemn
 - concur with..... recognize
 - disagree with..... envision
 - dissent from..... remember
- 49.** Given below is 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.
- There is much to commend in this novel, a witty parable of India's changing society, yet there is much to ponder. The scales have fallen from the eyes of some Indian writers, many either living abroad, or educated there like Adiga. The home country is invariably presented as a place of brutal injustice and sordid corruption, one in which the poor are always dispossessed and victimised by their age-old enemies, the rich. Characters at the colourful extremities of society are Dickensian grotesques, Phiz sketches, adrift in a country that is lurching rapidly towards bland middle-class normality.
-
- My hunch is this is fundamentally an outsider's view and a superficial one.
 - There are so many alternative Indias, uncontacted and unheard which Adiga can never hope to explore.
 - Adiga is a genius of this age who has written a pathbreaking book.
 - Presenting the home country as a poverty-stricken place has become a means of getting cheap popularity.

Directions for Questions 50 to 52: Answer the questions on the basis of the information given below.

Each of the six persons namely A, B, C, D, E and F took one ball from a box containing 300 balls of six different colours Blue, Black, Red, White, Green and Yellow. Also, the number of balls of each colour is the same. Following is the detail of three statements made by each of the persons. Exactly one of the statements made by each person is true and only one of the statements made about B is correct. Also, balls of two particular colours were not taken by any of the persons

	Statement I	Statement II	Statement III
A	B took a green ball	C did not take a red ball	E took a blue ball
B	A took a green ball	D did not take a yellow ball	C took a black ball
C	F took a white ball	F did not take a white ball	A did not take a blue ball
D	E took a yellow ball	F took a yellow ball	One green ball was taken by me
E	F took a red ball	B took the same coloured ball as A	B took a blue ball
F	A took a white ball	C took a black ball	D did not take a red ball

Directions for Questions 53 to 55: Read the passage given below and choose the best answers for the questions that follow.

On the first page of the novel I am writing, I describe a horse — a gray mare named Mathilde. The mare is not a principal character in my novel; on page 23, when she briefly reappears in the hold of a ship crossing the Atlantic Ocean on her way to South America, I may, in the confusion of a stormy passage, easily forget about her and call her a pony; worse still, on page 84 where Mathilde is galloping on the plains of the Gran Chaco in Paraguay, I could have her become a filly. My point is that there is a huge difference between a mare, a pony and a filly. My Mathilde is long-legged, elegant, reliable, whereas a pony is tricky, often mean and tends to nip, and a filly is skittish, untrained, ready to bolt and do who knows what.

Misspellings and inaccurate quotations and/or inaccurately rendered foreign phrases (and the writer herself is often the one to notice these most) stop the reader cold on the page. The same is true of typos.

Writing consistently goes beyond getting the facts right. "If it is one, say one," says a Chinese proverb (and not eighteen minus seventeen nor five-sixths plus one-sixth). This is not, I think, a question of keeping it simple but of making it as true as possible. Not an easy task: At every turn, the sentence invites me to show how much I know, to show how smart I think I am; every

metaphor, every analogy has the potential for fraudulence. Adverbs are hills I must climb to get to my destination; adjectives are furniture blocking my way. English is a naming language; its power derives from nouns.

"Art," Ken Kesey said, "is a lie in the service of truth," a statement which may appear to be contradictory but is not. Interesting, too, how often a true story sounds both false and boring while a lie sounds quite plausible.; the truth is right there in front of your nose. A lie is more trouble. As the liar/writer, I have to convince. I have to appear sincere and be twice as clever so as not to get caught. One way of doing this is to use a lot of details, to distract the reader: "Making things up — as in fiction — sounds easy and like fun and it may be at first. By page three, to say nothing of by chapter five or six, I guarantee, it becomes harder and harder to sustain that lie or whatever the story is that you have made up. Harder still to continue to sustain the belief of your reader as well as to convince him of the worth of your endeavor; hardest of all for him to trust you with it.

