SECTION – I
Number of questions: 25

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

K., L, M, N, P, Q, R, S, U and W are the only ten members in a department. There is a proposal to form a team from within the members of the department, subject to the following conditions:

- A team must include exactly one among P, R, and S.
- A team must include either M or Q, but not both.
- If a team includes K., then it must also include L, and vice versa.
- If a team includes one among S, U, and W, then it must also include the other two.
- L and N cannot be members of the same team.
- L and U cannot be members of the same team.

The size of a team is defined as the number of members in the team.

1. Who cannot be a member of a team of size 3?

    1. L   2. M   3. N   4. P   5. Q

2. Who can be a member of a team of size 5?

    1. K   2. L   3. M   4. P   5. R

3. What would be the size of the largest possible team?

    1. 8   2. 7   3. 6   4. 5   5. Cannot be determined

4. What could be the size of a team that includes K?

    1. 2 or 3   2. 2 or 4   3. 3 or 4   4. Only 2   5. Only 4

5. In how many ways a team can be constituted so that the team includes N?

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

DIRECTIONS *for questions 6 to 10:* Answer on the basis of the information given below.

In a Class X Board examination, ten papers are distributed over five Groups – PCB, Mathematics, Social Science, Vernacular and English. Each of the ten papers is evaluated out of 100. The final score of a student is calculated in the following manner. First, the Group Scores are obtained by averaging marks in the papers within the Group. The final score is the simple average of the Group Scores. The data for the top ten students are presented below. (Dipan's score in English Paper II has been intentionally removed in the table.)

Name of the student	PCB Group			Mathematics Group	Social Science Group		Vernacular Group		English Group		Final Score
	Phy	Chem	Bio		Hist.	Geo	Paper I	Paper II	Paper I	Paper II	
Ayesha (G)	98	96	97	98	95	93	94	96	96	98	96.2
Ram (B)	97	99	95	97	95	96	94	94	96	98	96.1
Dipan (B)	98	98	98	95	96	95	96	94	96	??	96.0
Sagnik (B)	97	98	99	96	96	98	94	97	92	94	95.9
Sanjiv (B)	95	96	97	98	97	96	92	93	95	96	95.7
Shreya (G)	96	89	85	100	97	98	94	95	96	95	95.5
Joseph (B)	90	94	98	100	94	97	90	92	94	95	95.0
Agni (B)	96	99	96	99	95	96	82	93	92	93	94.3
Pritam (B)	98	98	95	98	83	95	90	93	94	94	93.9
Tirna (G)	96	98	97	99	85	94	92	91	87	96	93.7

Note: B or G against the name of a student respectively indicates whether the student is a boy or a girl.

6. How much did Dipan get in English Paper II?

   1. 94   2. 96.5   3. 97   4. 98   5. 99

7. Among the top ten students, how many boys scored at least 95 in at least one paper from each of the groups?

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

8. Had Joseph, Agni, Pritam and Tirna each obtained Group Score of 100 in the Social Science Group, then their standing in decreasing order of final score would be:

   1. Pritam, Joseph, Tirna, Agni   2. Joseph, Tirna, Agni, Pritam
   3. Pritam, Agni, Tirna, Joseph   4. Joseph, Tirna, Pritam, Agni
   5. Pritam, Tirna, Agni, Joseph

9. Students who obtained Group Scores of at least 95 in every group are eligible to apply for a prize. Among those who are eligible, the student obtaining the highest Group Score in Social Science Group is awarded this prize. The prize was awarded to:

   1. Shreya   2. Ram   3. Ayesha
   4. Dipan   5. No one from the top ten

10. Each of the ten students was allowed to improve his/her score in exactly one paper of choice with the objective of maximizing his / her final score. Everyone scored 100 in the paper in which he or she chose to improve. After that, the topper among the ten students was:

    1. Ram   2. Agni   3. Pritam   4. Ayesha   5. Dipan

DIRECTIONS *for questions 11 to 15:* Answer on the basis of the information given below.

Mathematicians are assigned a number called Erdös number (named after the famous mathematician, Paul Erdös). Only Paul Erdös himself has an Erdös number of zero. Any mathematician who has written a research paper with Erdös has an Erdös number of 1. For other mathematicians, the calculation of his/her Erdös number is illustrated below:
Suppose that a mathematician X has co-authored papers with several other mathematicians. From among them, mathematician Y has the smallest Erdös number. Let the Erdös number of Y be *y*. Then X has an Erdös number of *y* + 1. Hence any mathematician with no co-authorship chain connected to Erdös has an Erdös number of infinity.
In a seven day long mini-conference organized in memory of Paul Erdös, a close group of eight mathematicians, call them A, B, C, D, E, F, G and H, discussed some research problems. At the beginning of the conference, A was the only participant who had an infinite Erdös number. Nobody had an Erdös number less than that of F.

- On the third day of the conference F co-authored a paper jointly with A and C. This reduced the average Erdös number of the group of eight mathematicians to 3. The Erdös numbers of B, D, E, G and II remained unchanged with the writing of this paper. Further, no other co-authorship among any three members would have reduced the average Erdös number of the group of eight to as low as 3.
- At the end of the third day, five members of this group had identical Erdös numbers while the other three
  had Erdös numbers distinct from each other.
- On the fifth day, E co-authored a paper with F which reduced the group's average Erdös number by 0.5.
  The Erdös numbers of the remaining six were unchanged with the writing of this paper.
- No other paper was written during the conference.

11. How many participants in the conference did not change their Erdös number during the conference?

    1. 2   2. 3   3. 4   4. 5   5. Cannot be determined

12. The person having the largest Erdös number at the end of the conference must have had Erdös number (at that time):

    1. 5   2. 7   3. 9   4. 14   5. 15

13. How many participants had the same Erdös number at the beginning of the conference?

    1. 2   2. 3   3. 4   4. 5   5. Cannot be determined

14. The Erdös number of C at the end of the conference was:

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

15. The Erdös number of E at the beginning of the conference was:

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

DIRECTIONS *for questions 16 to 20:* Answer on the basis of the information given below.

Two traders, Chetan and Michael, were involved in the buying and selling of MCS shares over five trading days. At the beginning of the first day, the MCS share was priced at Rs. 100, while at the end of the fifth day it was priced at Rs. 110. At the end of each day, the MCS share price either went up by Rs. 10, or else, it came down by Rs. 10. Both Chetan and Michael took buying and selling decisions at the end of each trading day. The beginning price of MCS share on a given day was the same as the ending price of the previous day. Chetan and Michael started with the same number of shares and amount of cash, and had enough of both. Below are some additional facts about how Chetan and Michael traded over the five trading days.

• Each day if the price went up, Chetan sold 10 shares of MCS at the closing price. On the other hand, each day if the price went down, he bought 10 shares at the closing price.
• If on any day, the closing price was above Rs 110, then Michael sold 10 shares of MCS, while if it was below Rs 90, he bought 10 shares, all at the closing price.

16. If Chetan sold 10 shares of MCS on three consecutive days, while Michael sold 10 shares only once during the five days, what was the price of MCS at the end of day 3?

   1. Rs. 90   2. Rs. 100   3. Rs. 110   4. Rs. 120   5. Rs. 130

17. If Chetan ended up with Rs 1300 more cash than Michael at the end of day 5, what was the price of MCS share at the end of day 4?

   1. Rs. 90   2. Rs. 100   3. Rs. 110
   4. Rs. 120   5. Not uniquely determinable

18. If Michael ended up with 20 more shares than Chetan at the end of day 5, what was the price of the share at the end of day 3?

   1. Rs. 90   2. Rs. 100   3. Rs. 110   4. Rs. 120   5. Rs. 130

19. If Michael ended up with Rs 100 less cash than Chetan at the end of day 5, what was the difference in the number of shares possessed by Michael and Chetan (at the end of day 5)?

   1.   Michael had 10 less shares than Chetan.
   2.   Michael had 10 more shares than Chetan.
   3.   Chetan had 10 more shares than Michael.
   4.   Chetan had 20 more shares than Michael.
   5.   Both had the same number of shares.

20. What could have been the maximum possible increase in combined cash balance of Chetan and Michael at the end of the fifth day?

