SECTION – I
Sub – Section I – A
Number of questions = 10

Note: Questions 1 to 10 carry one mark each.

DIRECTIONS ***for questions 1 and 2:*** Answer the questions independently of each other.

1. A jogging park has two identical circular tracks touching each other, and a rectangular track enclosing the two circles. The edges of the rectangles are tangential to the circles. Two friends, **A** and **B,** start jogging simultaneously from the point where one of the circular tracks touches the smaller side of the rectangular track. **A** jogs along the rectangular track, while **B** jogs along the two circular tracks in a figure of eight. Approximately, how much faster than **A** does **B** have to run, so that they take the same time to return to their starting point?

1. 3.88% 2. 4.22% 3. 4.44% 4. 4.72%

2. In a chess competition involving some boys and girls of a school, every student had to play exactly one game with every other student. It was found that in 45 games both the players were girls, and in 190 games both were boys. The number of games in which one player was a boy and the other was a girl is

1. 200 2. 216 3. 235 4. 256

DIRECTIONS ***for questions 3 and 4:*** Answer the questions on the basis of the information given below.

Ram and Shyam run a race between points **A** and **B,** 5 km apart. Ram starts at 9 a.m. from **A** at a speed of 5km/hr, reaches **B,** and returns to **A** at the same speed. Shyam starts at 9 : 45 a.m. from **A** at a speed of 10km/hr, reaches **B** and comes back to **A** at the same speed.

3. At what time do Ram and Shyam first meet each other?

1. 10 a.m. 2. 10:10 a.m. 3. 10:20 a.m. 4. 10:30 a.m.

4. At what time does Shyam overtake Ram?

1. 10:20 a.m. 2.10:30 a.m. 3. 10:40 a.m. 4. 10:50 a.m.

DIRECTIONS ***for questions 5 to 10:*** Answer the questions independently of each other.

5. If $R = 30^{65} - 29^{65} / 30^{64} + 29^{64}$, then

1. $0 < R \leq 0.1$ 2. $0.1 < R \leq 0.5$ 3. $0.5 < R \leq 1.0$ 4. $R > 1.0$

6. What is the distance in cm between two parellel chords of lengths 32 cm and 24 cm in a circle of radius 20 cm?

1. 1 or 7 2. 2 or 14 3. 3 or 21 4. 4 or 28

7. For which value of k does the following pair of equations yield a unique solution for x such that the solution is positive?

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

1. 2 2. 0 3. $\sqrt{2}$ 4. $-\sqrt{2}$

8. If $x = (16^3 + 17^3 + 18^3 + 19^3)$, then x divided by 70 leaves a remainder of

1. 0 2. 1 3. 69 4. 35

9. A chemical plant has four tanks (**A, B, C,** and **D**), each containing 1000 litres of a chemical. The chemical is being pumped from one tank to another as follows:

From **A** to **B** @ 20 litres / minute.
From **C** to **A** @ 90 litres / minute.
From **A** to **D** @ 10 litres / minute.
From **C** to **D** @ 50 litres / minute.
From **B** to **C** @ 100 litres / minute.
From **D** to **B** @ 110 litres / minute.

Which tank gets emptied first, and how long does it take (in minutes) to get empty after pumping starts?

1. **A,** 16.66 2. **C,** 20 3. **D,** 20 4. **D,** 25

10. Two identical circles intersect so that their centres, and the points at which they intersect, form a square of side 1 cm. The area in sq. cm of the portion that is common to the two circles is

1. $\pi / 4$ 2. $\pi / 2 - 1$ 3. $\pi / 5$ 4. $\sqrt{2} - 1$

Sub – Section I – B
Number of questions = 20

Note: Questions 11 to 30 carry two marks each.

DIRECTIONS ***for Questions 11 to 30:*** Answer the questions independently of each other.

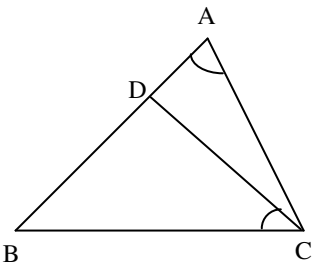
11. The right most non – zero digit of the number 30^{2720} is

1. 1 2. 3 3. 7 4. 9

12. Four points **A, B, C,** and **D** lie on a straight line in the X – Y plane, such that **AB = BC = CD,** and the length of **AB** is **1** metre. An ant at **A** wants to reach a sugar particle at **D.** But there are insect repellents kept at points **B** and **C.** The ant would not go within one metre of any insect repellent. The minimum distance in metres the ant must traverse to reach the sugar particle is

1. $3\sqrt{2}$ 2. $1 + \pi$ 3. $4\pi / 3$ 4. 5

13. Consider the triangle **ABC** shown in the following figure where **BC =** 12 cm, **DB** = 9 cm, **CD** = 6 cm and $\angle$ **BCD** = $\angle$**BAC.**



What is the ratio of the perimeter of the triangle ADC to that of the triangle BDC?

1. 7 / 9 2. 8 / 9 3. 6 / 9 4. 5 / 9

14. For a positive integer n, let p_n denote the product of the digits of n, and s_n denote the sum of the digits of n. The number of integers between 10 and 1000 for which $p_n + s_n = n$ is

1. 81 2. 16 3. 18 4. 9

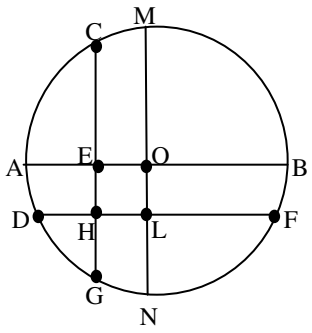
15. Rectangular tiles each of size 70 cm by 30 cm must be laid horizontally on a rectangular floor of size 110 cm by 130 cm, such that the tiles do not overlap. A tile can be placed in any orientation so long as its edges are parallel to the edges of the floor. No tile should overshoot any edge of the floor. The maximum number of tiles that can be accommodated on the floor is

1. 4 2. 5 3. 6 4. 7

16. In the X – Y plane, the area of the region bounded by the graph of $|x + y| + |x - y| = 4$ is

1. 8 2. 12 3. 16 4. 20

17. In the following figure, the diameter of the circle is 3 cm. **AB** and **MN** are two diameters such that **MN** is perpendicular to **AB.** In addition, **CG** is perpendicular to **AB** such that **AE : EB** = 1 : 2, and **DF** is perpendicular to **MN** such that **NL : LM** = 1 : 2. The length of **DH** in cm is



1. $(2\sqrt{2} - 1)$ 2. $(2\sqrt{2} - 1) / 2$ 3. $(3\sqrt{2} - 1) / 2$ 4. $(2\sqrt{2} - 1) / 3$

18. **P, Q, S,** and **R** are points on the circumference of a circle of radius *r,* such that **PQR** is an equilateral triangle. What is the perimeter of quadrilateral **PQSR?**

1. $2r(1 + \sqrt{3})$ 2. $2r(2 + \sqrt{3})$ 3. $r\ (1+\sqrt{5})$ 4. $2r + \sqrt{3}$

19. If $x \geq y$ and $y > 1$, then the value of the expression $\log_x (x / y) + \log_y (x / y)$ can never be

1. –1 2. –0.5 3. 0 4. 1

20. Let **S** be a set of positive integers such that every element n of **S** satisfies the conditions
a) $1000 \leq n \leq 1200$
b) every digit in n is odd.
Then how many elements of **S** are divisible by 3?

1. 9 2. 10 3. 11 4. 12

21. Let $x = \sqrt{4+\sqrt{4-\sqrt{4+\sqrt{4-.....\text{to inf inity}}}}}$. Then x equals

1. 3 2. $(\sqrt{13} - 1) / 2$ 3. $(\sqrt{13} + 1) / 2$ 4. $\sqrt{13}$

22. Let $g(x)$ be a function such that $g(x + 1) + g(x - 1) = g(x)$ for every real x. Then for what value of p is the relation $g(x + p) = g(x)$ necessarily true for every real x?

1. 5 2. 3 3. 2 4. 6

23. A telecom service provider engages male and female operators for answering 1000 calls per day. A male operator can handle 40 calls per day whereas a female operator can handle 50 calls per day. The male and the female operators get a fixed wage of Rs. 250 and Rs. 300 per day respectively. In addition, a male operator gets Rs. 15 per call he answers and a female operator gets Rs. 10 per call she answers. To minimize the total cost, how many male operators should the service provider employ assuming he has to employ more than 7 of the 12 female operators available for the job?

1. 15 2. 14 3. 12 4. 10

24. Three Englishmen and three Frenchmen work for the same company. Each of them knows a secret not known to others. They need to exchange these secrets over person – to – person phone calls so that eventually each person knows all six secrets. None of the Frenchmen knows English, and only one Englishman knows French. What is the minimum number of phone calls needed for the above purpose?

1. 5 2. 10 3. 9 4. 15

25. A rectangular floor is fully covered with square tiles of identical size. The tiles on the edges are white and the tiles in the interior are red. The number of white tiles is the same as the number of red tiles. A possible value of the number of tiles along one edge of the floor is

1. 10 2. 12 3. 14 4. 16

26. Let n! = 1 x 2 x 3 x ….x *n* for integer n ≥1. If p = 1! + (2 x 2!) + (3 x 3!) + … + (10 x 10!), then p + 2 when divided by 11! leaves a remainder of

1. 10 2. 0 3. 7 4. 1

27. Consider a triangle drawn on the X-Y plane with its three vertices at (41, 0), (0, 41) and (0, 0), each vertex being represented by its (X, Y) coordinates. The number of points with integer coordinates inside the triangle (excluding all the points on the boundary) is

1. 780 2. 800 3. 820 4. 741

28. The digits of a three digit number ***A*** are written in the reverse order to form another three-digit number ***B***. If ***B*** > ***A*** and **B** – **A** is perfectly divisible by 7, then which of the following is necessarily true?

1. 100 < ***A*** < 299 2. 106 < ***A*** < 305 3. 112 < ***A*** < 311 4. 118 < ***A*** < 317

29. If $a_1 = 1$ and $a_{n+1} - 3a_n + 2 = 4n$ for every positive integer n, then a_{100} equals

1. $3^{99} - 200$ 2. $3^{99} + 200$ 3. $3^{100} - 200$ 4. $3^{100} + 200$

30. Let **S** be the set of five-digit numbers formed by the digits 1, 2, 3, 4 and 5, using each digit exactly once such that exactly two odd positions are occupied by odd digits. What is the sum of the digits in the rightmost position of the numbers in **S**?

1. 228 2. 216 3. 294 4. 192

SECTION – II
Sub – Section II – A:
Number of questions = 10

Note: Questions 31 to 40 carry one mark each.