In my case, some of my writing is based on my experience. And if I'm successful, in the end, I won't be able to remember — like a good liar, I suppose — what is true and what is made up. Or I like to write about stuff the average reader may not know a whole lot about: Sufis, Thai culinary customs, Guarani lace-making. Or I do a lot of research and then try my damndest to hide it all — another form of deceit — because every fact, every date, every statistic (however accurate and consistent) in fiction is like a stone hurled into the hull of a boat and with each stone the boat sinks further in the water.

53. It can be inferred that the author talks about the mistakes with the horse, filly and mare in order to

 - (a) Present herself as an easygoing person who is not afraid to admit to her mistakes
 - (b) Showcase instances where she had also committed mistakes
 - (c) Highlight the details that need to be taken care of while writing a book
 - (d) Provide a framework for young writers

54. What does the author mean by saying "English is a naming language"?

 - (a) English is most conducive to indulge in name-calling.
 - (b) The main focus of English literature is names.
 - (c) The power of name-calling is immense in English.
 - (d) English is most suited to talking about different people.

55. What is the author trying to convey by using the imagery of throwing stones into a boat, which sinks further to talk about fiction?

 - (a) It becomes more and more difficult to hide the truth.
 - (b) Each section makes the story more accurate.
 - (c) The stones indicate the burden of being a writer.
 - (d) The feeling of claustrophobia and entrapment as a writer.

- 56.** Given below is 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.

Warschawski describes the atrocities of the occupation—from the sack of Ramallah to the massacre in Jenin, the razing of houses and refugee camps, shooting at ambulances and hospitals, the use of Palestinian civilians as human shields—showing how each of these pushes back the boundaries of what was previously thinkable. Warschawski has the keen eye of an Israeli insider.

- (a) He keenly observes the destructive movements of Palestinians and develops a powerful critique of their terrorist activities with a persuasive power drawn from his Jewish origins.

(b) He develops a powerful critique of Israeli policies with a persuasive power drawn from his own Jewish origins.

(c) Palestinian occupation of Israel is the subject that worries him the most, and he writes a powerful critique with a comprehensive account of massacre and plunder.

(d) He blindly supports the Palestinian cause and even expects the U.S. to stand by an independent state for them.

- 57.** The sentences given below, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. Choose the most logical order of sentences from among the given choices.

- A. In addition to being one of Mr. De Palma's signature set pieces — a deft and dazzling aria of surveillance, suspense and partial nudity — this sequence seems especially designed to beguile critics who have covered the annual carnival of cinematic indulgence and bureaucratic intransigence that is Cannes.

Directions for Questions 58 to 60: Answer the questions on the basis of the information given below.

Five friends, viz. Ashok, Amit, Ajay, Akansh and Abhishek are living in five different cities named Kunnamangalam, Joka, Vastrapur, Banerghatta and Prabandhnagar, not necessarily in that order. Their salaries are 700000, 800000, 900000, 1100000, 1300000 (INR per annum), in no particular order. Further, the following information is given about them:

ANSWER KEY

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

EXPLANATIONS

1. It is equivalent to finding how many such 2-digit numbers are there.

In such numbers we cannot have 0 or 1 in unit's place.

When we have 2 in unit's place, we have 1 such number, 12.

When we have 3 in unit's place, we have 2 such numbers, 13 and 23.

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.

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When we have 9 in unit's place, we have 8 such numbers.

So number of such numbers is $(1 + 2 + 3 + \dots + 8) = 36$.

Hence the resulting number has 72 digits.

2. Suppose $\frac{bx - ay}{bc} = \frac{ay - cz}{ac} = \frac{cz - bx}{ab} = k$.

So

$$bx - ay = kbc$$

$$ay - cz = kac$$

$$cz - bx = kab$$

On adding, $k(ab + bc + ca) = 0$

or, $ab + bc + ca = 0$.