   1. Rs. 3,700   2. Rs. 4,000   3. Rs. 4,700   4. Rs. 5,000   5. Rs. 6,000

DIRECTIONS *for questions 21 to 25: Answer on the basis of the information given below.*

A significant amount of traffic flows from point S to point T in the one-way street network shown below. Points A, B, C, and D are junctions in the network, and the arrows mark the direction of traffic flow. The fuel cost in rupees for travelling along a street is indicated by the number adjacent to the arrow representing the street.
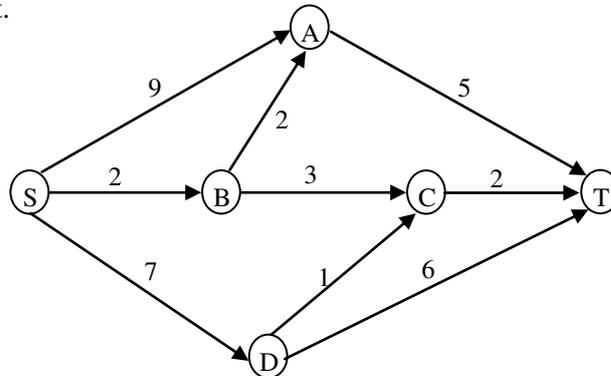
Motorists travelling from point S to point T would obviously take the route for which the total cost of travelling is the minimum. If two or more routes have the same least travel cost, then motorists are indifferent between them. Hence, the traffic gets evenly distributed among all the least cost routes. The government can control the flow of traffic only by levying appropriate toll at each junction. For example, if a motorist takes the route S-A-T (using junction A alone), then the total cost of travel would be Rs. 14 (i.e., Rs. 9 + Rs. 5) plus the toll charged at junction A.

21.   If the government wants to ensure that no traffic flows on the street from D to T, while equal amount of traffic flows through junctions A and C, then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

        1. 1, 5, 3, 3   2. 1, 4, 4, 3   3. 1, 5, 4, 2   4. 0, 5, 2, 3   5. 0, 5, 2, 2

22.   If the government wants to ensure that all motorists travelling from S to T pay the same amount (fuel costs and toll combined) regardless of the route they choose and the street from B to C is under repairs (and hence unusable), then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

        1. 2, 5, 3, 2   2. 0, 5, 3, 1   3. 1, 5, 3, 2   4. 2, 3, 5, 1   5. 1, 3, 5, 1

23.   If the government wants to ensure that the traffic at S gets evenly distributed along streets from S to A, from S to B, and from S to D, then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

        1. 0, 5, 4, 1   2. 0, 5, 2, 2   3. 1, 5, 3, 3   4. 1, 5, 3, 2   5. 0, 4, 3, 2

24.   If the government wants to ensure that all routes from S to T get the same amount of traffic, then a feasible set of toll charged (in rupees) at junctions A, B, C, and D respectively to achieve this goal is:

        1. 0, 5, 2, 2   2. 0, 5, 4, 1   3. 1, 5, 3, 3   4. 1, 5, 3, 2   5. 1, 5, 4, 2

25.   The government wants to devise a toll policy such that the total cost to the commuters per trip is minimized. The policy should also ensure that not more than 70 per cent of the total traffic passes through junction B. The cost incurred by the commuter travelling from point S to point T under this policy will be:

        1. Rs. 7   2. Rs. 9   3. Rs. 10   4. Rs. 13   5. Rs. 14

SECTION – II
Number of questions: 25

DIRECTIONS *for questions 26 to 30:* 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.

26.   Relations between the factory and the dealer are distant and usually strained as the factory tries to force cars on the dealers to smooth out production. Relations between the dealer and the customer are equally strained because dealers continuously adjust prices - make deals - to adjust demand with supply while maximizing profits. This becomes a system marked by a lack of long-term commitment on either side, which maximizes feelings of mistrust. In order to maximize their bargaining positions, everyone holds back information - the dealer about the product and the consumer about his true desires.

   1.   As a result, 'deal making' becomes rampant, without concern for customer satisfaction.
   2.   As a result, inefficiencies creep into the supply chain.
   3.   As a result, everyone treats the other as an adversary, rather than as an ally.
   4.   As a result, fundamental innovations are becoming scarce in the automobile industry.
   5.   As a result, everyone loses in the long run.

27.   We can usefully think of theoretical models as maps, which help us navigate unfamiliar territory. The most accurate map that it is possible to construct would be of no practical use whatsoever, for it would be an exact replica, on exactly the same scale, of the place where we were. Good maps pull out the most important features and throw away a huge amount of much less valuable information. Of course, maps can be bad as well as good - witness the attempts by medieval Europe to produce a map of the world. In the same way, a bad theory, no matter how impressive it may seem in principle, does little or nothing to help us understand a problem.

   1.   But good theories, just like good maps, are invaluable, even if they are simplified.
   2.   But good theories, just like good maps, will never represent unfamiliar concepts in detail.
   3.   But good theories, just like good maps, need to balance detail and feasibility of representation.
   4.   But good theories, just like good maps, are accurate only at a certain level of abstraction.
   5.   But good theories, just like good maps, are useful in the hands of a user who knows their limitations.

28.   In the evolving world order, the comparative advantage of the United States lies in its military force. Diplomacy and international law have always been regarded as annoying encumbrances, unless they can be used to advantage against an enemy. Every active player in world affairs professes to seek only peace and to prefer negotiation to violence and coercion.

   1.   However, diplomacy has often been used as a mask by nations which intended to use force.
   2.   However, when the veil is lifted, we commonly see that diplomacy is understood as a disguise for the rule of force.
   3.   However, history has shown that many of these nations do not practice what they profess.
   4.   However, history tells us that peace is professed by those who intend to use violence.
   5.   However, when unmasked, such nations reveal a penchant for the use of force.

29. I am sometimes attacked for imposing 'rules'. Nothing could be further from the truth. I hate rules. All I do is-report on how consumers react to different stimuli. I may say to a copywriter, "Research shows that commercials with celebrities are below average in persuading people to buy products. Are you sure you want to use a celebrity?" Call that a rule? Or I may say to an art director, "Research suggests that if you set the copy in black type on a white background, more people will read it than if you set it in white type on a black background."

    1. Guidance based on applied research can hardly qualify as 'rules'.
    2. Thus, all my so called 'rules' are rooted in applied research.
    3. A suggestion perhaps, but scarcely a rule.
    4. Such principles are unavoidable if one wants to be systematic about consumer behaviour.
    5. Fundamentally it is about consumer behaviour - not about celebrities or type settings.

30. Age has a curvilinear relationship with the exploitation of opportunity. Initially, age will increase the likelihood that a person will exploit an entrepreneurial opportunity because people gather much of the knowledge necessary to exploit opportunities over the course of their lives, and because age provides credibility in transmitting that information to others. However, as people become older, their willingness to bear risks declines, their opportunity costs rise, and they become less receptive to new information.

    1. As a result, people transmit more information rather than experiment with new ideas as they reach an advanced age.
    2. As a result, people are reluctant to experiment with new ideas as they reach an advanced age.
    3. As a result, only people with lower opportunity costs exploit opportunity when they reach an advanced age.
    4. As a result, people become reluctant to exploit entrepreneurial opportunities when they reach an advanced age.
    5. As a result, people depend on credibility rather than on novelty as they reach an advanced age.

DIRECTIONS *for questions 31 to 35: The passage given below is followed by a set of five questions. Choose the most appropriate answer to each question.*

Our propensity to look out for regularities, and to impose laws upon nature, leads to the psychological phenomenon of dogmatic thinking or, more generally, dogmatic behaviour: we expect regularities everywhere and attempt to find them even where there are none; events which do not yield to these attempts we are inclined to treat as a kind of 'background noise'; and we stick to our expectations even when they are inadequate and we ought to accept defeat. This dogmatism is to some extent necessary. It is demanded by a situation which can only be dealt with by forcing our conjectures upon the world. Moreover, this dogmatism allows us to approach a good theory in stages, by way of approximations: if we accept defeat too easily, we may prevent ourselves from finding that we were very nearly right.

It is clear that this *dogmatic attitude,* which makes us stick to our first impressions, is indicative of a strong belief; while a critical attitude, which is ready to modify its tenets, which admits doubt and demands tests, is indicative of a weaker belief. Now according to Hume's theory, and to the popular theory, the strength of a belief should be a product of repetition; thus it should always grow with experience, and always be greater in less primitive persons. But dogmatic thinking, an uncontrolled wish to impose regularities, a manifest pleasure in rites and in repetition as such, is characteristic of primitives and children; and increasing experience and maturity sometimes create an attitude of caution and criticism rather than of dogmatism.

My logical criticism of Hume's psychological theory, and the considerations connected with it, may seem a little removed from the field of the philosophy of science. But the distinction between dogmatic and critical thinking, or the dogmatic and the critical attitude, brings us right back to our central

problem. For the dogmatic attitude is clearly related to the tendency to verify our laws and schemata by seeking to apply them and to confirm them, even to the point of neglecting refutations, whereas the critical attitude is one of readiness to change them - to test them; to refute them; to falsify them, if possible. This suggests that we may identify the critical attitude with the scientific attitude, and the dogmatic attitude with the one which we have described as pseudo-scientific. It further suggests that genetically speaking the pseudo-scientific attitude is more primitive than, and prior to, the scientific attitude: that it is a pre-scientific attitude. And this primitivity or priority also has its logical aspect. For the critical attitude is not so much opposed to the dogmatic attitude as super-imposed upon it: criticism must be directed against existing and influential beliefs in need of critical revision - in other words, dogmatic beliefs. A critical attitude needs for its raw material, as it were, theories or beliefs which are held more or less dogmatically.