DIRECTIONS ***for questions 31 to 33***: *The sentences given in each question, when properly sequenced, form a coherent paragraph. Each sentence is labeled with a letter. Choose the most logical order of sentences from among the given choices to construct a coherent paragraph.*

31.

(A) This is now orthodoxy to which I subscribe – up to a point.
(B) It emerged from the mathematics of chance and statistics.
(C) Therefore the risk is measurable and manageable.
(D) The fundamental concept: Prices are not predictable, but the mathematical laws of chance can describe their fluctuations.
(E) This is how what business schools now call modern finance was born.

1. ADCBE 2. EBDCA 3. ABDCE 4. DCBEA

32.

(A) Similarly, turning to caste, even though being lower caste is undoubtedly a separate cause of disparity, its impact is all the greater when the lower-caste families also happen to be poor.
(B) Belonging to a privileged class can help a woman to overcome many barriers that obstruct women from less thriving classes.
(C) It is the interactive presence of these two kinds of deprivation – being low class and being female – that massively impoverishes women from the less privileged classes.
(D) A congruence of class deprivation and gender discrimination can blight the lives of poorer women very severely.
(E) Gender is certainly a contributor to societal inequality, but it does not act independently of class.

1. EABDC 2. EBDCA 3. DAEBC 4. BECDA

33.

(A) When identity is thus 'defined by contrast', divergence with the West becomes central.
(B) Indian religious litereture such as *Bhagavad Gita* or the Tantric texts, which are identified as differing from secular writings seen as 'western', elicits much greater interest in the West than do other Indian writings, including India's long history of heterodoxy.
(C) There is a similar neglect of Indian writing on non-religious subjects, from mathematics, epistemology and natural science to economics and linguistics.
(D) Through selective emphasis that point up differences with the West , other civilizations can, in this way, be redefined in alien terms, which can be exotic and charming, or else bizarre and terrifying, or simply strange and engaging.
(E) The exception is the *Kamasutra* in which western readers have managed to cultivate an interest.

1. BDACE 2. DEABC 3. BDECA 4. BCEDA

DIRECTIONS ***for questions 34 to 37:*** *The passage given below is followed by a set of four questions. Choose the best answer to each question.*

A game of strategy, as currently conceived in game theory, is a situation in which two or more "players" make choices among available alternatives (moves). The totality of choices determines the outcomes of the game, and it is assumed that the rank order of preferences for the outcomes is different for different players. Thus the "interests" of the players are generally in conflict. Whether these interests are diametrically opposed or only partially opposed depends on the type of the game.

Psychologically, most interesting situations arise when the interests of the players are partly coincident and partly opposed, because then one can postulate not only a conflict among the players but also inner conflicts within the players. Each is torn between a tendency to cooperate, so as to promote the common interests, and a tendency to compete, so as to enhance his own individual interests.

Internal conflicts are always psychologically interesting. What we vaguely call "interesting" psychology is in very great measure the psychology of inner conflict. Inner conflict is also held to be an important component of serious literature as distinguished from less serious genres. The classical tragedy, as well as the serious novel, reveals the inner conflict of central figures. The superficial adventure story, on the other hand, depicts only external conflict; that is, the threats to the person with whom the reader (or viewer) identifies stem in these stories exclusively from external obstacles and from the adversaries who create them. On the most primitive level this sort of external conflict is psychologically empty. In the fisticuffs between the protagonists of good and evil, no psychological problems are involved or, at any rate, none are depicted in juvenile representations of conflict.

The detective story, the "adult" analogue of a juvenile adventure tale, has at times been described as a glorification of intellectualized conflict. However, a great deal of interest in the plots of these stories is sustained by withholding the unraveling of a solution to a problem. The effort of solving the problem is in itself not a conflict if the adversary (the unknowm criminal) remains passive, like Nature, whose secrects the scientists supposedly unravel by deduction. If the adversary actively puts obstacles in the detective's path toward the solution, there is a genuine conflict. But the conflict is psychologically interesting only to the extent that it contains irrational components such as tactical errors on the criminal's part or the detective's insight into some psychological quirk of the criminal or something of this sort. Conflict conducted in a perfectly rational manner is psychologically no more interesting than a standard Western. For example, Tic-tac-toe, played perfectly by both players, is completely devoid of psychological interest. Chess may be psychologically interesting but only to the extent that it is played not quite rationally. Played completely rationally, chess would not be different from Tic-tac-toe.

In short, a pure conflict of interest (what is called a zero-sum game) although it offers a wealth of interesting conceptual problems, is not interesting psychologically, except to the extent that its conduct departs from rational norms.

34. Which, according to the author, would qualify as interesting psychology ?

1. A statistician's delimma over choosing the best method to solve an optimisation problem.
2. A chess player's predicament over adopting a defensive strategy against an aggressive opponent.
3. A mountaineer's choice of the best path to Mt. Everest from the base camp.
4. A finance manager's quandary over the best way of raising money from the market.

35. The problem solving process of a scientist is different from that of a detective because

1. Scientists study inanimate objects, while detectives deal with living criminals or law offenders.
2. Scientists study known objects, while detectives have to deal with unknowm criminals or law offenders.
3. Scientists study phenomena that are not actively altered, while detectives deal with phenomena that have been deliberately influenced to mislead.
4. Scientists study psycologically interesting phenomena, while detectives deal with "adult" analogues of juvenile adventure tales.

36. According to the passage, internal conflicts are psychologically more interesting than external conflicts because

1. Internal conflicts, rather than external conflicts, form an important component of serious literature as distinguished from less serious genres.
2. Only juveniles or very few "adults" actually experience external conflict, while internal conflict is more widely prevalent in society.
3. In situations of internal conflict, individuals experience a dilemma in resolving their own preferences for different outcomes.
4. There are no threats to the reader (or viewer) in case of external conflicts.

37. According to the passage, which of the following options about the application of game theory to a conflict –of-interest situation is true?

1. Assuming that the rank order of preferences for options is different for different players.
2. Accepting that the interests of different players are often in conflict.
3. Not assuming that the interests are in complete disagreement.
4. All of the above.

DIRECTIONS *for Questions 38 to 40:* *In each question, the word at the top of the table is used in four different ways, numbered 1 to 4. Choose the option in which the usage of the word is incorrect or inappropriate.*

38. HAND

1. I have my hand full, I cannot do it today.
2. The minister visited the jail to see the breach at first hand.
3. The situation is getting out of hand here!
4. When the roof of my house was blown away, he was willing to lend me a hand.

39. FOR

1. He has a great eye for detail.
2. We are waiting for the day.
3. I can't bear for her to be angry.
4. It couldn't be done for ever.

40. NEAR

1. I got there just after you left – a near miss!
2. She and her near friend left early.
3. The war led to a near doubling of oil prices.
4. They came near to tears seeing the plight of the victims.

Sub – Section II – B
Number of questions = 20

Note: Questions 41 to 60 carry two marks each.

DIRECTIONS ***for Questions 41 to 48:*** *Each of the two passages given below is followed by a set of four Questions. Choose the best answer to each question.*

PASSAGE I

Crinoline and croquet are out. As, yet, no political activists have thrown themselves in the front of the royal horse on Derby Day. Even so, some historians can spot the parallels. It is a time of rapid technological change. It is a period when the dominance of the world's superpower is coming under threat. It is an epoch when prosperity masks underlying economic strain. And, crucially, it is a time when policy-makers are confident that all is for the best in the best of all possible worlds. Welcome to the Edwardian Summer of the second age of globalisation.

Spare a moment to take stock of what's happening in the past few months. Let's start with the oil price, which has rocketed to more than $65 a barrel, more than double its level 18 months ago. The accepted wisdom is that we shouldn't worry our little heads about that, because the incentives are there for business to build new production and refining capacity, which will effortlessly bring demand and supply back into balance and bring crude prices back to $25 a barrel. As Tommy Cooper used to say, 'just like that'.

Then there is the result of the French referendum on the European Constitution, seen as thick-headed Luddites are railing vainly against the modern world. What the French needed to realise, the argument went, was that there was no alternative to the reforms that would make the country more flexible, more competitive, more dynamic. Just the sort of reforms that allowed Gate Gourmet to sack hundreds of its staff at Heathrow after the sort of ultimatum that used to be handed out by Victorian mill owners. An alternative way of looking at the French "non" is that our neighbours translate "flexibility" as "you're fired."

Finally, take a squint at the United States. Just like Britain a century ago, a period of unquestioned superiority is drawing to a close. China is still a long way from matching America's wealth, but it is growing at a stupendous rate and economic strength brings geopolitical clout. Already, there is evidence of a new scramble for Africa as Washington and Beijing compete for oil stocks. Moreover, beneath the surface of US economy, all is not well. Growth looks healthy enough, but the competition from China and elsewhere has meant the world's biggest economy now imports far more than it exports. The US is living beyond its means, but in this time of studied complacency, a current account deficit worth 6 percent of gross domestic product is seen as a sign of strength, not weakness.

In this new Edwardian summer, comfort is taken from the fact that dearer oil has not had the savage inflationary consequences of 1973-74, when a fourfold increase in the cost of crude brought an abrupt end to a post-war boom that had gone uninterrupted for a quarter of the century. True, the cost of living has been affected by higher transport costs, but we are talking of inflation at 2.3 per cent not 27 percent. Yet the idea that higher oil prices are of little consequences is fanciful. If people are paying more to fill up their cars it leaves them with less to spend on everything else, but there is a reluctance to consume less. In the 1970's unions where strong and able to negotiate large, compensatory pay deals that served to intensify inflationary pressure. In 2005, that avenue is pretty much closed off, but the abolition of all the controls on credit that existed in the 1970s means that households are invited to borrow more rather than consume less. The knock-on effects of higher oil prices are thus felt in different ways – through high levels of indebtedness, in inflated asset prices, and in balance of payments deficits.

There are those who point out, rightly, that modern industrial capitalism has proved mightily resilient these past 250 years, and that a sign of enduring strength of the system has been the way it apparently shrugged off everything – a stock market crash, 9/11, rising oil prices – that have been thrown at it in the half decade since the millennium. Even so, there are at least three reasons for concern. First, we have been before. In terms of political economy, the first era of globalisation mirrored our own. There was a belief in unfettered capital flows, in free trade, and in the power of the market. It was a time of massive income inequality and

unprecedented migration. Eventually though there was a backlash, manifested in a struggle between free traders and protectionists, and in rising labour militancy.

Second, the world is traditionally at its most fragile at times when the global balance of power is in flux. By the end of the nineteenth century, Britain's role as the hegemonic power was being challenged by the rise of United States, Germany, and Japan while the Ottoman and Hapsburg empires were clearly in rapid decline. Looking ahead from 2005, it is clear that over the next two or three decades, both China and India which together account for half the world's population – will flex their muscles.