3. Solve the equation to find the answer.

$$(x - 1)^2 + x^2 + (x + 1)^2 = (x + 2)^2 + (x + 3)^2.$$

4. Suppose the contractor had x trucks.

$$\text{So, we have } \frac{x+8}{x-8} = \frac{3}{2}$$

$$\Rightarrow x = 40$$

5. Sum of all the entries corresponding to the year 2009

$$= \text{Rs. } 3408 \text{ cr.}$$

6. Compare the values of $\frac{\text{Sales}_{09}}{\text{Sales}_{08}} \times \frac{(\text{Market Share})_{08}}{(\text{Market Share})_{09}}$

$$\text{for A} = 1.168$$

$$\text{B} = 1.264$$

$$\text{C} = 0.925$$

$$\text{D} = 0.982$$

$$\text{E} = 1.211$$

7. Let a total of $100N$ units be sold in both the years 2008 and 2009.

Statement 1:

A could not register growth in South and C could not register growth in both South and East.

Statement 1 is true.

Statement 2:

Number of units sold by B in 2009 in South

$$= \left(\frac{12}{100} \times 100N \right) \frac{77}{314} = 2.94N$$

Number of units sold by B in 2008 in South

$$= \left(\frac{10}{100} \times 100N \right) \frac{17}{214} = 0.79N$$

Percentage increase

$$= \left(\frac{2.94 - 0.79}{0.79} \right) \times 100 = 272\%$$

Statement 2 is false.

Statement 3:

Number of units sold by C in 2009 ($23N$) is greater than the number of units sold by C in 2008 ($22N$).

Statement 3 is false.

8. Centre of the circle will be mid-point of the hypotenuse of the triangle. So, hypotenuse = $2 \times 6.5 = 13$ cm.

Since all the sides are natural numbers, obviously other sides are 5 cm and 12 cms and the perimeter is $5 + 12 + 13 = 30$ cm.

9. Quadratic equation $ax^2 + bx + c = 0$ must have two roots which may or may not be identical.

Let $f(x) = ax^2 + bx + c$.

$$f(1) = a(1)^2 + b(1) + c$$

$$= a + b + c = 0$$

So, $x = 1$ is definitely a root of $ax^2 + bx + c = 0$.

Product of roots of $ax^2 + bx + c = 0$ is $\frac{c}{a}$.

So if one of the roots is 1 then the other root must be $\frac{c}{a}$.

10. An integer can end with any of the ten digits (0, 1, 2 ... 9) out of which if it ends with one of the four (0, 1, 5, 6), the required condition will be satisfied. The probability of an integer ending with 0 or 1 or 5 or 6 is $4/10 = 2/5$

Now the probability of 2nd integer also ending with the digit that has come in unit's place of the first integer is $1/10$

$$\therefore \text{The required probability} = (2/5) \times (1/10) = 1/25$$

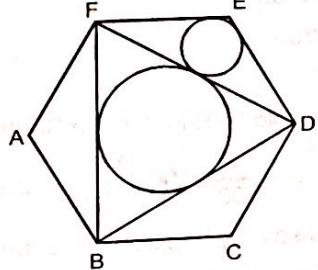
11. If Ramu and Shamu are at the diametrically opposite ends (in which case distance = 18 m)

Then

$$1.5 + 3 \times N = 4M \text{ where } M, N \text{ are natural numbers}$$

This is never possible.

- 12.



Let

$$\text{In triangle DEF: } DF = 2EF\cos 30^\circ = \sqrt{3}s$$

Semi perimeter of triangle DEF (in units) = S

$$= \left(1 + \frac{\sqrt{3}}{2}\right)s.$$

Area of triangle DEF (in unit²) = Δ

$$= \frac{1}{2}(EF \sin 30^\circ)DF = \frac{\sqrt{3}s^2}{4}.$$

Inradius of triangle DEF (in units) = r_1

$$= \frac{\Delta}{S} = \frac{\sqrt{3}s^2}{4\left(1 + \frac{\sqrt{3}}{2}\right)s} = \frac{\sqrt{3}s}{4\left(1 + \frac{\sqrt{3}}{2}\right)} = \frac{\sqrt{3}s}{2(2 + \sqrt{3})}$$

Inradius of triangle DEF (in units) = r_2

$$= \frac{1}{3}\left(\frac{\sqrt{3}}{2}DF\right) = \frac{DF}{2\sqrt{3}} = \frac{s}{2}.$$

$$\text{Ratio of area} = r_1^2 : r_2^2 = 3 : 7 + 4\sqrt{3}$$

13. Sum of $a_0 + a_1 + \dots + a_{50} = 1 + 3 + \dots + 101 = 2601$

14. $500! + 505! + 510! + 515!$

$$= 500!(1 + 5k) \text{ (where } k \text{ is a natural number)}$$

It can be seen that $5k + 1$ won't be a multiple of 5.