Thus, science must begin with myths, and with the criticism of myths; neither with the collection of observations, nor with the invention of experiments, but with the critical discussion of myths, and of magical techniques and practices. The scientific tradition is distinguished from the pre-scientific tradition in having two layers. Like the latter, it passes on its theories; but it also passes on a critical attitude towards them. The theories are passed on, not as dogmas, but rather with the challenge to discuss them and improve upon them.

The critical attitude, the tradition of free discussion of theories with the aim of discovering their weak spots so that they may be improved upon, is the attitude of reasonableness, of rationality. From the point of view here developed, all laws, all theories, remain essentially tentative, or conjectural, or hypothetical, even when we feel unable to doubt them any longer. Before a theory has been refuted we can never know in what way it may have to be modified.

31. In the context of science, according to the passage, the interaction of *dogmatic beliefs* and *critical attitude* can be best described as:

1. A duel between two warriors in which one has to die.
2. The effect of a chisel on a marble stone while making a sculpture.
3. The feedshare (natural gas) in fertilizer industry being transformed into fertilizers.
4. A predator killing its prey.
5. The effect of fertilizers on a sapling.

32. According to the passage, the role of a dogmatic attitude or dogmatic behaviour in the development of science is

1. Critical and important, as, without it, initial hypotheses or conjectures can never be made.
2. Positive, as conjectures arising out of our dogmatic attitude become science.
3. Negative, as it leads to pseudo-science.
4. Neutral, as the development of science is essentially because of our critical attitude.
5. Inferior to critical attitude, as a critical attitude leads to the attitude of reasonableness and rationality.

33. Dogmatic behaviour, in this passage, has been associated with primitives and children. Which of the following best describes the reason why the author compares primitives with children?

1. Primitives are people who are not educated, and hence can be compared with children, who have not yet been through school.
2. Primitives are people who, though not modern, are as innocent as children.
3. Primitives are people without a critical attitude, just as children are.
4. Primitives are people in the early stages of human evolution; similarly, children are in the early stages of their lives.
5. Primitives are people who are not civilized enough, just as children are not.

34. Which of the following statements best supports the argument in the passage that a critical attitude leads to a weaker belief than a dogmatic attitude does?

1. A critical attitude implies endless questioning, and, therefore, it cannot lead to strong beliefs.
2. A critical attitude, by definition, is centred on an analysis of anomalies and "noise".
3. A critical attitude leads to questioning everything, and in the process generates "noise" without any conviction.
4. A critical attitude is antithetical to conviction, which is required for strong beliefs.
5. A critical attitude leads to questioning and to tentative hypotheses.

35. According to the passage, which of the following statements best describes the difference between science and pseudo-science?

1. Scientific theories or hypothesis are tentatively true whereas pseudo-sciences are always true.
2. Scientific laws and theories are permanent and immutable whereas pseudo-sciences are contingent on the prevalent mode of thinking in a society.
3. Science always allows the possibility of rejecting a theory or hypothesis, whereas pseudo-sciences seek to validate their ideas or theories.
4. Science focuses on anomalies and exceptions so that fundamental truths can be uncovered, whereas pseudo-sciences focus mainly on general truths.
5. Science progresses by collection of observations or by experimentation, whereas pseudo-sciences do not worry about observations and experiments.

DIRECTIONS *for questions 36 to 40:* The passage given below is followed by a set of live questions. Choose the <u>most appropriate</u> answer to each question.

Fifteen years after communism was officially pronounced dead, its spectre seems once again to be haunting Europe. Last month, the Council of Europe's parliamentary assembly voted to condemn the "crimes of totalitarian communist regimes," linking them with Nazism and complaining that communist parties are still "legal and active in some countries." Now Goran Lindblad, the conservative Swedish MP behind the resolution, wants to go further. Demands that European Ministers launch a continent-wide anti-communist campaign - including school textbook revisions, official memorial days, and museums - only narrowly missed the necessary two-thirds majority. Mr. Lindblad pledged to bring the wider plans back to the Council of Europe in the coming months.

He has chosen a good year for his ideological offensive: this is the 50[1] anniversary of Nikita Khrushchev's denunciation of Josef Stalin and the subsequent Hungarian uprising, which will doubtless be the cue for further excoriation of the communist record. Paradoxically, given that there is no communist government left in Europe outside Moldova, the attacks have if anything, become more extreme as time has gone on. A clue as to why that might be can be found in the rambling report by Mr. Lindblad that led to the Council of Europe declaration. Blaming class struggle and public ownership, he explained "different elements of communist ideology such as equality or social justice still seduce many" and "a sort of nostalgia for communism is still alive." Perhaps the real problem for Mr. Lindblad and his right-wing allies in Eastern Europe is that communism is not dead enough - and they will only be content when they have driven a stake through its heart.

The fashionable attempt to equate communism and Nazism is in reality a moral and historical nonsense. Despite the cruelties of the Stalin terror, there was no Soviet Treblinka or Sorbibor, no extermination camps built to murder millions. Nor did the Soviet Union launch the most devastating war in history at a cost of more than 50 million lives - in fact it played the decisive role in the defeat of the German war machine. Mr. Lindblad and the Council of Europe adopt as fact the wildest estimates of those "killed by communist regimes" (mostly in famines) from the fiercely contested Black Book of Communism, which also underplays the number of deaths attributable to Hitler. But, in any case, none of this explains why

anyone might be nostalgic in former communist states, now enjoying the delights of capitalist restoration. The dominant account gives no sense of how communist regimes renewed themselves after 1956 or why Western leaders feared they might overtake the capitalist world well into the 1960s. For all its brutalities and failures, communism in the Soviet Union, Eastern Europe, and elsewhere delivered rapid industrialization, mass education, job security, and huge advances in social and gender equality. Its existence helped to drive up welfare standards in the West, and provided a powerful counterweight to Western global domination.

It would be easier to take the Council of Europe's condemnation of communist state crimes seriously if it had also seen fit to denounce the far bloodier record of European colonialism - which only finally came to an end in the 1970s. This was a system of racist despotism, which dominated the globe in Stalin's time. And while there is precious little connection between the ideas of fascism and communism, there is an intimate link between colonialism and Nazism. The terms *lebensraum* and *konzentrationslager* were both first used by the German colonial regime in south-west Africa (now Namibia), which committed genocide against the Herero and Nama peoples and bequeathed its ideas and personnel directly to the Nazi party.

Around 10 million Congolese died as a result of Belgian forced labour and mass murder in the early twentieth century; tens of millions perished in avoidable or enforced famines in British-ruled India; up to a million Algerians died in their war for independence, while controversy now rages in France about a new law requiring teachers to put a positive spin on colonial history. Comparable atrocities were carried out by all European colonialists, but not a word of condemnation from the Council of Europe. Presumably, European lives count for more.

No major twentieth century political tradition is without blood on its hands, but battles over history are more about the future than the past. Part of the current enthusiasm in official Western circles for dancing on the grave of communism is no doubt about relations with today's Russia and China. But it also reflects a determination to prove there is no alternative to the new global capitalist order - and that any attempt to find one is bound to lead to suffering. With the new imperialism now being resisted in the Muslim world and Latin America, growing international demands for social justice and ever greater doubts about whether the environmental crisis can be solved within the existing economic system, the pressure for alternatives will increase.

36. Among all the apprehensions that Mr. Goran Lindblad expresses against communism, which one gets admitted, although indirectly, by the author?

1. There is nostalgia for communist ideology even if communism has been abandoned by most European nations.
2. Notions of social justice inherent in communist ideology appeal to critics of existing systems.
3. Communist regimes were totalitarian and marked by brutalities and large scale violence.
4. The existing economic order is wrongly viewed as imperialistic by proponents of communism.
5. Communist ideology is faulted because communist regimes resulted in economic failures.

37. What, according to the author, is the real reason for a renewed attack against communism?

1. Disguising the unintended consequences of the current economic order such as social injustice and environmental crisis.
2. Idealising the existing ideology of global capitalism.
3. Making communism a generic representative of all historical atrocities, especially those perpetrated by the European imperialists.
4. Communism still survives, in bits and pieces, in the minds and hearts of people.
5. Renewal of some communist regimes has led to the apprehension that communist nations might overtake the capitalists.