Finally, there is the Question of what rising oil prices tell us. The emergence of China and India means global demand for crude is likely to remain high at the time when experts say production is about to top out. If supply constraints start to bite, any declines in the price are likely to be short-term cyclical affairs punctuating a long upward trend.

41. Which of the following best represents the key argument made by the author?

1. The rise in oil prices, the flux in the global balance of power and historical precedents should make us question our belief that the global economic prosperity would continue.
2. The belief that modern industrial capitalism is highly resilient and capable of overcoming shocks will be belied soon.
3. Widespread prosperity leads to neglect of early signs of underlying economic weakness, manifested in higher oil prices and the flux in the global balance of power.
4. A crisis is imminent in the West given the growth of countries like China and India and the increase in oil prices.

42. What can be inferred about the author's view when he states, 'As Tommy Cooper used to say "just like that"?

1. Industry has incentive to build new production and refining capacity and therefore oil prices would reduce.
2. There would be a correction in the price levels of oil once new production capacity is added.
3. The decline in oil prices is likely to be short term in nature. (line had been repeated)
4. It is not necessary that oil prices would go down to earlier levels.

43. By the expression "Edwardian Summer', the author refers to a period in which there is

1. Unparelled luxury and opulence.
2. A sense of complacency among people because of all –round prosperity..
3. A culmination of all-round economic prosperity.
4. an imminent danger lurking behind economic prosperity

44. What, according to the author, has resulted in a widespread belief in the resilience of modern capitalism?

1. Growth in the economies of Western countries despite shocks in the form of increase in levels of indebtedness and inflated asset prices
2. Increase in the prosperity of Western countries and China despite rising oil prices .
3. Continued growth of western economies despite a rise in terrorism, and increase in oil prices and other similar shocks.
4. The success of continued reforms aimed at making Western economies more dynamic, competitive and efficient.

PASSAGE II

While complex in the extreme, Derrida's work has proven to be a particularly influential approach to the analysis of the ways in which language structures our understanding of ourselves and the world we inhabit, an approach he termed *deconstruction.* In its simplest formulation, deconstruction can be taken to refer a methodological strategy which seeks to uncover layers of hidden meaning in a text that have been denied or suppressed. The term 'text', in this respect, does not refer simply to a written form of communication, however. Rather, texts are something we all produce and reproduce constantly in our everyday social relations, be they spoken, written or embedded in the construction of material artifacts. At the heart of Derrida's deconstructive approach in his critique of what he perceives to be the totalitarian impulse of the Enlightenment pursuit to bring all that exists in the world under the domain of a representative language, a pursuit he refers to a *logocentrism*. Logocentrism is the search for a rational language that is able to know and represent the world and all its aspects perfectly and accurately. Its totalitarian dimension, for Derrida at least lies primarily in its tendency to marginalize or dismiss all that does not neatly comply with its particular linguistic representations, a tendency that, throughout history, has all too frequently been manifested in the form of authoritarian institutions. Thus logocentrism has, in its search for the truth of absolute representation, subsumed difference and oppressed that which it designates as its alien 'other'. For Derrida, western civilization has been built upon such a systematic assault on alien cultures and ways of life, typically in the name of reason and progress.

In response to logocentrism, deconstruction posits the idea that the mechanism by which this process of marginalization and the ordering of truth occurs is through establishing systems of binary opposition. Oppositional linguistic dualisms, such as rational/irrational, culture/nature and good/bad are not, however, construed as equal partners as they are in, say, the semiological structuralism of Saussure. Rather, they exist, for Derrida, in a series of hierarchical relationships with the first term normally occupying a superior position. Derrida defines the relationship between such oppositional terms using the neologism difference. This refers to the realization that in any statement, oppositional terms differ from each other (for instance, the difference between rationality and irrationality is constructed through oppositional usage), and at the same time, a hierarchical relationship is maintained by the deference of one term to the other (in the positing of rationality over irrationality, for instance). It is this latter point which is perhaps the key to understanding Derrida's approach to deconstruction.

For the fact that at any given time one term must defer to its oppositional 'other' means that the two terms are constantly in a state of interdependence. The presence of one is dependent upon the absence or 'absent-presence' of the 'other', such as in the case of good and evil, whereby to understand the nature of one, we must constantly relate it to the absent term in order to grasp its meaning. That is, to do good, we must understand that our act is not evil for without that comparison the term becomes meaningless. Put simply, deconstruction represents an attempt to demonstrate the absent-presence of this oppositional 'other', to show that what we say or write is in itself not expressive simply of what is present, but also of what is absent. Thus, deconstruction seeks to reveal the interdependence of apparently dichotomous terms and their meanings relative to their textual context; that is, within the linguistic power relations which structure dichotomous terms hierarchically, In Derrida's own words, a deconstructive reading "must always aim at a certain relationship, unperceived by he writer, between what he commands and what he does not command of the patterns of a language that he uses. …[It] attempts to make the not-seen accessible to sight."

Meaning, then, is never fixed or stable, whatever the intention of the author of a text. For Derrida, language is a system of relations that are dynamic, in that all meanings we ascribe to the world are dependent not only on what we believe to be present but also on what is absent. Thus, any act of interpretation must refer not only to what the author of a text intends, but also to what is absent from his or her intension. This insight leads, once again, to Derrida's further rejection of the idea of the definitive authority of the intentional agent or subject. The subject is decentred; it is conceived as the outcome of relations of difference. As author of its own biography, the subject thus becomes the ideological fiction of modernity and its logocentric philosophy, one that depends upon the formation of hierarchical dualisms, which repress and deny the presence of the absent 'other'. No meaning can, therefore, ever be definitive, but is merely an outcome of a particular interpretation.

45. According to the passage, Derrida believes that the system of binary opposition

1. Represents a prioritisation or hierarchy
2. Reconciles contradictions and dualities.
3. Weakens the process of marginalization and ordering of truth.
4. Deconstructs reality.

46. Derrida rejects the idea of 'definitive authority of the subject' because

1. Interpretation of the text may not make the unseen visible.
2. The meaning of the text is based on binary opposites.
3. The implicit power relationship is often ignored.
4. Any act of interpretation must refer to what the author intends.

47. According to the passage, Derrida believes that:

1. Reality can be construed only through the use of rational analysis.
2. Language limits our construction of reality.
3. A universal language will facilitate a common understanding of reality.
4. We need to uncover the hidden meaning in a system of relations expressed by language.

48. To Derrida, 'logocentrism' does not imply:

1. A totalitarian impulse.
2. A domain of representative language.
3. Interdependence of the meanings of dichotomous terms.
4. A strategy that seeks to suppress hidden meanings in a text.

DIRECTIONS *for questions 49 to 52:* *Each of the following questions has a paragraph from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.*

49. Thus the end of knowledge and the closing of the frontier that it symbolizes is not a looming crisis at all, but merely one of many embarrassing fits of hubris in civilization's long industry. In the end, it will pass away and be forgotten. Ours is not the first generation to struggle to understand the organizational laws of the frontier, deceive itself that it has succeeded, and go to its grave having failed. _____

1. One would be wise to be humble.
2. But we might be the first generation to actually reach the frontier.
3. But we might be the first generation to deal with the crisis.
4. However, this time the success is not illusory.

50. Most firms consider expert individuals to be too elitist, temperamental, egocentric, and difficult to work with.
Force such people to collaborate on a high-stakes project and they just might come to fisticuffs. Even the very notion of managing such a group seems unimaginable. So most organizations fall into default mode, setting up project teams of people who get along nicely _____.

1. The result, however, is disastrous.
2. The result is mediocrity.
3. The result is creation of experts who then become elitists.
4. Naturally, they drive innovations.

51. The audiences for crosswords and sodoku, understandably, overlap greatly, but there are differences, too. A crossword attracts a more literary person, while sodoku appeals to a keenly logical mind. Some crossword enthusiasts turn up their noses at sodoku because they feel it lacks depth. A good crossword requires vocabulary, knowledge, mental flexibility and sometimes even a sense of humor to complete. It touches numerous areas of life and provides an "Aha!" or two along the way. _____

1. Sodoku, on the other hand, is just a logical exercise, each one similar to the last.
2. Sodoku, incidentally, is growing faster in popularity than crosswords, even among the literati.
3. Sodoku, on the other hand, can be attempted and enjoyed even by children.
4. Sodoku, however, is not exciting in any sense of the term.

52. Federer's fifth grand slam win prompted a reporter to ask whether he was the best ever. Federer is certainly not lacking in confidence, but he wasn't about to proclaim himself the best ever. "The best player of this generation, yes", he said, "But nowhere close to ever. Just look at the records that some guys have. I'm a minnow." _____

1. His win against Agassi, a genius from the previous generation, contradicts that.
2. Sampras, the king of an earlier generation, was as humble.
3. He is more than a minnow to his contemporaries.
4. The difference between 'the best of this generation' and 'the best ever' is a matter of perception.

DIRECTIONS *for questions 53 to 56:* *Each of the following questions has a paragraph with one italicised word that does not make sense. Choose the most <u>appropriate</u> replacement for that word from the options given below the paragraph.*

53. It is *klang* to a sensitive traveller who walks through this great town, when he sees the streets, the roads, and cabin doors crowded with beggars, mostly women, followed by three, four, or six children, all in rags and importuning every passenger for alms.

1. Amusing 2. Irritating 3. Disgusting 4. Distressing

54. Or there is the most *fingummy* diplomatic note on record: when Philip of Macedon wrote to the Spartans that, if he came within their borders, he would leave not one stone of their city, they wrote back the one word – "If"

1. Witty 2. Rude 3. Simple 4. Terse

55. Intelligent design derives from an early 19th – century explanation of the natural world given by an English clergyman, William Paley. Paley was the populariser of the famous watchmaker analogy. Proponents of intelligent design are *crupping* Paley's argument with a new gloss from molecular biology.

1. Destroying 2. Testing 3. Resurrecting 4. Questioning

56. Women squat, heads covered, beside huge piles of limp fodder and *blunk* oil lamps, and just about all the cows in the three towns converge upon this spot. Sinners, supplicants and yes, even scallywags hand over a few coins for a crack at redemption and a handful of grass.

1. Shining 2. Bright 3. Sputtering 4. Effulgent

DIRECTIONS ***for questions 57 to 60:*** *Each question consists of four sentences on a topic. Some sentences are grammatically incorrect or inappropriate. Select the option that indicates the grammatically correct and appropriate sentence(s).*

57.