Minimum value of n for which $500!$ is divisible by $5^n = 1$.

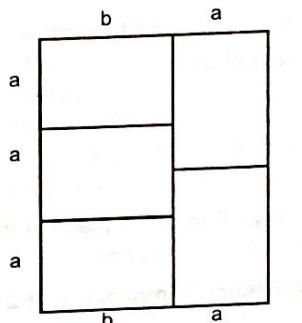
Maximum value of n for which $500!$ is divisible by 5^n

$$\left[\frac{500}{5}\right] + \left[\frac{500}{5^2}\right] + \left[\frac{500}{5^3}\right] + \left[\frac{500}{5^4}\right]$$

$$= 100 + 20 + 4 = 124$$

Hence, there are 124 possible values of n .

15. Let the lengths and breadths of each of the small rectangles be ' b ' m and ' a ' m respectively.



$$\therefore 5a + 4b = 88 \text{ and } 3a = 2b$$

$$\Rightarrow a = 8 \text{ and } b = 12$$

$$\text{Perimeter of each small rectangle} = 2(a + b) = 40$$

16. For the year 2005-06 and 2008-09

Efficacy Ratio			
	Total	Corporate	Individual
2004-05	0.96	0.98	0.89
2005-06	1.03	0.98	1.5
2006-07	0.98	1.01	0.79
2007-08	0.96	0.99	0.86
2008-09	1.02	1.12	0.79

Alternate method:

2004 - 05: By visual inspection for both "Total I-Tax" and "Corporate I-Tax" efficacy ratio is less than one, hence we need not check for "Individual I-Tax".

2005 - 06: Similarly, efficacy ratio of "Total I-Tax" collections is more than one but for "Corporate I-Tax" it is less than one, calculating for "Individual I-Tax" it comes out to be more than one.

Let, the radius of circle be 'x' cm.

$$\therefore CM = CN = CR = x$$

Given that GN = 4 cm

$$\therefore GP = 4 \text{ cm}$$

$$\text{Also, } DP = DM = QN = 1 \text{ cm}$$

$$\therefore GD = 5 \text{ cm}$$

$$GQ = GM - QN = 4 - 1 = 3 \text{ cm}$$

$$\text{In } \triangle DGQ : DQ = \sqrt{GD^2 - GQ^2} = 4 \text{ cm}$$

$$\Rightarrow 2x = 4 \text{ cm} (\because DQ = MN)$$

$$\therefore x = 2 \text{ cm.}$$

24. List price first increases by 10% and then decreases by 10%.

$$\Rightarrow \left(\frac{100+10}{100} \right) \times \left(\frac{100-10}{100} \right)$$

\times initial list price = final list price

$$\Rightarrow \text{Initial list price} = \frac{20 \times 100^2}{100^2 - 10^2}$$

For questions 25 to 27:

Given that the increase in the number of applicants in the Commerce stream in 2008 as compared to 2007 is 70000 and that the average number of applicants in the four given streams in 2008 is 400000.

Therefore, the increase in the number of applicants in the Engineering stream in 2008 will be $70000 + 20000 = 90000$.

Thus, the corresponding increase in the number of applicants in the Medical Science stream in 2008 will be $90000 - 69000 = 21000$ and subsequently the increase in the number of applicants in the Arts stream will be $21000 + 59000 = 80000$.

25. So, the values of C, E and F will be

$$(70000 - 21000 = 49000), (80000 - 90000 = -10000) \text{ and } (80000 - 70000) \text{ respectively.}$$

So, the options (a), (b) and (c) are true.

For questions 26 and 27:

Let the number of applicants in the Engineering, Medical Science, Commerce and Arts stream in 2007 be 'x', 'y', 'z' and 'w' respectively.