38.   The author cites examples of atrocities perpetrated by European colonial regimes in order to

1.   Compare the atrocities committed by colonial regimes with those of communist regimes.
2.   Prove that the atrocities committed by colonial regimes were more than those of communist regimes.
3.   Prove that, ideologically, communism was much better than colonialism and Nazism.
4.   Neutralise the arguments of Mr. Lindblad and to point out that the atrocities committed by colonial regimes were more than those of communist regimes.
5.   Neutralise the arguments of Mr. Lindblad and to argue that one needs to go beyond and look at the motives of these regimes.

39.   Why, according to the author, is Nazism closer to colonialism than it is to communism?

1.   Both colonialism and Nazism were examples of tyranny of one race over another.
2.   The genocides committed by the colonial and the Nazi regimes were of similar magnitude.
3.   Several ideas of the Nazi regime were directly imported from colonial regimes.
4.   Both colonialism and Nazism arc based on the principles of imperialism.
5.   While communism was never limited to Europe, both the Nazis and the colonialists originated in Europe.

40.   Which of the following cannot be inferred as a compelling reason for the silence of the Council of Europe on colonial atrocities?

1.   The Council of Europe being dominated by erstwhile colonialists.
2.   Generating support for condemning communist ideology.
3.   Unwillingness to antagonize allies by raking up an embarrassing past.
4.   Greater value seemingly placed on European lives.
5.   Portraying both communism and Nazism as ideologies to be condemned.

DIRECTIONS *for questions 41 to 45:* The passage given below is followed by a set of five questions. Choose the most appropriate answer to each question.

My aim is to present a conception of justice which generalizes and carries to a higher level of abstraction the familiar theory of the social contract. In order to do this we are not to think of the original contract as one to enter a particular society or to set up a particular form of government. Rather, the idea is that the principles of justice for the basic structure of society are the object of the original agreement. They are the principles that free and rational persons concerned to further their own interests would accept in an initial position of equality. These principles are to regulate all further agreements; they specify the kinds of social cooperation that can be entered into and the forms of government that can be established. This way of regarding the principles of justice, I shall call justice as fairness. Thus, we are to imagine that those who engage in social cooperation choose together, in one joint act, the principles which are to assign basic rights and duties and to determine the division of social benefits. Just as each person must decide by rational reflection what constitutes his good, that is, the system of ends which it is rational for him to pursue, so a group of persons must decide once and for all what is to count among them as just and unjust. The choice which rational men would make in this hypothetical situation of equal liberty determines the principles of justice.

In 'justice as fairness', the original position is not an actual historical state of affairs. It is understood as a purely hypothetical situation characterized so as to lead to a certain conception of justice. Among the essential features of this situation is that no one knows his place in society, his class position or social status, nor does anyone know his fortune in the distribution of natural assets and abilities, his intelligence, strength, and the like. I shall even assume that the parties do not know their conceptions of the good or their special psychological propensities. The principles of justice are chosen behind a veil of ignorance. This ensures that no one is advantaged or disadvantaged in the choice of principles by the outcome of natural chance or the contingency of social circumstances. Since all are similarly situated

and no one is able to design principles to favor his particular condition, the principles of justice are the result of a fair agreement or bargain.

Justice as fairness begins with one of the most general of all choices which persons might make together, namely, with the choice of the first principles of a conception of justice which is to regulate all subsequent criticism and reform of institutions. Then, having chosen a conception of justice, we can suppose that they are to choose a constitution and a legislature to enact laws, and so on, all in accordance with the principles of justice initially agreed upon. Our social situation is just if it is such that by this sequence of hypothetical agreements we would have contracted into the general system of rules which defines it. Moreover, assuming that the original position does determine a set of principles, it will then be true that whenever social institutions satisfy these principles, those engaged in them can say to one another that they are cooperating on terms to which they would agree if they were free and equal persons whose relations with respect to one another were fair. They could all view their arrangements as meeting the stipulations which they would acknowledge in an initial situation that embodies widely accepted and reasonable constraints on the choice of principles. The general recognition of this fact would provide (he basis for a public acceptance of the corresponding principles of justice. No society can, of course, be a scheme of cooperation which men enter voluntarily in a literal sense; each person finds himself placed at birth in some particular position in some particular society, and the nature of this position materially affects his life prospects. Yet a society satisfying the principles of justice as fairness comes as close as a society can to being a voluntary scheme, for it meets the principles which free and equal persons would assent to under circumstances that are fair.

41.   A just society, as conceptualized in the passage, can be best described as:

1.   A Utopia in which everyone is equal and no one enjoys any privilege based on their existing positions and powers.
2.   A hypothetical society in which people agree upon principles of justice which are fair.
3.   A society in which principles of justice are not based on the existing positions and powers of the individuals.
4.   A society in which principles of justice are fair to all.
5.   A hypothetical society in which principles of justice are not based on the existing positions and powers of the individuals.

42.   The original agreement or original position in the passage has been used by the author as:

1.   A hypothetical situation conceived to derive principles of justice which are not influenced by position, status and condition of individuals in the society.
2.   A hypothetical situation in which every individual is equal and no individual enjoys any privilege based on the existing positions and powers.
3.   A hypothetical situation to ensure fairness of agreements among individuals in society.
4.   An imagined situation in which principles of justice would have to be fair.
5.   An imagined situation in which fairness is the objective of the principles of justice to ensure that no individual enjoys any privilege based on the existing positions and powers.

43.   Which of the following best illustrates the situation that is equivalent to choosing 'the principles of justice' behind a 'veil of ignorance'?

1.   The principles of justice are chosen by businessmen, who are marooned on an uninhabited island after a shipwreck, but have some possibility of returning.
2.   The principles of justice are chosen by a group of school children whose capabilities are yet to develop.
3.   The principles of justice are chosen by businessmen, who are marooned on an uninhabited island after a shipwreck and have no possibility of returning.
4.   The principles of justice are chosen assuming that such principles will govern the lives of the rule makers only in their next birth if the rule makers agree that they will be born again.
5.   The principles of justice are chosen by potential immigrants who are unaware of the resources necessary to succeed in a foreign country.

44.   Why, according to the passage, do principles of justice need to be based on an original agreement?

1.   Social institutions and laws can be considered fair only if they conform to principles of justice.
2.   Social institutions and laws can be fair only if they are consistent with the principles of justice as initially agreed upon.
3.   Social institutions and laws need to be fair in order to be just.
4.   Social institutions and laws evolve fairly only if they are consistent with the principles of justice as initially agreed upon.
5.   Social institutions and laws conform to the principles of justice as initially agreed upon.

45.   Which of the following situations best represents the idea of justice as fairness, as argued in the passage?

1.   All individuals are paid equally for the work they do.
2.   Everyone is assigned some work for his or her livelihood.
3.   All acts of theft are penalized equally.
4.   All children are provided free education in similar schools.
5.   All individuals are provided a fixed sum of money to take care of their health.

DIRECTIONS *for questions 46 to 50: Each question has a set of four sequentially ordered statements. Each statement can be classified as one of the following:*

•   Facts, which deal with pieces of information that one has heard, seen or read, and which are open to discovery or verification (the answer option indicates such a statement with an 'F').
•   Inferences, which are conclusions drawn about the unknown, on the basis of the known (the answer option indicates such a statement with an 'I').
•   Judgements, which are opinions that imply approval or disapproval of persons, objects, situations and occurrences in the past, the present or the future (the answer option indicates such a statement with a 'J').

Select the **answer** option that best describes the set of four statements.

46.   1.   According to all statistical indications, the Sarva Shiksha Abhiyan has managed to keep pace with its ambitious goals.
2.   The Mid-day Meal Scheme has been a significant incentive for the poor to send their little ones to school, thus establishing the vital link between healthy bodies and healthy minds.
3.   Only about 13 million children in the age group of 6 to 14 years are out of school.
4.   The goal of universalisation of elementary education has to be a pre-requisite for the evolution and development of our country.

1. IIFJ   2. JIIJ   3. IJFJ   4. IJFI   5. JIFI

47. 1. We should not be hopelessly addicted to an erroneous belief that corruption in India is caused by the crookedness of Indians.
2. The truth is that we have more red tape - we take eighty-nine days to start a small business, Australians take two.
3. Red tape leads to corruption and distorts a people's character.
4. Every red tape procedure is a point of contact with an official, and such contacts have the potential to become opportunities for money to change hands.

1. JFIF   2. JFJJ   3. JIJF   4. IFJF   5. JFJI

48. 1. So much of our day-to-day focus seems to be on getting things done, trudging our way through the tasks of living- it can feel like a treadmill that gets you nowhere; where is the childlike joy?
2. We are not doing the things that make us happy; that which brings us joy; the things that we cannot wait to do because we enjoy them so much.
3. This is the stuff that joyful living is made of - identifying your calling and committing yourself wholeheartedly to it.
4. When this happens, each moment becomes a celebration of you; there is a rush of energy that comes with feeling completely immersed in doing what you love most.