A. The balance of power will shift to the East as China and India evolve.
B. Rarely the economic ascent of two still relatively poor nations has been watched with such a mixture of awe, opportunism, and trepidation.
C. Post-war era witnessed economic miracles in Japan and South Korea, but neither was populous enough to power worldwide growth or change the game in a complete spectrum of industries.
D. China and India, by contrast, possess the weight and dynamism to transform the 21st-century global economy.

1. A,B &C 2. A&D 3. C 4. C&D

58.

A. People have good reason to care about the welfare of animals.
B. Ever since Enlightenment, their treatment has been seen as a measure of mankind's humanity.
C. It is no coincidence that William Wilberforce and Sir Thomas Foxwell Buxton, two leaders of the movement to abolish the slave trade, helped found the Royal Society for the Prevention of Cruelty to Animals in 1820s.
D. An increasing number of people go further: mankind has a duty not to cause pain to animals that have the capacity to suffer.

1. A&D 2. B 3. A&C 4. C&D

59.

A. When virtuoso teams begin their work, individuals are in and group consensus is out.
B. As project progresses, however, the individual stars harness themselves to the product of the group.
C. Sooner or later, the members break through their own egocentrism and become a plurality with single-minded focus on the goal.
D. In short, they morph into a powerful team with a shared identity.

1. A&C 2. A&D 3.B&D 4.A, C&D

60.

A. Large reductions in the ozone layer, which sits about 15 – 30 km above the Earth. Take place each winter over the polar regions, especially the Antarctic, as low temperatures allow the formation of stratospheric clouds that assist chemical reactions breaking down ozone.
B. Industrial chemicals containing chlorine and bromine have been blamed for thinning the layer because they attack the ozone molecules, making them to break apart.
C. Many an offending chemicals have now been banned.
D. It will still take several decades before these substances have disappeared from the atmosphere.

1. D 2. B&D 3. A&D 4. A&C

SECTION – III
Sub – Section III – A:
Number of questions = 10

Note: Questions 61 to 70 carry one mark each.

Answer Questions 61 to 63 on the basis of the information given below:

The table below reports annual statistics related to rice production in select states of India for a particular year.

State	Total Area (in million hectares)	% of Area Under Rice Cultivation	Production (in million tons)	Population (in millions)
Himachal Pradesh	6	20	1.2	6
Kerala	4	60	4.8	32
Rajasthan	34	20	6.8	56
Bihar	10	60	12	83
Karnataka	19	50	19	53
Haryana	4	80	19.2	21
West Bengal	9	80	21.6	80
Gujarat	20	60	24	51
Punjab	5	80	24	24
Madhya Pradesh	31	40	24.8	60
Tamilnadu	13	70	27.3	62
Maharashtra	31	50	48	97
Uttar Pradesh	24	70	67.2	166
Andhra Pradesh	28	80	112	76

61. An intensive rice producing state is defined as one whose annual rice production per million of population is atleast 400,000 tons. How many states are intensive rice producing states?

1. 5 2. 6 3. 7 4. 8

62. Which two states account for the highest productivity of rice (tons produced per hectare of rice cultivation)?

1. Haryana and Punjab
2. Punjab and Andhra Pradesh
3. Andhra Pradesh and Haryana
4. Uttar Pradesh and Haryana

63. How many states have a per capita production of rice (defined as total rice production divided by its population) greater than Gujarat?

1. 3 2. 4 3. 5 4. 6

Answer Questions 64 to 66 on the basis of the information given below:

The table below reports the gender, designation and age-group of the employees in an organization. It also provides information on their commitment to projects coming up in the months of January (Jan), February (Feb), March (Mar) and April (Apr), as well as their interest in attending workshops on: Business Opportunities (BO), Communication Skills (CS), and E-Governance (EG).

SI. No.	Name	Gender	Design-ation	Age group	Committed to projects during	Interested in workshop on
1	Anshul	M	Mgr	Y	Jan, Mar	CS, EG
2	Bushkant	M	Dir	I	Feb, Mar	BO, EG
3	Charu	F	Mgr	I	Jan, Feb	BO, CS
4	Dinesh	M	Exe	O	Jan, Apr	BO, CS, EG
5	Eashwaran	M	Dir	O	Feb, Apr	BO
6	Fatima	F	Mgr	Y	Jan, Mar	BO, CS
7	Gayatri	F	Exe	Y	Feb, Mar	EG
8	Hari	M	Mgr	I	Feb, Mar	BO, CS, EG
9	Indira	F	Dir	O	Feb, Apr	BO, EG
10	John	M	Dir	Y	Jan, Mar	BO
11	Kalindi	F	Exe	I	Jan, Apr	BO, CS, EG
12	Lavanya	F	Mgr	O	Feb, Apr	CS, EG
13	Mandeep	M	Mgr	O	Mar, Apr	BO, EG
14	Nandlal	M	Dir	I	Jan, Feb	BO, EG
15	Parul	F	Exe	Y	Feb, Apr	CS, EG
16	Rahul	M	Mgr	Y	Mar, Apr	CS, EG
17	Sunita	F	Dir	Y	Jan, Feb	BO, EG
18	Urvashi	F	Exe	I	Feb, Mar	EG
19	Yamini	F	Mgr	O	Mar, Apr	CS, EG
20	Zeena	F	Exe	Y	Jan, Mar	BO, CS, EG

M = Male, F = Female, Exe = Executive, Mgr = Manager, Dir = Director, Y = Young, I = In-between, O = Old

For each workshop, exactly four employees are to be sent, of which at least two should be Females and at least one should be Young. No employee can be sent to a workshop in which he/she is not interested in. An employee cannot attend the workshop on:

- Communication Skills, if he/she is committed to internal projects in the month of January;
- Business Opportunities, if he/she is committed to internal projects in the month of February;
- E-governance, if he/she is committed to internal projects in the month of March.

64. How many Executives (Exe) cannot attend more than one workshop?

1. 2 2. 3 3. 15 4. 16

65. Which set of employees cannot attend any of the workshops?

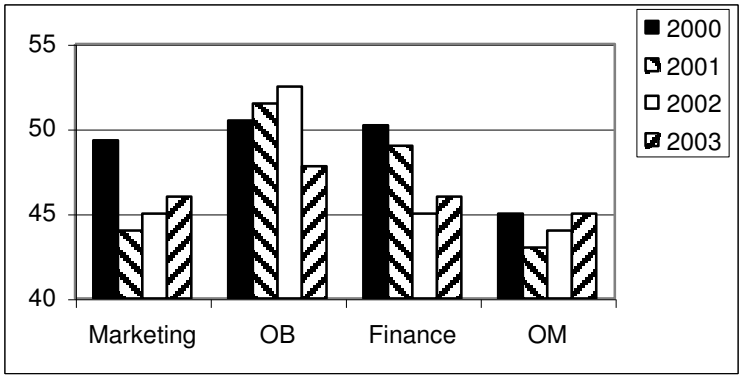
1. Anshul, Charu, Eashwaran and Lavanya
2. Anshul, Bushkant, Gayatri, and Urvashi
3. Charu, Urvashi, Bushkant and Mandeep
4. Anshul, Gayatri, Eashwaran and Mandeep

66. Assuming that Parul and Hari are attending the workshop on Communication Skills (CS), then which of the following employees can possibly attend the CS workshop?

1. Rahul and Yamini
2. Dinesh and Lavanya
3. Anshul and Yamini
4. Fatima and Zeena

Answer Questions 67 to 70 on the basis of the information given below:

A management institute was established on January 1, 2000 with 3,4,5, and 6 faculty members in the Marketing, Organisational Behaviour (OB), Finance, and Operations Management (OM) areas respectively, to start with. No faculty member retired or joined the institute in the first three months of the year 2000. In the next four years, the institute recruited one faculty member in each of the four areas. All these new faculty members, who joined the institute subsequently over the years, were 25 years old at the time of their joining the institute. All of them joined the institute on April 1. During these four years, one of the faculty members retired at the age of 60. The following diagram gives the area wise average age (in terms of no. of completed years) of faculty the members as on April 1 of 2000, 2001, 2002, and 2003.



67. From which area did the faculty member retire?

1. Finance
2. Marketing
3. OB
4. OM

68. In which year did the new faculty member join the Finance area?

1. 2000
2. 2001
3. 2002
4. 2003

69. What was the age of the new faculty member who joined the OM area, as on April 1, 2003?

1. 25
2. 26
3. 27
4. 28

70. Professors Naresh and Devesh, two faculty members in the Marketing area, who have been with the Institute since its inception, share a birthday, which falls on 20th November. One was born in 1947 and the other one in 1950. On April 1 2005, what was the age of the third faculty member, who has been in the same area since inception?

1. 47
2. 50
3. 51
4. 52

Sub – Section III – B
Number of questions = 20

Note: Questions 71 to 90 carry two marks each.

Answer Questions 71 to 74 on the information given below:

The table below presents the revenue (in million rupees) of four firms in three states. These firms, Honest Ltd., Aggressive Ltd., Truthful Ltd. and Profitable Ltd. are disguised in the table as A, B, C and D, in no particular order.

States	Firm A	Firm B	Firm C	Firm D
UP	49	82	80	55
Bihar	69	70	70	65
MP	72	63	72	65

Further, it is known that:
- In the state of MP, Truthful Ltd. has the highest market share.
- Aggressive Ltd. 's aggregate revenue differs from Honest Ltd. 's by Rs. 5 million.

71. What can be said regarding the following two statements?

Statement 1: Profitable Ltd. has the lowest share in MP market.
Statement 2: Honest Ltd's total revenue is more than Profitable Ltd.

1. If statement 1 is true then Statement 2 is necessarily true.
2. If statement 1 is true then Statement 2 is necessarily false.
3. Both Statement 1 and Statement 2 are true.
4. Neither Statement 1 nor Statement 2 is true.

72. What can be said regarding the following two statements?

Statement 1: Honest Ltd. has the highest share in UP market.
Statement 2: Aggressive Ltd. has the highest share in the Bihar market.

1. Both statements could be true
2. At least one of the statements must be true.
3. At most one of the statements is true.
4. None of the above

73. What can be said regarding the following two statements?

Statement 1: Aggressive Ltd's lowest revenues are from MP.
Statement 2: Honest Ltd's lowest revenues are from Bihar.

1. If statement 2 is true then Statement 1 is necessarily false.
2. If Statement 1 is false then Statement 2 is necessarily true.
3. If Statement 1 is true then Statement 2 is necessarily true.
4. None of the above.

74. If Profitable Ltd's lowest revenue is from UP, then which of the following is true?

1. Truthful Ltd's lowest revenues are from MP.
2. Truthful Ltd's lowest revenues are from Bihar.
3. Truthful Ltd's lowest revenues are from UP.
4. No definite conclusion is possible.