Therefore, the number of applicants in the Engineering, Medical Science, Commerce and Arts stream in 2008 will be $(x + 90000), (y + 21000), (z + 70000)$ and $(w + 80000)$ respectively.

26. So, $x + y + z + w + 261000 = 400000 \times 4 = 1600000$.

$$\text{Or, } x + y + z + w = 1339000.$$

27. Required percentage

$$= \left(\frac{80000}{1339000} \right) \times 100 = 5.97 \% \approx 6\%$$

28. Area of cross section for

$$P_1 = A_1 = \left(\frac{22}{7} \right) 7^2 = 154 \text{ m}^2$$

Volume of water flowing through P_1 in one second
 $= 154 \times 10 = 1540 \text{ m}^3$

Volume of tank = $V = 1540 \times 2 \times 3600$
 $= 11088 \times 10^3 \text{ m}^3$

Area of cross section for

$$P_2 = A_2 = \left(\frac{22}{7} \right) 14^2 = 616 \text{ m}^2$$

Let the rate of water flowing through $P_2 = s \text{ m/s}$
 Volume of water flowing through P_2 in one second
 $= 616s \text{ m}^3$

Volume of water flow in the tank when P_1 is used as inlet and P_2 is used as outlet pipe: $1540 - 616s$.
 Time taken to fill = 4 hours = 4×3600 seconds

$$\begin{aligned} \text{So, } (1540 - 616s) \times 4 \times 3600 &= V \\ &= 11088 \times 10^3 \\ &= 1540 \times 2 \times 3600 \end{aligned}$$

$$\text{or } 1540 - 616s = 770$$

$$\text{or } s = 1.25 \text{ m/s}$$

29. Prime factorization of 44 leads to:

$$44 = 2 \times 2 \times 11$$

To express 44 as product of five distinct integers we'll have to introduce 1 and -1.

The only possible way comes out to be:

$$44 = 2 \times (-2) \times 11 \times 1 \times (-1)$$

In this case the value of n would be 11 which is also the only possible value.

30. Suppose that the total amount involved in this game is \$K.

The first person has $\frac{7}{18} K$ in the beginning and $\frac{6}{15} K$ in the end. Thus he won something.

Second person has $\frac{6}{18} K$ in the beginning and $\frac{5}{15} K$ in the end. So he neither gains nor loses. At this point it is very clear that third person loses something.

$$\Rightarrow \frac{6}{15} K - \frac{7}{18} K = 12.$$

$$\text{So, } K = 1080.$$

So, the winner must have started with \$420.