1. IIIJ   2. IFIJ   3.JFJJ   4. JJJJ   5. JFII

49. 1. Inequitable distribution of all kinds of resources is certainly one of the strongest and most sinister sources of conflict.
2. Even without war, we know that conflicts continue to trouble us – they only change in character.
3. Extensive disarmament is the only insurance for our future; imagine the amount of resources that can be released and redeployed.
4. The economies of the industrialized western world derive 20 % of their income from the sale of all kinds of arms.

1. IJJI   2. JIJF   3. IIJF   4. JIIF   5. IJIF

50. 1. Given the poor quality of service in the public sector, the HIV / AIDS affected should be switching to private initiatives that supply anti-retroviral drugs (ARVs) at a low cost.
2. The government has been supplying free drugs since 2004, and 35000 have benefited up to now – though the size of the affected population is 150 times this number.
3. The recent initiatives of networks and companies like AIDS Care Network, Emcure, Reliance-Cipla-Cll, would lead to availability of much-needed drugs to a larger number of affected people.
4. But how ironic it is that we should face a perennial shortage of drugs when India is one of the world's largest suppliers of generic drugs to the developing world.

1. JFIJ   2. JIIJ   3. IFIJ   4. IFFJ   5. JFII

SECTION – III
Number of questions: 25

51. If $\dfrac{a}{b} = \dfrac{1}{3}$, $\dfrac{b}{c} = 2$, $\dfrac{c}{d} = \dfrac{1}{2}$, $\dfrac{d}{e} = 3$ and $\dfrac{e}{f} = \dfrac{1}{4}$, then what is the value of $\dfrac{abc}{def}$?

1. $\dfrac{3}{8}$ 2. $\dfrac{27}{8}$ 3. $\dfrac{3}{4}$ 4. $\dfrac{27}{4}$ 5. $\dfrac{1}{4}$

52. If $x = -0.5$, then which of the following has the smallest value?

1. $2^{\frac{1}{x}}$ 2. $\dfrac{1}{x}$ 3. $\dfrac{1}{x^2}$

4. 2^X 5. $\dfrac{1}{\sqrt{-x}}$

53. Consider a sequence where the nth term, $t_n = \dfrac{n}{n+2}$, $n = 1, 2, \ldots$. The value of $t_3 \times t_4 \times t_5 \times \ldots \times t_{53}$ equals:

1. $\dfrac{2}{495}$ 2. $\dfrac{2}{477}$ 3. $\dfrac{12}{55}$ 4. $\dfrac{1}{1485}$ 5. $\dfrac{1}{2970}$

54. Which among $2^{1/2}$, $3^{1/3}$, $4^{1/4}$, $6^{1/6}$ and $12^{1/12}$ is the largest?

1. $2^{\frac{1}{2}}$ 2. $3^{\frac{1}{3}}$ 3. $4^{\frac{1}{4}}$ 4. $6^{\frac{1}{6}}$ 5. $12^{\frac{1}{12}}$

55. The length, breadth and height of a room are in the ratio 3 : 2 : 1. If the breadth and height are halved while the length is doubled, then the total area of the four walls of the room will

1. remain the same   2. decrease by 13.64 %   3. decrease by 15 %
4. decrease by 18.75 %   5. decrease by 30 %

56. A survey was conducted of 100 people to find out whether they had read recent issues of Golmal, a monthly magazine. The summarized information regarding readership in 3 months is given below:
Only September: 18;   September but not August: 23;   September and July: 8;
September: 28;   July: 48;   July and August: 10;
None of the three months: 24.

What is the number of surveyed people who have read exactly two consecutive issues (out of the three)?

1. 7   2. 9   3. 12   4. 14   5. 17

57. A semi-circle is drawn with AB as its diameter. From C, a point on AB, a line perpendicular to AB is drawn meeting the circumference of the semi-circle at D. Given that AC = 2 cm and CD = 6 cm, the area of the semi-circle (in sq. cm) will be:

1. 32π 2. 50π 3. 40.5π 4. 81π 5. Undeterminable

DIRECTIONS *for questions 58 to 59:* Answer on the basis of the information given below:

An airline has a certain free luggage allowance and charges for excess luggage at a fixed rate per kg. Two passengers, Raja and Praja have 60 kg of luggage between them, and are charged Rs. 1,200 and Rs. 2,400 respectively for excess luggage. Had the entire luggage belonged lo one of them, the excess luggage charge would have been Rs 5,400.

58. What is the weight of Praja's luggage?

      1. 20 kg   2. 25 kg   3. 30 kg   4. 35 kg   5. 40 kg

59. What is the free luggage allowance?

      1. 10 kg   2. 15 kg   3. 20 kg   4. 25 kg   5. 30 kg

NEXT QUESTION remove directions above

60. A group of 630 children is arranged in rows for a group photograph session. Each row contains three fewer children than the row in front of it. What number of rows is not possible?

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

DIRECTIONS *for questions 61& 62:* Answer on the basis of the information given below:

A punching machine is used to punch a circular hole of diameter two units from a square sheet of aluminium of width 2 units, as shown below: The hole is punched such that the circular hole touches one corner P of the square sheet and the diameter of the hole originating at P is in line with a diagonal of the square.

P
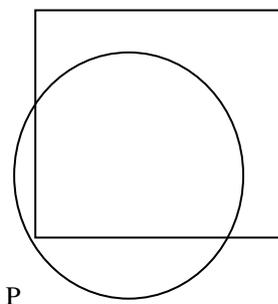
61. The proportion of the sheet area that remains after punching is:

    1. $\dfrac{(\pi + 2)}{8}$ 2. $\dfrac{(6 - \pi)}{8}$ 3. $\dfrac{(4 - \pi)}{4}$ 4. $\dfrac{(\pi - 2)}{4}$ 5. $\dfrac{(14 - 3\pi)}{6}$

62. Find the area of the part of the circle (round punch) falling outside the square sheet.

    1. $\dfrac{\pi}{4}$ 2. $\dfrac{(\pi - 1)}{2}$ 3. $\dfrac{(\pi - 1)}{4}$ 4. $\dfrac{(\pi - 2)}{2}$ 5. $\dfrac{(\pi - 2)}{4}$

NEXT QUESTION remove figure

63. What values of *x* satisfy $x^{\frac{2}{3}} + x^{\frac{1}{3}} - 2 \le 0$?

      1. $-8 \le x \le 1$ 2. $-1 \le x \le 8$ 3. $1 < x < 8$ 4. $1 \le x \le 8$ 5. $-8 \le x \le 8$

64. Consider the set S = {1, 2, 3, ..., 1000}. How many arithmetic progressions can be formed from the elements of S that start with 1 and end with 1000 and have at least 3 elements?

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

65. The graph of $y - x$ against $y + x$ is as shown below. (All graphs in this question are drawn to scale and the same scale has been used on each axis.)
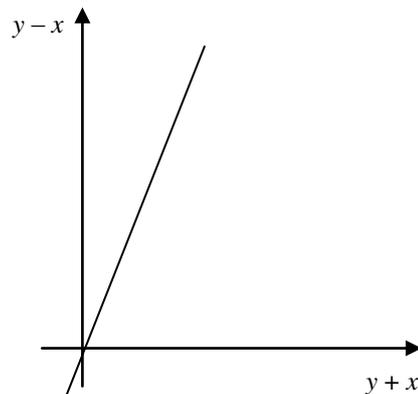
Which of the following shows the graph of y against x?
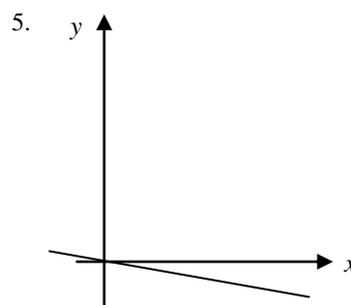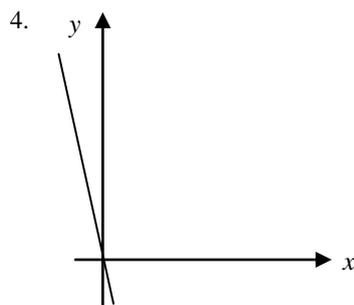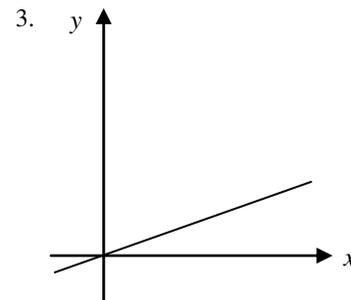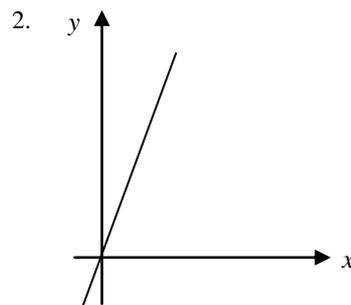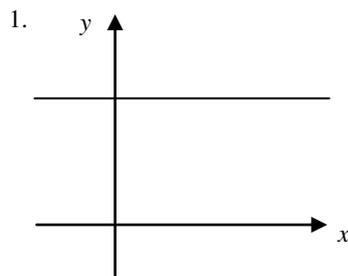
66. The sum of four consecutive two-digit odd numbers, when divided by 10, becomes a perfect square. Which of the following can possibly be one of these four numbers?