Answer Questions 75 to 78 on the basis of the information given below:

In the table below is the listing of players, seeded from highest (# 1) to lowest (# 32), who are due to play in an Association of Tennis Players (ATP) tournament for women. This tournament has four knockout rounds before the final, i.e., first round, second round, quarterfinals, and semi – finals. In the first round, the highest seeded player plays the lowest seeded player (seed # 32) which is designated match No. 1 of the first round; the 2nd seeded player plays the 31st seeded player which is designated match No. 2 of the first round, and so on. Thus, for instance, match No. 16 of the first round is to be played between 16th seeded player and the 17th seeded player. In the second round, the winner of match No. 1, of first round plays the winner of match No. 16 of first round and is designated match No. 1 of second round. Similarly, the winner of match No. 2 of first round plays the winner of match No. 15 of first round, and is designated match No. 2 of second round. Thus, for instance, match No. 8 of the second round is to be played between the winner of match No. 8 of first round and the winner of match No. 9 of first round. The same pattern is followed for later rounds as well.

Seed #	Name of Player		Seed #	Name of Player		Seed #	Name of Player
1	Maria Sharapova		12	Mary Pierce		23	Silvia Farina Elia
2	Lindsay Davenport		13	Anastasia Myskina		24	Tatiana Golovin
3	Amelie Mauresmo		14	Alicia Molik		25	Shinobu Asagoe
4	Kim Clijsters		15	Nathalic Dechy		26	Francesca Schiavone
5	Svetlana Kuznetsova		16	Elena Bovina		27	Nicole Vaidisova
6	Elena Dementieva		17	Jelena Jankovic		28	Gisela Dulko
7	Justine Henin		18	Ana Ivanavic		29	Flavia Pennetta
8	Serena Williams		19	Vera Zvonareva		30	Anna Chakvetadze
9	Nadia Petrova		20	Elena Likhovtseva		31	Ai Sugiyama
10	Venus Williams		21	Daniela Hantuchova		32	Anna – Iena Groenefeld
11	Patty Schnyder		22	Dinara Safina			

75. If there are no upsets (a lower seeded player beating a higher seeded player) in the first round, and only match Nos. 6, 7, and 8 of the second round result in upsets, then who would meet Lindsay Davenport in quarter finals, in case Davenport reaches quarter finals?

1. Justine Henin 2. Nadia Petrova 3. Patty Schnyder 4. Venus Williams

76. If, in the first round, all even numbered matches (and none of the odd numbered ones) result in upsets, and there are no upsets in the second round, then who could be the lowest seeded player facing Maria Sharapova in semi – finals?

1. Anastasia Myskina 2. Flavia Pennetta 3. Nadia Petrova 4. Svetlana Kuznetsova

77. If Elena Dementieva and Serena Williams lose in the second round, while Justine Henin and Nadia Petrova make it to the semi – finals, then who would play Maria Sharapova in the quarter finals, in the event Sharapova reaches quarterfinals?

1. Dinara Safina 2. Justine Henin 3. Nadia Petrova 4. Patty Schnyder

78. If the top eight seeds make it to the quarterfinals, then who, amongst the players listed below, would definitely not play against Maria Sharapova in the final, in case Sharapova reaches the final?

1. Amelie Mauresmo 2. Elena Dementieva 3. Kim Clijsters 4. Lindsay Davenport

Answer questions 79 to 82 on the basis of the information given below:

Help Distress (HD) is an NGO involved in providing assistance to people suffering from natural disasters. Currently, it has 37 volunteers. They are involved in three projects: Tsunami Relief (TR) in Tamil Nadu, Flood Relief (FR) in Maharashtra, and Earthquake Relief (ER) in Gujarat. Each volunteer working with Help Distress has to be involved in at least one relief work project.

- A Maximum number of volunteers are involved in the FR project. Among them, the number of volunteers involved in FR project alone is equal to the volunteers having additional involvement in the ER project.
- The number of volunteers involved in the ER project alone is double the number of volunteers involved in all the three projects.
- 17 volunteers are involved in the TR project.
- The number of volunteers involved in the TR project alone is one less than the number of volunteers involved in the ER project alone.
- Ten volunteers involved in the TR project are also involved in at least one more project.

79. Based on the information given above, the minimum number of volunteers involved in both FR and TR projects, but not in the ER project is;

1. 1 2. 3 3. 4 4. 5

80. Which of the following additional would enable to find the exact number of volunteers involved in various projects?

1. Twenty volunteers are involved in FR.
2. Four volunteers are involved in all the three projects.
3. Twenty three volunteers are involved in exactly one project.
4. No need for any additional information.

81. After some time the volunteers who were involved in all the three projects were asked to withdraw from one project. As a result, one of the volunteers opted out of the TR project, and one opted out of the ER project, while the remaining ones involved in all the three projects opted out of the FR project. Which of the following statements, then, necessarily follows?

1. The lowest number of volunteers is now in TR project.
2. More volunteers are now in FR project as compared to ER project.
3. More volunteers are now in TR project as compared to ER project.
4. None of the above.

82. After the withdrawal of volunteers, as indicated in Question **81**, some new volunteers joined the NGO. Each one of them was allotted only one project in a manner such that, the number of volunteers working in one project alone for each of the three projects became identical. At that point, it was also found that the number of volunteers involved in FR and ER projects was the same as the number of volunteers involved in TR and ER projects. Which of the projects now has the highest number of volunteers?

1. ER 2. FR 3. TR 4. Cannot be determined

Answer Questions 83 to 86 on the basis of the information given below:
The year is 2089. Beijing, London, New York, and Paris are in contention to host the 2096 Olympics. The eventual winner is determined through several rounds of voting by members of the IOC with each member representing a different city. All the four cities in contention are also represented in IOC.

- In any round of voting, the city receiving the lowest number of votes in that round gets eliminated. The survivor after the last round of voting gets to host the event.
- A member is allowed to cast votes for at most two different cities in all rounds of voting combined. (Hence, a member becomes ineligible to cast a vote in a given round if both the cities (s) he voted for in earlier rounds are out of contention in that round of voting.)
- A member is also ineligible to cast a vote in a round if the city (s) he represents is in contention in that round of voting.
- As long as the member is eligible, (s) he must vote and vote for only one candidate city in any round of voting.

The following incomplete table shows the information on cities that received the maximum and minimum votes in different rounds, the number of votes cast in their favour, and the total votes that were cast in those rounds.

Round	Total votes cast	Maximum votes cast		Eliminated	
		City	No. of votes	City	No. of votes
1		London	30	New York	12
2	83	Paris	32	Beijing	21
3	75				

It is also known that:

- All those who voted for London and Paris in round 1, continues to vote for the same cities in subsequent rounds as long as these cities were in contention. 75% of those who voted for Beijing in round 1, voted for Beijing in round 2 as well.
- Those who voted for New York in round 1, voted either for Beijing or Paris in round 2.
- The difference in votes cast for the two contending cities in the last round was 1.
- 50 % of those who voted for Beijing in round 1, voted for Paris in round 3.

83. What is the number of votes cast for Paris in round 1?

1. 16 2. 18 3. 22 4. 24

84. What percentage of members from among those who voted, voted for Beijing in round 2 and were eligible to vote in round 3, voted for London?

1. 33.33 2. 38.10 3. 50 4. 66.67

85. Which of the following statements must be true?

a. IOC member from New York must have voted for Paris in round 2.
b. IOC member from Beijing voted for London in round 3.

1. Only a 2. Only b 3. Both a and b 4. Neither a nor b

86. What percentage of members from among those who voted for New York in round 1, voted for Beijing in round 2?

1. 33.33 2. 50 3. 66.67 4. 75

Answer Questions 87 to 90 on the basis of the information given below:

Venkat, a stockbroker, invested a part of his money in the stock of four companies --- A, B, C and D. Each of these companies belonged to different industries, viz., Cement, Information Technology (IT), Auto, and Steel, in no particular order. At the time of investment, the price of each stock was Rs. 100. Venkat purchased only one stock of each of these companies. He was expecting returns of 20%, 10%, 30%, and 40% from the stock of companies A, B, C and D, respectively. Returns are defined as the change in the value of the stock after one year, expressed as a percentage of the initial value. During the year, two of these companies announced extraordinarily good results. One of these two companies belonged to the Cement or the IT industry, while the other one belonged to either the Steel or the Auto industry. As a result, the returns on the stocks of these two companies were higher than the initially expected returns. For the company belonging to the Cement or the IT industry with extraordinarily good results, the returns were twice that of the initially expected returns. For the company belonging to the Steel or the Auto industry, the returns on announcement of extraordinarily good results were only one and a half times that of the initially expected returns. For the remaining two companies, which did not announce extraordinarily good results, the returns realized during the year were the same as initially expected.

87. What is the minimum average return Venkat would have earned during the year?

1. 30% 2. 31 1/4% 3. 32 ½% 4. Cannot be determined

88. If Venkat earned a 35% return on average during the year, then which of these statements would necessarily be true?

I. Company A belonged either to Auto or to Steel Industry.
II. Company B did not announce extraordinarily good results.
III. Company A announced extraordinarily good results.
IV. Company D did not announce extraordinarily good results.

1. I and II only 2. II and III only 3. III and IV only 4. II and IV only

89. If Venkat earned a 38.75% return on average during the year, then which of these statements would necessarily be true?

I. Company C belonged either to Auto or to Steel Industry.
II. Company D belonged either to Auto or to Steel Industry.
III. Company A announced extraordinarily good results.
IV. Company B did not announce extraordinarily good results.

1. I and II only 2. II and III only 3. I and IV only 4. II and IV only

90. If Company C belonged to the Cement or the IT industry and did announce extraordinarily good results, then which of these statements would necessarily be true?

I. Venkat earned not more than 36.25% return on average.
II. Venkat earned not less than 33.75% return on average.
III. If Venkat earned 33.75% return on average, Company A announced extraordinarily good results.
IV. If Venkat earned 33.75% return on average, Company B belonged either to Auto or to Steel Industry.