- 31.** A is incorrect it should use 'the' before 'tarot'. B uses the singular 'outray' incorrectly; it should be 'outrays', C is incorrect as it uses the pronoun 'whom' instead of 'which' for a non living object.
- 32.** Option (a) uses the word appropriately. 'Note' here refers to an explanatory comment that the author decided to include in his work. Option (b) uses the word appropriately. When reference is made to a man of 'note' it is suggested that the person is distinguished or famous. In the given option, the chess player who is famous because of the sport that he pursues is invited for the inauguration. Option (c) is the correct choice because it does not use the word 'note' appropriately. The word has been incorrectly used in place of 'rings a bell'. When something 'rings a bell', it evokes some memory or recollection. Therefore, the sentence conveys that even though her photograph evoked some memory of this person, he still could not recall her identity. Hence, in this sentence 'rings a note' shows incorrect usage of the idiom 'rings a bell'. Option (d) uses the word appropriately. 'Note' here means a characteristic emotional quality.
- 33.** The tone of the paragraph is predominantly narrative and in the past tense. Option (a) is repetitive and is abruptly in the present. Even option (d) abruptly jump to the present and do not continue the tone. Option (b) seems to follow option (c)- note that option (b) starts with 'even audiences were transformed' which is logical after option (c) which talks of transformation of theatre. Option (c) is closely linked to the para end which talks of unseen activities. Option (c) not only continues the paragraph but defines what this invisible theatre is all about.
- 34.** The author talks about this in the fourth paragraph at the beginning – "The *philosophes* had also attacked the Church because it blocked human reason. The Romantics attacked the Enlightenment because it blocked the free play of the emotions and creativity. The *philosophe* had turned man into a soulless, thinking machine — a robot." This proves that the Romantics who came after the philosophes were fighting against the over dependence on reason and harking back to emotions. This makes choice (d) correct.
- 35.** The author mentions this at the end of the third paragraph. "The Romantics were conscious of their unique destiny. In fact, it was self-consciousness which appears as one of the key elements of Romanticism itself" making choice (c) correct.
- 36.** The author mentions in the second paragraph – "To speak of a Romantic era is to identify a period in which certain ideas and attitudes arose, gained currency and in most areas of intellectual endeavor, became dominant. That is, they became the dominant mode of expression. Which tells us something else about the Romantics: expression was perhaps everything to them". None of (a), (b) or (c) talks about this.
- 37.** It can happen with 0 upsets and 3 draws:
 Delhi Challengers Vs Peshawar Pehalwans
 Delhi Challengers Vs Rajasthan Badshahs
 Peshawar Pehalwans Vs Rajasthan Badshahs
 The above three teams would end with 2 wins and 2 draws each. Rajasthan Badshahs can have Rank 4 based on the total goals scored in the tournament.
- 38.** Except the two matches given below all the matches can result in upsets.
 Hobart Rockets Vs Rajasthan Badshahs
 Hobart Rockets Vs Peshawar Pehalwans
 If both the above matches are won by Hobart Rockets, then Hobart Rockets and Rajasthan Badshahs would end with 4 wins each. Hobart Rockets can have Rank 3 based on the total goals scored in the tournament.
- 39.** If the only match that doesn't result in an upset is Delhi Challengers Vs Peshawar Pehalwans and it is won by Delhi Challengers, then both the teams would retain their initial ranks.
- 40.** DE and BC must surely go together for the movie references. If DE goes together then B ('this question') must follow E. And A would follow C as it sums up the discussion. So, (c) is the answer.
- 41.** In '1' it should be 'country' not countries; in '2' it should be 'about the..' because an article is required here; in '3' it should be 'live by..' not 'live on..' and; in '4' it should be 'emerges' not 'emerge' because it is referring to 'one set..' and not to 'questions..'
- 42.** Option (a) is correct. 'Hit off' means to represent or describe precisely or aptly. Option (b) is correct. 'Hit' also means to be published in or appear in a newspaper or a magazine. Option (c) is correct. 'Hit the high spots' means paying attention to only the most important or obvious facets or items. Option (d) is incorrect. The correct sentence should be "Critics hit out at the administration's new energy policy". 'Hit out' means to make a violent verbal attack.

- 43.** The author mentions in the fifth paragraph – “promotion-driven world of entertainment” which is “critic proof”. This makes option (b) correct. Option 1 is too general. Options (c) and (d) are too specific and can be part of option (b).
- 44.** The author mentions Rosen’s names among others in the sixth paragraph which he begins by saying “But it’s less common, critics say, for one of their kind to draw an audience’s attention to an overlooked work”. This makes option (c) correct.
- 45.** The author starts the passage with the example and in the rest of the passage looks at this phenomenon. This example showed the way films reflected the reality of the time when a critic was an important figure. The sentence mentioned in the quote in the question also highlights how characters gave a lot of importance to the critic in the film and irrespective of whether they respected what he said or looked down upon it, they acknowledged it. This makes option (b) correct. Option (a) is true but not specific to the question asked. Option (c) is incorrect. Option (d) is not mentioned in the passage.
- 46.** The author mentions this in the eighth paragraph. Hickey compares the job of the art critic with “a night-time disk jockey or a sewing machine repairman”. Both of these are professions that were at their peak for only a few decades (one-two generations).
- 47.** DC must go together and it must begin the paragraph. The paragraph cannot begin with A or B. At the same time, B must follow C as ‘these tales’ in B refer to ‘shown as’ in C.
So, the answer is (d).
- 48.** The question can be easily answered by following the tone of the sentence. The sentence can be completed by using words which can give the opposing meaning to the two parts of the sentence. Following this logic, options (c) and (d) can be rejected. Option (a) is incorrect as the second blank does not communicate the meaning of the sentence properly. ‘Condemn’ is not the apt word here as the idea that follows the second blank is not in concurrence with the sentence that follows it. The second part of the sentence requires a word with a positive connotation. Option (b) is the correct answer as it highlights that even amongst his critics, Gandhiji was respected for his conviction for his ideas.
- 49.** The first line of the paragraph-‘much to command and much to ponder’- gives away the tone of the author- which is moderate and not extreme. Option (b) is too definitive in ‘Adiga can never hope to explore’. Option (c) is too laudatory. Option (d) is