1. 21   2. 25   3. 41   4. 67   5. 73

67. The number of solutions of the equation $2x + y = 40$ where both x and y are positive integers and $x \leq y$ is:

1. 7   2. 13   3. 14   4. 18   5. 20

68. The number of employees in Obelix Menhir Co. is a prime number and is less than 300. The ratio of the number of employees who are graduates and above, to that of employees who are not, can possibly be:

1. 101 : 88   2. 87 : 100   3. 110 : 111   4. 85 : 98   5. 97 : 84

69. There are 6 tasks and 6 persons. Task 1 cannot be assigned either to person 1 or to person 2; task 2 must be assigned to either person 3 or person 4. Every person is to be assigned one task. In how many ways can the assignment be done?

1. 144   2. 180   3. 192   4. 360   5. 716

70. If $\log_y x = (a \cdot \log_z y) = (b \cdot \log_x z) = ab$, then which of the following pairs of values for (a, b) is not possible?

1. $(-2, \frac{1}{2})$ 2. $(1, 1)$ 3. $(0.4, 2.5)$ 4. $(\pi, \frac{1}{\pi})$ 5. $(2, 2)$

71. What are the values of x and y that satisfy both the equations?

I. $2^{0.7x} \cdot 3^{-1.25y} = 8\sqrt{\dfrac{6}{27}}$

II. $4^{0.3x} \cdot 9^{0.2y} = 8 \cdot (84)^{\frac{1}{5}}$

1. $x = 2, y = 5$ 2. $x = 2.5, y = 6$ 3. $x = 3, y = 5$ 4. $x = 3, y = 4$ 5. $x = 5, y = 2$

72. Let $f(x) = \max(2x + 1, 3 - 4x)$, where x is any real number. Then the minimum possible value of $f(x)$ is:

1. $\dfrac{1}{3}$ 2. $\dfrac{1}{2}$ 3. $\dfrac{2}{3}$ 4. $\dfrac{4}{3}$ 5. $\dfrac{5}{3}$

73. When you reverse the digits of the number 13, the number increases by 18. How many other two-digit numbers increase by 18 when their digits are reversed?

1. 5   2. 6   3. 7   4. 8   5. 10

74. An equilateral triangle BPC is drawn inside a square ABCD. What is the value of the angle APD in degrees?

1. 75   2. 90   3. 120   4. 135   5. 150

75. Arun, Barun and Kiranmala start from the same place and travel in the same direction at speeds of 30, 40 and 60 km per hour respectively. Barun starts two hours alter Arun. If Barun and Kiranmala overtake Arun at the same instant, how many hours after Arun did Kiranmala start?

1. 3   2. 3.5   3. 4   4. 4.5   5. 5

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ANSWER KEY

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

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EXPLANATIONS

1.	L cannot be there, because if L is selected then K has to be selected and one of M & Q and one among P, R, S. So atleast 4 will have to be selected. So L cannot be in a group of 3. Option (1).
2.	A team must include M because either Option I. If L or K is there S, U, W, N are rejected & also one of M or Q and also one of P & R. six are rejected so only 4 can be there in the team. Option II. If P or R is there, the other cannot be there , S, U, W, cannot be there, L & K are already ruled out. So at least 6 are ruled out. Option (3).
3.	If we take either of K or L then the maximum possible team of 4 can be made because we cannot take S, U, W, N, one of P&R and one of M&Q. If we do not take K & L then S, U, W, N & either of M & Q. So the team of 5 can be made.
4.	As in the above question the answer is only 4. Option 5.
5.	If N is there L & K cannot be there U taken U Not taken $\dfrac{S\ U\ W\ N\ M}{S\ U\ W\ N\ Q}$ $\dfrac{N\ M\ P}{N\ M\ R}$ $\dfrac{N\ Q\ P}{N\ Q\ R}$ so 6 ways.
6.	Dipan's average is 96. So total is 480. His scores are 	PCB	98 (Avg)
Maths	95
Sst.	95.5
Verbal Group	95
Total	**383.5** | So remaining 480 – 383.5 = 96.5, therefore total in Eng. group = 96.5 × 2 = 193 ∴ Score in English Paper (II) = 193 – 96 = 97. Hence option (3).
7.	We have to take only boys. Dipan satisfies the criteria. Hence Option (1).
8.	Final Scores of students: | Student	score increase	group increase	final increase	final score
---	---	---	---	---
Pritam	22	11	11/5=2.2	96.1
Joseph	9	4.5	4.5/5=0.9	95.9
Tirna	21	10.5	10.5/5=2.1	95.8
Agni	9	4.5	4.5/5 =0.9	95.2	

	So, the order is Pritam > Joseph > Trina > Agni. So, the answer is 1.
9.	Only Dipan satisfies the given criteria, Hence is worthy of prize. Hence Option (4).
10.	Final Scores of students: | Student	least score	contribution in net score	final score
---	---	---	---
Pritam	83 in group of 2	8.5	95.6
Ram	94 in group of 2	3	96.7
Ayesha	93 in group of 2	3.5	96.9
Agni	82 in group of 2	9	96.1
Dipan	95 in group of 1	5	97.0	 Dipan would maximize the score in Maths because it would increase his final score by 1 and hence will end up with highest final score of 97. So option (5).
11-15	We are given that average after day three is 3. So total of the Erdos numbers is 24. Also after day three 5 of the people had the same erdos number. This can only be erdos number 2, or we wont get average as 3. F has the lowest so it has to be 1. Erdos number of E decreased and average decreased by 0.5, so total decreased by 4. As final number of E is 2 his earlier number has to be 6. Now we know that after day three. F has 1. five others have 2. E has 6 and remaining person has to have 7 to make the total 24.
11.	A, C and E changed their Erdos number.
12.	We can see that the highest Erdos number remaining is 7.
13.	After day three five had erdos number of 2. out of which A and C changed from a higher number, so there were 3 mathematicians with an erdos number equal to 2 at the beginning of the conference.
14.	The number of C was changed to 2 after writing a paper with F.
15.	Erdos number of E was 6 before writing the paper.
16.–20.	Few of the important points resulting from the basic information are. The net price of the share has increased by Rs. 10. In each market day, Chetan buys or sells because the price increases or decreases by Rs. 10 each day. Now if in total the price has increased by Rs. 10, this means Chetan sells shares for one extra time as compared to the no. of times he buys. In short there have to be three increases in the price and two decrease in whatever sequence. Chetan buys at every decrease and sells at every increase and the quantity bought and sold is always 10 in number.
16.	If he sells on three consecutive days, this means there has to be three consecutive increases, now the closing price on the five consecutive days so that there are three consecutive increases are i) 90, 100, 110, 120, 110 ii) 110, 120, 130, 120, 110 Now the price should be greater than 110 only once, because Michael has sold only once.

	Thus out of the 2 cases mentioned only first is possible. Thus the price at the end of day 3 is 110, i.e. 3rd option.
17.	As Chetan is having Rs. 1,300 more than Michael and we already know that Chetan has sold for one extra time. This means Michael has not sold at all. So the prices are between 90 and 110 (inclusive) The possible movements according to closing prices are i) 110, 100, 110, 100, 110. ii) 90, 100, 110, 100, 110. iii) 110, 100, 90, 100, 110. (iv) 90, 100, 90, 100, 110. In all these cases the closing price on the fourth day is always Rs. 100. Thus 2nd option.
18.	If Michael ended with 20 more shares and it is already stated that Chetan has sold for one more time. This means Chetan is having 10 less shares in any case. If the difference is 20, this means Michael has bought shares once. Now the only possible closing prices so that the price must go less than 90 (so that Michael buys) exactly once are 90, 80, 90, 100, 110. The price at the end of day 3 should be Rs. 90. Thus the 1st option.
19.	It is already stated that Chetan has sold for one more time, this means there is a difference of 10 shares due to this. Now that difference must have given a difference of around Rs. 1000 (because price is around 100 always). But the given difference is only Rs. 100, this means Michael must have also sold. Had Michael sold for more than once, then he would had more cash. As it is less, this means Michael has also sold once only. As they sell only 10 shares in each time, in those 5 days they have reduced by a quantity of 10 shares each. In total they both will have equal shares. Thus 5th option.
20.	As the maximum cash balance is asked, this means MICHEAL should be made to sell the maximum no. of times. This means you should try to make the price more than Rs. 110 for maximum days. Considering the closing prices possible are 110, 120, 130, 120, 110. Now in this prices Michael will sell in 2nd, 3rd and 4th and will get Rs. 1,200, 1,300, 1,200 i.e. Rs. 3,700. In this Chetan will receive (+) and pay (-); (+ 1,100, + 1,200, + 1,300, - 1,200, - 1,100). In net Chetan receives Rs. 1,300. Thus the maximum possible total increase in cash is 3,700 + 1,300 = Rs. 5,000 i.e. 4th option.