1. I and II only 2. II and IV only 3. II and III only 4. III and IV only

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ANSWER KEY

1.	4	**26.**	4	**51.**	1	**76.**	1
2.	1	**27.**	1	**52.**	3	**77.**	3
3.	2	**28.**	2	**53.**	3	**78.**	3
4.	2	**29.**	3	**54.**	4	**79.**	3
5.	4	**30.**	2	**55.**	3	**80.**	1
6.	4	**31.**	2	**56.**	3	**81.**	2
7.	3	**32.**	2	**57.**	2	**82.**	4
8.	1	**33.**	4	**58.**	3	**83.**	4
9.	3	**34.**	2	**59.**	2	**84.**	4
10.	2	**35.**	3	**60.**	1	**85.**	1
11.	1	**36.**	3	**61.**	4	**86.**	4
12.	2	**37.**	4	**62.**	1	**87.**	1
13.	1	**38.**	1	**63.**	2	**88.**	2
14.	4	**39.**	3	**64.**	2	**89.**	3
15.	3	**40.**	2	**65.**	2	**90.**	2
16.	3	**41.**	1	**66.**	1		
17.	2	**42.**	4	**67.**	1		
18.	1	**43.**	4	**68.**	3		
19.	4	**44.**	3	**69.**	3		
20.	1	**45.**	1	**70.**	3		
21.	3	**46.**	1	**71.**	2		
22.	4	**47.**	4	**72.**	3		
23.	4	**48.**	3	**73.**	3		
24.	3	**49.**	1	**74.**	3		
25.	2	**50.**	2	**75.**	4		

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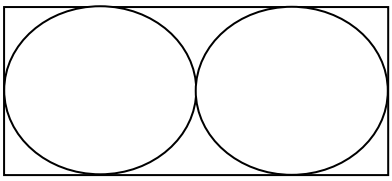
EXPLANATIONS

1.

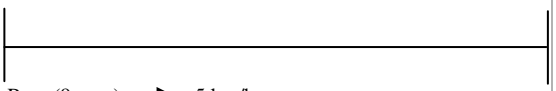


Now one person travels the perimeter of the rectangle and the other travels the circumference of the circle twice. Let the radius of the circle be 7. Then B travels $2 \times 2 \times 22/7 \times 7 = 88$. And A has to travel the perimeter of the rectangle.
The breadth of the rectangle becomes 14 and the length becomes 28. The perimeter thus becomes 84. Now B has to travel 88 in the same time.
s his speed should be greater than A by $100 \times 484 = 4.72\%$.
Thus 4th option.

2.

In 45 games, both were girls $\Rightarrow {}^{n}C_2 = 45 \Rightarrow$ (no. of girls) = n = 10. Similarly in 190 games, both were boys $\Rightarrow {}^{m}C_2 = 190$. $\Rightarrow$ No. of boys = m = 20. $\therefore$ Reqd. answer = ${}^{m}C_1 \times {}^{n}C_1 = 20 \times 10 = 200$.

3.



Ram (9 a.m.) $\longrightarrow$ 5 km/hr
Shyam (9:45 a.m.) $\longrightarrow$ 10 km/hr.
When Shyam leaves at 9:45 a.m.,
Ram has already covered $\frac{15}{4}$ km and $\frac{5}{4}$ km is left to reach B.
At this point, Shyam leaves and now they both are traveling and they cover a combined distance of $5 + \frac{5}{4}$ km in

$\frac{5+\frac{5}{4}}{10+5}$ hrs $= \frac{25}{4\times15}$ hrs $= \frac{25}{60}\times 60$ mnts = 25 mnts after 9.45. $\therefore$ 10 : 10 a.m. Hence 2nd option.

4.

At 10 am, Ram reaches Point B whereas at 10:15 am, Shyam reaches Point B. In 15 minutes between 10 and 10:15 am,
Ram has moved ahead by $\frac{5}{4}$ km. So Shyam would overtake him in $\frac{\frac{5}{4}}{(10-5)}\times 60$ min. $= \frac{5}{20}\times 60 = 15$ min after 10:15 am.
Hence 10:30 am is the answer. Option (2).

5.

$$R = \frac{30^{65}-29^{65}}{30^{64}+29^{64}} = \frac{(29+1)^{65}-29^{65}}{(29+1)^{64}+29^{64}}$$

$$= \frac{29^{65}\left(1+\frac{1}{29}\right)^{65}-29^{65}}{29^{64}\left(1+\frac{1}{29}\right)^{64}+29^{64}} = \frac{29^{65\left[\left(1+\frac{1}{29}\right)^{65}-1\right]}}{29^{64\left[\left(1+\frac{1}{29}\right)^{64}+1\right]}}$$

$$= 29\left[\frac{\left(1+\frac{1}{29}\right)^{65}-1}{\left(1+\frac{1}{29}\right)^{64}+1}\right]$$. This figure within bracket is positive.

Hence R > 1.0.

6.

Using Pythagoras theorem in ΔOCD

$OD = \sqrt{20^2-16^2} = 12.$

Similarly in ΔOAB, OB = 16 $\Rightarrow$ DB = 4.
Hence answer is 4th option.

7.

$x^2 - y^2 = 0 \Rightarrow x^2 = y^2$. Also $(x - k)^2 + y^2 = 1$. Going by options, putting $k = \sqrt{2}$, we get

$\left(x-\sqrt{2}\right)^2 + y^2 = 1 \Rightarrow \left(x-\sqrt{2}\right)^2 + x^2 = 1 \Rightarrow x^2 + 2 - 2\sqrt{2}\,x + x^2 = 1 \Rightarrow 2x^2 - 2\sqrt{2}\,x + 1 = 0$

$\Rightarrow \left(\sqrt{2}x-1\right)^2 = 0 \Rightarrow x = \frac{1}{\sqrt{2}}$. Hence ans. is 3rd option.

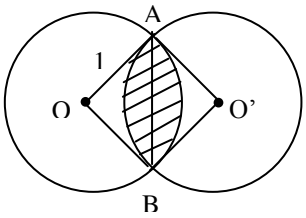
8.

As $a^3 + b^3 + c^3 + d^3$ is divisible by a + b + c + d. $\therefore$ $16^3 + 17^3 + 18^3 + 19^3$ is divisible by 16 + 17 + 18 + 19 = 70. Hence remainder = 0. So answer is option 1.

9.

Going by options, net flow to A = + 90 - 30 = + 60 litres/min.
$\Rightarrow$ It will never get emptied. Net flow to C = 100 - 90 - 50 = - 40 litres/min
$\Rightarrow$ It will get emptied in 25 min. As such there is no option.
Net flow to D = 60 - 110 = -50 litres/min $\Rightarrow$ It will get emptied in 20 min. Hence 3rd option.

10.



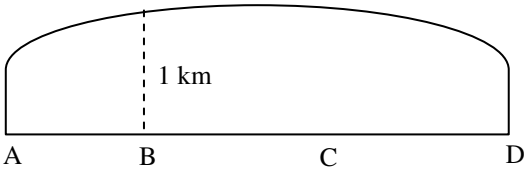
r = 1 cm = side of the square.
So area of the shaded portion is $\rightarrow$ (Area of sector OAB - Area of ΔOAB) $\times$ 2.

$= \left[\pi(1)^2 \times \frac{1}{4} - \frac{1}{2}\times 1\times 1\right]\times 2. = \frac{\pi}{2} - 1$. Hence option (2).

11.

$30^{2720} = 3^{2720} \times 10^{2720}$. Power cycle of 3 is 3, 9, 7, 1. So $3^{2720} = 3^{4\times 680}$. So it is 1. Hence answer is 1st option.

12.

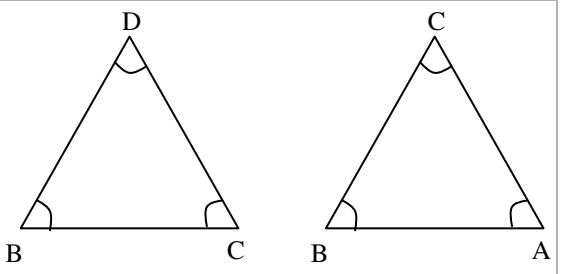


AB = BC = CD = 1m.
The minimum distance that the ant will travel is as shown in the figure i.e. in circular motion from A-B, then straight line from B-C and then again circular from C to D.
$\therefore$ For circular motion, radius = 1 mtr. $\therefore$ Length of arc =

$2\pi r \times \frac{1}{4} = 2\pi(1)\times\frac{1}{4} = \frac{\pi}{2}$m

From A-B = $\frac{\pi}{2}$m, B-C = 1 m. (Straight line), C-D = $\frac{\pi}{2}$m.
Hence Total = (π + 1)m. Hence Option 2.

13.



In Δ(ABC) and Δ(BCD)

$\angle B = \angle B$

$\angle C = \angle A$

$$\frac{BD}{BC} = \frac{BC}{BA} = \frac{CD}{CA}$$

$$\frac{9}{12} = \frac{12}{BA} = \frac{6}{CA}$$

BA = 16 CA = 8

$\therefore$ AD = 7, $\therefore$ Perimeter of ΔADC = 7 + 8 + 6 = 21

$\therefore$ Perimeter of ΔBDC = 9 + 6 + 12 = 27

$\therefore$ Ratio = $\frac{21}{27} = \frac{7}{9}$. Hence 1st option.

14. $P_n + S_n = n$. Between 10 and 1000, we have to solve for 2 digit numbers. Let the number be xy

$\therefore xy + x + y = 10x + y \Rightarrow xy = 9x$

$\Rightarrow y = 9$. So there are 9 two digit numbers which satisfy these conditions. These numbers are 19, 29, 39, 49, 59, 69, 79, 89, 99. There are no three digit numbers which satisfy these conditions. Hence answer is 4th option.

15. We have to actually fit-in the tiles.
Actual fitting gives us the maximum number of tiles as 6.
Hence answer is 3rd option.

16. $|x + y| + |x - y| = 4$

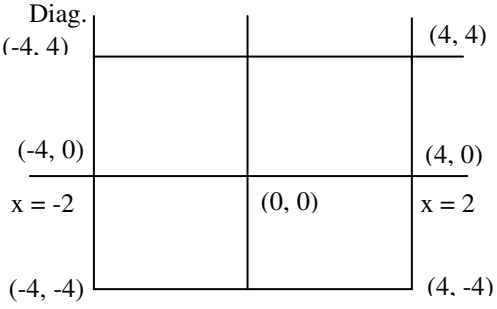
$\Rightarrow x + y + x - y = 4 \Rightarrow x = 2$

$\Rightarrow -x - y - x + y = 4 \Rightarrow x = -2$

$\Rightarrow x + y - x + y = 4 \Rightarrow y = 2$

$\Rightarrow -x - y + x - y = 4 \Rightarrow y = -2$

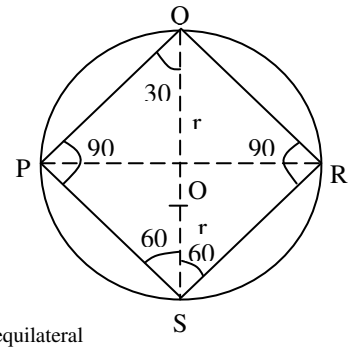
Area = 4 × 4 = 16



17. Join OD. Now OD = 1.5. LN : LM = 1 : 2. NL = 1 and OL = 0.5 and OM = 1.5. Now by the similar logic. HL = 0.5. Let DH = x. $\therefore \left(x + \frac{1}{2}\right)^2 + \left(\frac{1}{2}\right)^2 = \left(\frac{3}{2}\right)^2 \Rightarrow x = \frac{2\sqrt{2} - 1}{2}$.