extreme in its negative tone. Option (a) continues the author’s view. Also note the words ‘my hunch is ...’ which is moderate in its import.

For questions 50 to 52:

- 50.** Considering the statements made by C, we can conclude that one of the two statements I and II must be true, which means that statement III is definitely false.

So, A took a blue ball.

- 51.** Considering the statements made by C, we can conclude that one of the two statements I and II must be true, which means that statement III is definitely false.

Considering the statements made by E and A:

Both statements II and III by E state that B took a blue ball and hence both are false as only one statement made on B is true. So statement I of both A and E are correct.

So, F took a red ball and B took a green ball.

Hence statement II by A was false.

So, C took a red ball.

- 52.** Considering the statements made by C, we can conclude that one of the two statements I and II must be true, which means that statement III is definitely false.

Considering the statements made by B:

We know that statement I is definitely false as A took a blue ball. Also, statement III is false.

So, statement II made by B is true.

Considering the statements made by F: We already know that A took a blue ball and C took a green ball. Hence, both the statements I and II are false and therefore statement III made by F is true.

So, neither D took a yellow ball nor did he took a red ball.

Consider the statements made by D: We already know that statement II is false as F took a red ball. So, one of the statements I and III is true.

It is also given that balls of two different colours were not taken by any of the mentioned persons.

Case I: E took a yellow ball

D must have taken a blue ball and balls of white and black colour are not taken by any of the mentioned persons.

Case II: D took a green ball

E could have taken either a white or a black ball.

For four persons viz. A, F, C and B tle exact color of the balls taken by them can be determined.

53. The author mentions the mistakes in the first paragraph of the passage and later moves on to mention other mistakes that are easy to make while writing. Her intention is as stated in option (c).
54. The author mentions this at the end of the third paragraph and talks about how the power of English is in its names. This makes option (b) correct. Name-calling is different and is not what the author means in this context.
55. The author mentions the details in the story as being stones thrown into a boat. With each stone being thrown the boat sinks even more. This is what details do to a story – they make it more and more difficult to sustain its accuracy. This makes option (a) correct.
56. The correct answer is (b). (a) is incorrect: the author talks about atrocities caused by Israelis and not Palestinians. (c) is incorrect: the author talks about Israeli occupation and not of Palestinian occupation. (d) is incorrect: it is far fetched. Option (b) goes with the theme and development of the passage.
57. Though B can follow C, D has to follow C or it cannot be fitted in anywhere else. B 'the loot in question' must follow D. So, the answer has to be (c).

For questions 58 to 60:

From the given information, we can summarize the data in the following table:

	Akansh	Ajay	Ashok	Abhishek	Amit
Salaries (In Rs. Lakh)	7 or 13	11	13 or 7	9	8
Cities:	K/V	B/K/V	B/K/V	Prabandhnagar	Joka

Where 'K', 'V' and 'B' stands for 'Kunnamangalam', 'Vastrapur' and 'Banerghatta' respectively.

58. If Akansh, lives in Vastrapur, then Ajay and Ashok must be staying at Kunnamangalam and Banerghatta, not necessarily in that order. Their average salary in any case will be Rs.12 lakhs or 9 lakhs. So, the data is insufficient.
59. Amit called a friend, who gets Rs. 9 lakh as his salary is a perfect square multiple of 100000 and stays in Prabandhnagar.
Abhishek stays in Prabandhnagar.
60. Amit lives in Joka, so Ajay must be living at Kunnamangalam. Since Akansh is not staying at Banerghatta, he must be staying at Vastrapur.