21.	Putting option 1. 1, 5, 3, 3
	               S-A-T → 9 + 1 + 5 = 15
	               S B C T → 2 + 5 + 3 + 3 + 2 = 15
	               S D C T → 7 + 3 + 1 + 3 + 2 = 16

|	

	S D T = 14
	Hence not possible since 'S D T' would still be preferred.
	Similarly checking for option – 2, 3, 4 & 5
	2. S-A-T → 9 + 1 + 5 = 15
	    S-B-C-T → 1 + 2 + 4 + 3 + 4 + 2 = 16
	    S-D-C-T → 7 + 3 + 1 + 4 + 2 = 17
	    S-D-T → 7 + 3 + 6 = 16
	3. S-A-T → 9 + 1 + 5 = 15
	    S-B-C-T → 2 + 5 + 3 + 4 + 2 = 16
	    S-D-C-T → 7 + 2 + 1 + 4 + 2 = 16
	    S-D-T → 7 + 2 + 6 = 15
	4. S-A-T → 9 + 0 + 5 = 14
	    S-B-C-T → 2 + 5 + 3 + 2 + 2 = 14
	    S-D-C-T → 7 + 3 + 1 + 2 + 2 = 15
	    S-D-T → 7 + 3 + 6 = 16
	5. S-A-T → 9 + 0 + 5 = 14
	    S-B-C-T → 2 + 5 + 3 + 2 + 2 = 14
	    S-D-C-T → 7 + 2 + 1 + 2 + 2 = 14
	    S-D-T → 7 + 2 + 6 = 15
	∴ Answer Option (5).

22.	Note: Both the options (2) and (3) are correct.
	Available routes are
	      SAT → Rs. 14
	      SBAT → Rs. 9
	      SDCT → Rs. 10
	      SDT → Rs. 13
	Now fuel cost of SAT - fuel of SDT = 14 – 13 = Rs. 1.
	Hence toll at junction D should be 1 more than the toll at
	A. So option (1), (4) and (5) are ruled out.
	Now fuel cost of route SAT - fuel cost of SBAT = 14 – 9 = Rs. 5. So toll at junction B should be Rs. 5. So answer could be either (2) or option (3).

23.	Note: Both the options (1) and (4) are correct. Available paths considering no toll are SAT → Rs. 14 SBCT → Rs. 7 SBAT → Rs. 9 SDCT → Rs. 10 SDT → Rs. 13 Fuel cost on path SAT - fuel cost on SDT = 14 - 13 = Rs. 1, toll at junction D should be 1 more than the toll at junction A. So option (2), (3) and (5) are ruled out. Checking options (1) and (4). When A = 0, paths SAT, SBAT and SDT are equally likely to be taken by a motorist. When A = 1, toll at B and C should be equal to Rs. 5 and Rs. 3 respectively.
24.	Available routes are SAT → Rs. 14 SBAT → Rs. 9 SBCT → Rs. 7 SDCT → Rs. 10 SDT → Rs. 13 Fuel cost on path SAT - fuel cost on path SDT = 14 – 13 = Rs. 1. So the toll at junction D should be 1 more than toll at junction A. So option 1 and 3 are ruled out. Fuel cost on path SAT - fuel cost on path SBCT = 14 - 7 = Rs. 7. So sum of toll at junction B and C should be 7 more than the toll at A. Hence only option (4)

	matches.
25.	We have to find a route on which minimum cost is incurred and such that total traffic through B does not exceed 70%. So, option (5) is ruled out because we can send all traffic through SDCT or SDT and meet all conditions. Option (1) is also ruled out as in that case all traffic will be passed through SBCT [not possible as traffic at B can't be more than 70%] Option (2) is also ruled out as it is possible only when toll at junction C is 2. In that case also all traffic will pass through B. Option (3) can be the answer, when toll at junction B is 4 and toll at junction C is 0. Then SDCT will have toll equal to Rs. 10. As Rs. 10 is lesser than Rs. 13 so option (4) is also ruled out. Answer is option (3).
26.	The entire paragraph chronicles the growing unease and distrust with which each of the three players regards the behaviour of the other two. Such guarded perspectives eventually snowball into a no-win situation for all concerned. Hence 5.
27.	The tone of the last line suggests the need for a contrast. Combining this with the knowledge (given in the paragraph) that a good map necessitates the pruning of superfluous information, we can conclude that a good theory would retain its worth even after being simplified. Hence option 1.
28.	The last line generates misgivings about the professed position of the concerned players – this apprehension is buttressed by the claims made in option (2). Hence 2. (5 is negated because of the use of the word " penchant" – the use of force is a situational imperative , not a result of an inclination towards violence)
29.	The author tries to disprove the notion held by others that he imposes rules. To support his answer, he exemplifies by asking veiled questions, which represent nothing but indirect suggestion.
30.	Options 2 and 4 compete to some extent, but the former can be ruled out as the overwhelming idea is that of capitalizing on entrepreneurial opportunities and not merely experimenting with new idea. Hence option 4 is the best one.
31.	The passage mentions very clearly in the last lines of the 3rd paragraph that critical attitudes are super-imposed on the dogmatic ones and the latter are the raw material for the development of the former ones. Option 2 represents the best option in terms of a verbal analogy.
32.	Please refer to the last few lines of the first and third paragraphs.
33.	The last lines of paragraph 2 suggest an inverse relationship between experience / maturity and dogmatic behaviour. Since dogmatic behaviour is characteristic of primitives and children, it is likely that the aforementioned attributes are found in smaller

	degrees in these groups – the plausible reasons for which are best explained in option 4.
35.	Please refer to the penultimate paragraph for the right answer.
36.	Please refer to these lines "For all its atrocities…." from paragraph 3.
37.	Para 2, "different elements of communist ideology ……..still seduce many." This suggests that there still exists a need to further glorify the ideology of capitalism. Hence 2.
38.	The first line of paragraph 2 as also its last two lines indicate that while communism might have cost lives, it also served certain progressive purposes. Coupled with line 3 (*and while….*) of paragraph 4, they lead us to the position offered by option 5.
39.	The 3rd line of paragraph 4 suggests a stronger link between Nazism and colonialism than between Nazism and communism. This link is exemplified by the last line of paragraph 4 as also the last two lines of paragraph 5. Hence option 1.
40.	The rest of the options can be logical reasons behind the unwillingness of the Council to decry the colonial atrocities, but option 4 finds a direct mention. Please note that the question is based on inference.
41.	The question talks about a hypothetical situation. Please refer to para 2. *It is understood as a purely hypothetical situation characterized…………*
42.	Refer to para 3, line 7. *Assuming that the original position does determine a set of principles ……*
43.	Para 2 states that the principles of justice should be such as to ensure that nobody gets an unfair advantage and that all are treated in a similar manner. Such a situation is best exemplified in option 4 wherein a person is qualified to make rules only if he agrees to adhere by them in his next life, given of course the inevitability of a next life.
44.	Line 4 of paragraph 3 (*moreover…*) states that social institutions and laws need to be accepted by those engaged in them in the manner in which they had originally contracted into them. For it is only in the initial stages of conception that we are free of any binding stipulations and constraints.
45.	Since there has to be an element of fairness and justice, therefore option 4, which talks of similar schools, is the correct choice. All other choices smack of unfairness.
46.	Statement I is an inference because statistical indications are given. Statement II is a judgment because of "significant incentive" which implies an element of judgment.
47.	Statement I is a judgment because of "we should not be". Statement II is a fact because it mentions "the truth". Statement III mentions "people's character", hence a judgment.