So answer is 2nd Option.

18.



ΔPQR is equilateral

Thus $\angle PQR = 60°$

$\Rightarrow \angle PSR = 120°$

From ΔPQS, $\angle PQS = 30°$

$\angle PSQ = 60°$ & $\angle QPS = 90°$

Thus PQ = $\sqrt{3}r$, PS = r & QS = 2r

Thus Perimeter = 2 × (PQ + PS)

= 2 ($\sqrt{3}r$ + r)

= 2r ($\sqrt{3}$ + 1)

19. $\text{Log}_x\left(\frac{x}{y}\right) + \text{Log}_y\left(\frac{y}{x}\right) = \text{Log}_x x - \text{Log}_x y + \text{Log}_y y - \text{Log}_y x$

$= 2 - \left(\text{Log}_x y + \text{Log}_y x\right) = 2$ - (Number added to its reciprocal ≥ 2). Thus $\text{Log}_x\left(\frac{x}{y}\right) + \text{Log}_y\left(\frac{y}{x}\right)$ can never be +ive. Hence 4th option.

20. The possible elements of S are 1155, 1179, 1197, 1137, 1173, 1119, 1191, 1113 and 1131. They are 9 in number. Hence answer is 1st option.

21. $x = \sqrt{4 + \sqrt{4 - \sqrt{4 + 4 -}}}$ to infinity. $\therefore x$ can be expressed as $x = \sqrt{4 + \sqrt{4 - x}}$. Putting the value of x as $\frac{1 + \sqrt{13}}{2}$, we get LHS = RHS. Hence answer is 3rd option.

22. $g(x + 1) + g(x - 1) = g(x)$

Thus g(1) + g(-1) = g(0) ---------- (i)

g(2) + g(0) = g(1) ---------- (ii)

g(3) + g(1) = g(2) ---------- (iii)

g(4) + g(2) = g(3) ---------- (iv)

g(5) + g(3) = g(4) ---------- (v)

g(6) + g(4) = g(5) ---------- (vi)

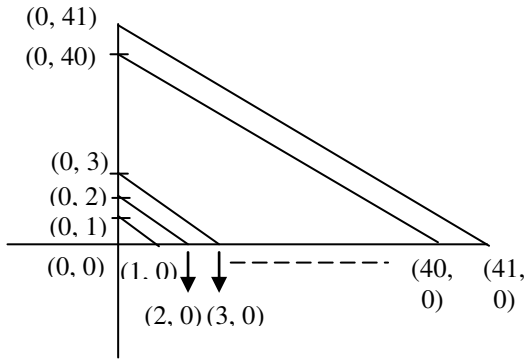
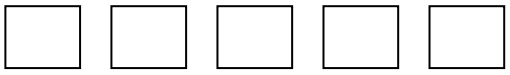
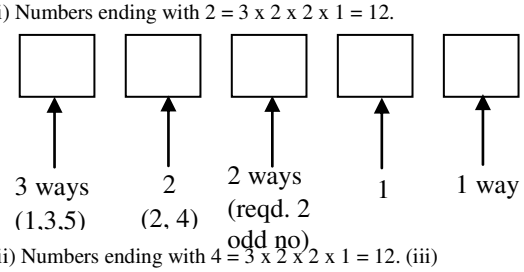
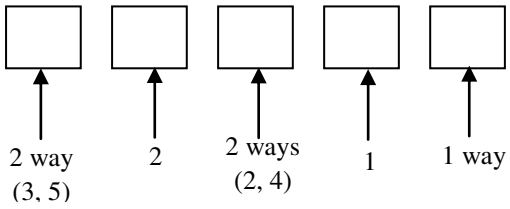
Solving g(3) = -g(0) and g(6) = -g(3)

Thus g(6) = g(0), Similarly g(7) = g(1)

Thus $g(x + 6) = g(x)$, Option (4).

23. Going by options. If we take 1st option, we take 15 males. They would answer 15 × 40 = 600 calls. The remaining 400 calls would be answered by 8 females. Each male operator costs Rs. 850 (250 + 15 × 40) and each female operator costs Rs. 800 (300 + 10 × 50). We can calculate the cost of option 1. Now options 2 and 3 are not possible as the number of female operators would not be an integral number. For 4th option, the cost comes out to be (850 × 10) + (800 × 12) = Rs. 18100 which is the minimum. Hence answer is 4th option.

24. Let Englishmen be E_1, E_2 and E_3 and Frenchmen be F_1, F_2 and F_3. Presuming E_3 knows French, so 5 calls are required so that E_3 knows everybody's secret and everybody knows E_3's secret. One call would from E_1 to E_2. Besides this, 3 calls i.e. F_1 to F_2, F_2 to F_3 and F_1 to F_3. Hence total number of calls = 5

	+ 1 + 3 = 9. So answer is 3rd option.
25.	Consider the dimensions of the floor = 12 × 5 and the dimensions of the tile = 1 × 1 As per the question, outside dimensions = 12 × 5, inside dimensions = 10 × 3. A possible value along one edge = 12.
26.	If p was given to = 1! + (2 × 2!), its value becomes 5. When you add 2 in that, it becomes 7. When this is divided by 3! you get a remainder of 1. Similarly taking the next prime number 5, take p as 4. You find the value of p becomes 1! + (2 × 2!) + (3 × 3!) + (4 × 4!) = 119. Adding 2 in that you get 121, which is 1 more than (p +1) ! = 120. Thus remainder is again 1. Similarly for all such p + 2 numbers (where p + 1 happens to a prime number), when values are calculated these are always equal to (p + 1)! + 1. Now when it is divided by (p + 1)!, the remainder is 1. Thus 4th option.
27.	In this question, leaving the Border Points, total number of integer points inside the triangle are Between coordinates (1, 0) – (0, 1) and (2, 0) – (0, 2), we have 1 point. [1, 1] Between line (0, 2) – (2, 0) and (0, 3) – (3, 0) we have 2 points [1, 2] [2, 1] and so on. Till (0, 40) and (40, 0) coordinates connecting line which has 39 vertices. ∴ Sum is 1 + 2 + 3 + 4 …… 39 $= \frac{n(n+1)}{2} = \frac{39 \times 40}{2} = 780$ Option (1). 
28.	The four numbers which satisfy the given conditions are 108, 118, 239 and 299. So the answer is 2nd option.
29.	$a_1 = 1$, $a_{n+1} - 3a_n + 2 = 4n$. Putting n = 1, we get $a_2 - 3 + 2 = 4 \Rightarrow a_2 = 5$. Similarly $a_3 = 21$. Now $a_1 = 1$ can be written as $3^1 - 2 \times 1$, $a_2 = 5$ can be written as $3^2 - 2 \times 2$, $a_3 = 21$ can be written as $3^3 - 2 \times 3$. So general term becomes $a_n = 3^{100} - 2 \times n$. So $a_{100} = 3^{100} - 200$. Hence answer is 3rd option.
30.	 We have 1, 2, 3, 4, 5 (5 digits) and 5 places viz 1st, 2nd, 3rd, 4th, 5th i.e. 2 even (2nd & 4th place), 3 odd (1st, 3rd, 5th place) (i) Numbers ending with 2 = 3 x 2 x 2 x 1 = 12.  (ii) Numbers ending with 4 = 3 x 2 x 2 x 1 = 12. (iii) Numbers ending with 1 = 2 x 2 x 2 = 8
	 (iv) Numbers ending with 3 = 2 × 2 × 2 × 1 = 8 (v) Numbers ending with 5 = 2 × 2 × 2 × 1 = 8 Case (iii), (iv) & (v) will have repitition when odd digits are placed at 3rd & 5th place. The sum of digits = 12 × 2 + 12 × 4 + 8 × (1 + 3 + 5) × 2 = 216. So option (2).
31.	Line C represents a culmination of the idea of prices being describable in line D. E-B is a good combination.
32.	E is a brilliant opening line, while B exemplifies the ideas contained in E, resulting in E-B. Note the word *these* in line C carefully, which refers to class deprivation and gender discrimination of line D.
33.	If C talks of *similar neglect*, this line has to be preceded by an example of neglect, which is found only in B. E presents a beautiful contrast with C.
34.	In terms of the third paragraph, interesting psychology is one which involves an inner conflict. Only option 3, which involves a conflict between cooperation and competition is a suitable example. The rest exemplify purely rational situations, which are not interesting, in terms of the author's ideas..
35.	"The effort of solving the ……." from the 4th paragraph is ample indication to this effect.
36.	Please refer back to the 2nd para from the top, starting from the line "Psychologically……."
37.	Please read the contents of the first passage, wherein all the points are duly mentioned.
38.	"I have my hands full….."
39.	Option 3
40.	*"She and her dear friend"* could have been a possible right construction.
41.	It represents in one line the essence of the entire article. Option 2 is certainly narrower in scope as compared to the first one while options 3 and 4 are not justifiable in terms of the contents given.
42.	The author's quotation about Cooper is satirical, implying his skepticism regarding its truth.
43.	The first para talks of prosperity being challenged by economic strain, dominance being challenged and the subsequent para explaining this idea.
44.	Please refer back to the 6th para.
45.	Please go back to lines 8-10 of the 3rd paragraph in the reading selection.
46.	Go back to the last paragraph, especially the first and the last few lines.
47.	Please refer to the third paragraph, especially ther last few lines.
48.	The answer lies in a careful reading of the third paragraph.
50.	When you mix people with differing abilities in a group, the result is *not* always a disaster, ruling out option 1. Option 3 is ridiculous as a group with average ability is never an expert group nor is it innovative because that would presuppose exceptionally creative minds (which are not there in predominant numbers in a mixed group.) One can expect only average results from a mixed group, an idea represented by option 2.
51.	You can easily get the right answer if you pay heed to the

word *numerous* in the last line of the paragraph. Obviously, you have to chooe a contrasting idea, given only by option 1.

53. Note the word *sensitive* carefully. Obviously, sensitive people will not be amused by the constant presence of beggar everywhere nor will they be irritated.

54. The ideas of the briefest possible and the most meaningful response should lead you to rule out options 1 and 2. One does not need to spend much effort in sifting the right answer from the options left out.

55. The answer emanates from the the words, *new gloss*, which help you decode that an old idea has been presented in a fresh form.

57. *"Rarely has the economic ascent of two nations been watched ...", "In the complete spectrum ...."*

59. B is wrong as "*....individual stars harness themselves to the product....*" does not make any sense. So is true of sentence C "*.... and become a plurality...*"

60. It should have read like "*.....assist the chemical reactions..."* in line A *",... causing them to break...."* in line B, and "*Many an offending chermical has now .....* " in line C.

61. e.g. Himachal Pradesh Rice Production =

$$\frac{1.2 \text{ mn}}{6 \text{ mn}} = \frac{12 \times 10^5}{6 \text{ mn}} = [200000/\ 1\text{mn}].$$

Comparing this way we get states like, Haryana, Gujarat, Punjab, Madhya Pradesh, Tamil Nadu, Maharashtra, Uttar Pradesh, Andhra Pradesh. Hence '8' states. Option (4).

62.

Haryana	Punjab	A. P.	U. P.
$\frac{19.2}{80\%\ (4)}$	$\frac{24}{80\%\ (5)}$	$\frac{112}{80\%\ (28)}$	$\frac{67.2}{70\%\ (24)}$

Haryana and Punjab have higher productivity.

63. Gujrat's per capita production = $\frac{24}{51} = .47$. The states which have the ratio greater than (.47) are :- Haryana, Punjab, Maharasthra, Andhra Pradesh. Hence 4 states.

64. Out of three workshop, one cannot attend a workshop if one is busy in Jan, Feb or Mar. Gayatri is busy in Feb & Mar thus she can only attend one workshop on communication skills, which she is not interested in.
Exactly the same is case for Urvashi. Only Zeena can attend only one workshop. Thus 2nd option. Mind it question is talking about executives and not employees.

65. As calculated in the above question Gayatri & Urvashi cannot attend any workshop and these both have been given only in the 2nd option. Thus it becomes the answer.

66. In the 2nd, 3rd and 4th choices Dinesh, Anshul & Fatima cannot attend the workshop on communication skills because they all busy in internal projects in the month of January.

67. There is only one faculty member who retires. So in all the four categories, the category from which a faculty member retires should have a drop in average twice from period 2000-2003. This happens only in Finance. Hence

68. In 2002, the huge difference in average is a indicator which gives us the answer to be 2002 itself.
Calculation : 4 members are left in finance in 2001. By 2002 their average age is 50. Suppose the new faculty (Age 25) join in 2002, Average = $\frac{50 \times 4 + 25}{5} = 45$. [Avg in 02].

69. New faculty joined OM in 2001 at age of 25. So by April 1, 2003. His age should be 27. Option (3).

70. Considering that both were born in the month of November, so by April 1 -2000 ,the age of
Naresh and Devesh would be 52.33 and 49.33 years(approximately) of age respectively.
So the age of the third faculty in year 2000 of marketing field is :- $49.33 \times 3 - 52.33 - 49.33 = 46.33$.
So by year 2005, his age should be 51.33.
Hence he would have completed exactly 51 years.

71. Condition (1) Honest /Aggr Profitbl Truthfl Hones /Aggr
Condition (2) Truthfl Honest/Aggr Honest/Aggr Profitbl

	A	B	C	D
UP	49	82	80	55
Bihar	69	72	70	65
MP	72	63	72	65
	190	217	222	185

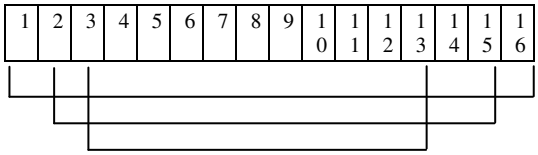
Two conditions of arrangements are possible. Given that Truthful Ltd. has the highest market share in the state of MP. 72 in MP, comes under 2 places, either A or C. So for both conditions we can have two arrangements as shown in the figure above as Condition(1) and Condition(2)
Statement I if true, Profitable Ltd (P) has lowest share in MP. Then P should be B.
Hence we go to condition 1. In condition (1), Honest Ltd can be either A on D, and in both cases its total would be less than that of P (217). Hence option (2).

72. According to first statement condition (1) can be followed where Honest Ltd can be either B or C. According to Second statement, condition (2) can be seen where Aggressive Ltd can be firm D. So either of (2) may be true but not both.
Both can also be false. But we can go for option (3). Atmost one statement can be true. Hence option (3).

73. In option (3), If statement 1 is true, then only one option, firm 'B' is minimum in HP. So it should be aggressive. So we come to condition (2) where if Aggressive Ltd is B, then Honest Ltd should be firm 'C', where lowest is from Bihar. Hence Option (3).

74. Lowest of Profitable Ltd is from UP means, it should be firm D, and we follow condition 2.
Here Truthful Ltd has lowest from UP. Hence Option (3)

75. Winners of the 1st round

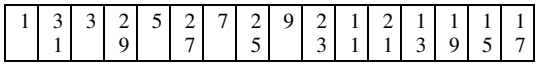


Matches will be played in the 2nd round between (1, 16) (2, 15) (3, 14) and so on.
Therefore 2nd round matches are

1	2	3	4	5	6	7	8
(1, 16)	(2, 15)	(3, 14)	(4, 13)	(5, 12)	(6, 11)	(7, 10)	(8, 9)
↓	↓	↓	↓	↓	↓	↓	↓
1	2	3	4	5	11	10	9

Matches 6, 7, 8 had upsets. So now in quarterfinals, 1 will play with 9. 9th seed = Nadia Petrova. Lindsay Davenport is 2nd seed and she will play with seed 10 (versus Williams). Hence option (4).

76. After 1st round, winners are :-



2nd round matches :-
(1, 17) (31, 15) (3, 19) (28, 13) (5, 21) (27, 11) (7, 23) (25, 9)
No upsets in 2nd round, so winners are

1, 15, 3, 13, 5, 11, 7, 9
Quarterfinal Matches are between

(1, 9) (15, 7) (3, 11) (13, 5)

Maria sharapova will face one of the winner of the 4th match, that is between seed 13 or seed 5. Minimum is seed (13) as upset case might be possible here. Hence option (1).

77. Winners of 1st round :-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Matches in the 2nd round
(1, 16) (2, 15) (3, 14) (4, 13) (5, 12) (6, 11) (7, 10) (8, 9). 6 and 8 loose and 7 and 9 win.
Winners of 2nd Round:-

1	x	x	x	x	11	7	9

In quarterfinals, 1 plays with 9. Hence Option (3).

78. Quarterfinal seeds
1 2 3 4 5 6 7 8
Quarterfinal matches are between
(1, 8) (2, 7) (3, 6) (4, 5)
1 x x 4/5
Now semifinal is between
1 x x 4/5
If Maria sharapova reaches final then she has definitely beaten either seed 4 or seed 5. Hence option (3).

79. Take the people involved in all the three as Y and thus people involved in ER only become 2Y and people involved in TR only also becomes 2Y. As there are 17 people involved in TR and given 10 people out of these are involved at least one more project. That leaves 7 people involved in TR only. Equating it with 2Y – 1, you get Y = 4. Thus only TR = 7 and only ER = 8. Taking the values of only TR & ER only as x and TR & FR only as z. Their sum happens to be 6. Taking it and solving only FR becomes 8 and the portion representing only FR & ER becomes 4. Now As FR is given to be having maximum involvements the value of Z cannot be taken as 3 or less. Thus it will be minimum 4. Hence 3rd option.

80. As calculated above, knowing that 20 people are involved in FR. The people involved in TR & ER but not in FR are 2. This means there are 4 people involved in TR & FR but not in ER. Similarly all the other values can also be calculated. Thus 1st option.

81. There are four possibilities for the people involved only in TR & ER it could be 0, 1, 2, 3. Taking all the possibilities into account only the 2nd option happens to be always true.

82. From the information given there are four possibilities, but none of them can be definitely concluded. Thus it cannot be determined.

83. The no. of votes Paris got is 24. Thus 4th option.

84.

Round	Total Votes Cast	Maximum Votes Cast		Eliminated	
		City	No. of votes	City	No. of votes
1	82*	London	30	New York	12
2	83	Paris	32	Beijing	21
3	75	London	38#	Paris	37#

Just see the # given in the above table.
From the second round the composition of votes for Beijing is (0.75 × 16 = 12) + (9 from New York as calculated above). Now out of these 21, 9 are not eligible to cast vote (because their contending cities have lost twice). As the no. of voters, who are voting for London, will keep on doing so (as stated in the information). The no. of total votes for London could be either 37 or 38 (because a difference of 1 is given in the information). Now 37 is not possible as 7 cannot be any percentage of 12 (eligible voters of Beijing from second round). Thus London must have 38 votes. Hence 8 out of 12 votes means 100 × 8/12 = 66.67%. Thus 4th option.

85. From previous question, in round 1 Paris had 24 votes, which increases to 32 in the second round. 8 (3 votes from New York, 4 from Beijing and 1 from IOC member from New York) more votes are added. Out of the two statements given only (a) is true. Thus first option is the answer.

86. Reading the information the following table can be made

Round	Total Votes Cast	Maximum Votes Cast		Eliminated	
		City	No. of votes	City	No. of votes
1	82*	London	30	New York	12
2	83	Paris	32	Beijing	21
3	75				

*We reached at the figure of 82 since all the members of the contending cities did not vote in the first round. Now as New York was eliminated its member votes in the second round and because in the second round the no. of votes are 83, the same no. should be 1 less in the first round.
Now work with options to eliminate choices. 1st and 3rd options are not possible because it does not provide us with an integral number of votes for Beijing in the first round (because votes cannot be fractions). Now between 2nd & 4th option, with 2nd option we get 20 votes for Beijing and 20 votes for Paris in the first round. But it cannot be true as from the next question it can be deduced that 20 cannot be the votes for Paris in the first round. That leaves us with only the 4th option, which gives 16 votes for Beijing and 24 votes for Paris.

87.

A	B	C	D
20	10	30	40

For Min. Average return
B would give double return
A would one and a half time return =

$$\frac{20(1.5)+10(2)+30+40}{4} = \frac{120}{4} = 30\%$$

88. 35% Return = Total 140 for A, B, C and D. This is possible if A gives double and D gives 1.5 times return OR A gives 1.5 times return and C gives double return. So, A gave extraordinary return in both cases. C and D may or may not have given extraordinary return. B did not give extraordinary return in either case. Hence option (2) is true.

89. 38.75% Return = Total 155 for A, B, C and D. This is possible if D gives double and C give 1.5 times return. D Cement or IT. C Auto or steel.

90. Since C belong to Cement or IT so it should give 60% return. For maximum average return D gives 1.5 times return hence 60% return and maximum average return becomes = 20 + 10 + 60 + 60 / 4 = 150 / 4 = 37.5%.
For minimum average return B gives 1.5 times return hence minimum average return is = 20 + 15 + 60 + 40 = 135 / 4 = 33.75%. So, we can say option 2 and option 4 is true. Hence choice is (2).