48.	All the statements mention some element of judgment, hence option 4.
49.	Statement I mentions "strongest and most sinister" which implies judgment. Statement II is an inference as it draws conclusion from war. Statement III is a judgment as it mentions "insurance for our future".
50.	Statement I clearly mentions "should be switching…" hence it is a judgment. Statement II gives some figures, hence it is a fact. Statement III is an inference as "would lead to availability" suggests a conclusion.
51.	$\dfrac{a}{b} = \dfrac{1}{3}, \dfrac{b}{c} \times \dfrac{c}{d} \times \dfrac{d}{e} = \dfrac{b}{e} = 2 \times \dfrac{1}{3} = 3$, $\dfrac{c}{7} = \dfrac{c}{d} \times \dfrac{d}{e} \times \dfrac{e}{7} = \dfrac{1}{2} \times 3 \times \dfrac{1}{4} = \dfrac{3}{8}$ $\dfrac{a}{b} \times \dfrac{b}{e} \times \dfrac{c}{7} = \dfrac{1}{3} \times 3 \times \dfrac{3}{8} = \dfrac{3}{8}$
52.	$x = -0.5 \cdot \dfrac{1}{x}$ is the only $-$ive value
53.	$t_3 = \dfrac{3}{5}, t_4 = \dfrac{4}{6}, t_5 = \dfrac{5}{7}, \ldots t_{52} = \dfrac{52}{54}, t_{53} = \dfrac{53}{55}$ $t_3 \times t_4 \ldots \ldots t_{53} = \dfrac{3}{5} \times \dfrac{4}{6} \times \dfrac{5}{7} \times \ldots \ldots \times \dfrac{52}{54} \times \dfrac{53}{55}$ $= \dfrac{3}{5} \times \dfrac{5}{7} \times \ldots \dfrac{53}{55} \times \dfrac{4}{6} \times \dfrac{6}{8} \times \ldots \ldots = \dfrac{3}{54} \times \dfrac{4}{55} = \dfrac{1}{54} \times \dfrac{2}{9} = \dfrac{2}{495}$
54.	$2^{\frac{1}{2}} = \left(2^6\right)^{\frac{1}{12}} = \left(2^6\right)^{\frac{1}{12}}, 3^{\frac{1}{3}} = \left(3^4\right)^{\frac{1}{12}} = \left(3^4\right)^{\frac{1}{12}}$, $4^{\frac{1}{4}} = \left(4^3\right)^{\frac{1}{12}} = \left(4^3\right)^{\frac{1}{12}}$ $6^{\frac{1}{6}} = \left(6^2\right)^{\frac{1}{12}} = \left(6^2\right)^{\frac{1}{12}}, 12^{\frac{1}{12}} = (12)^{\frac{1}{12}}$, $\Rightarrow 3^{\frac{1}{3}}$ is largest.
55.	Length = l = $3x$, Breadth = b = $2x$, Height = h = $x \, 2(l \times h + b \times h)$ Area of four walls = $2\left(3x \times x + 2x \times x\right), = 10x^2$, Length doubled = $6x$. Breadth halved = x, Height halved = $\dfrac{x}{2}$. Area of four walls = $2(l + b)h$, $= 2(6x + x)\dfrac{x}{2} = 7x^2$, Decrease of 30 %
56.	Considering September data as 28 instead of 8 given in the question, we can draw the Venn diagram as follows
57.	$\left(\sqrt{40}\right)^2 + \left(\sqrt{36 + x^2}\right)^2 = \left(2 + x\right)^2$, $40 + 36 + x^2 = 4 + x^2 + 4x$ $4x = 72 \Rightarrow x = 18$, Diameter = 20 $\Rightarrow$ Radius = 10cms Area of Semicircle $= \dfrac{1}{2} \pi \times 10^2 = 50\pi$
58.	As Praja is being charged more than Raja, so definitely Praja is having luggage more than 30 kg. So answer is either 4th or 5th option. But 40 kg is giving straight the ratio of 2 : 1 which should come after taking away the free luggage allowance. So it is not possible. Hence the answer is 4th option.
59.	Let the free luggage allowance be x. So $35 - x = 2(25 - x)$. Solving this, we get $x = 15$ kg. So answer is 2nd option.
60.	Let x be no. of Children in first row & $x - 3$, $x - 6$, …… is Subsequent rows For 3 rows $x = 213$ i.e. 213, 210, 207 For 4 rows 162, 159, 156, 153 For 5 rows 132, 129, 126, 123, 120. No Solution is possible for 6 rows Or Let the number of children in each row be x. If number of rows is 6, then equation formed will be $x + x - 3 + x - 6 + x - 9 + x - 12 + x - 15$ = 630. Solving this we get $x = 112.5$ which is not an integer. So answer is 4th option.
61.	Area after Punching = Area of Square ABCD – Area of Circle $\left(2 \times 2 = 4\right)$ $\left(\pi \times 1^2 = \pi\right)$ + Area of the part Outside Square Sheet which is $= \dfrac{\pi - 2}{2}$ $= 4 - \pi + \dfrac{\pi - 2}{2} = \dfrac{8 - 2\pi + \pi - 2}{2} = \dfrac{6 - \pi}{2}$. So required proportion $= \dfrac{6 - \pi}{8}$. (Area of the square = 4)
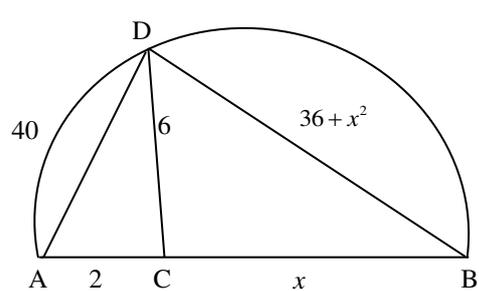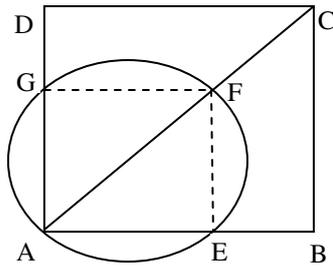
62. Required area = Area of Circle – Area of Square

AEFG = $\dfrac{\pi \times 1 - \sqrt{2} \times \sqrt{2}}{2} = \dfrac{\pi - 2}{2}$

63. Putting $x^{1/3} = y$.
So equation becomes $(y + 2)(y - 1) \le 0$.
So solution becomes $-2 \le y \le 1$.
So $-8 \le x \le 1$.
Hence answer is 1st option.
REMOVE FIGURE

64. One set would be the set S itself.
Other sets would be having common difference of 3, 9, 27, 37, 111 and 333.
So in all, we have 7 sets.
Hence answer is 4th option.

65. Looking at the graph for every 1 unit on x – axis there are 2 units on y – axis
$\Rightarrow y + x = 1, y - x = 2$, $y = 1.5, x = -0.5$
This can be cross checked with the options.
Option 2 & 3 are ruled out.
Now take another value such as
y + x = 2, y – x = 4, y = 3, x = -1.
Option 1 and 5 are ruled out.
Hence option 4.

66. Before dividing the number by 10, the only options possible for the sum of the numbers are 90 or 160 or 250 or 360. (as min sum is 11+13+15+17= 56 and max is 93+95+97+99=384)
Let the 4 numbers be $2a - 3$, $2a - 1$, $2a + 1$ and $2a + 3$.
So their addition is $8a$.
As this sum is divisible by 8, so it could only be 160 or 360.
Putting $8a = 160$.
So $a = 20$.
Hence the numbers are 37, 39, 41 and 43.
Hence answer is 3rd option.

67. $2x + y = 40$. As $x \le y$, so we get 13 values of x from 1 to 13.
For $x = 14$, we get $y = 12$ which is not possible.
So answer is 2nd option.

68. The totals of all the ratios are 189, 187, 221, 183 and 181.
The only prime number out of these numbers is 181.
So answer is 5th option.

69.

1	2	3	4	5	6

Task 2 can be assigned in 2 ways (3 or 4)
Task 1 can be assigned in 3 ways (5 or 6 and one of 3 or 4)
Task 3 can be assigned in 4 ways

Task 4 can be assigned in 3 ways
Task 5 can be assigned in 2 ways
Task 6 can be assigned in 1 ways
Using Fundamental Law of Multiplication
Required No. of ways
$= 2 \times 3 \times 4 \times 3 \times 2 \times 1 = 144$. ways.

70. $m_z y = b$, $m_x z = a$, $\dfrac{1}{m_z x} = a$, $m_z x = \dfrac{1}{a}$,

$\dfrac{m_z x}{m_z y} = \dfrac{1/a}{b}$, .

$m_y x = \dfrac{1}{ab} = ab$, So $a^2 b^2 = 1$, Hence $ab = \pm 1$.

Only 5th Option is not Satisfying this relationship.

71. $2.^{7x} \cdot 3^{-1.254} = \dfrac{8\sqrt{2}}{27}$,

$2^{.7x} \cdot 3^{-1.25} = 2^3 \cdot 2^{\frac{1}{2}} \cdot 3^{\frac{1}{2}} \cdot 3^{-3} = 2^{3+\frac{1}{2}} \cdot 3^{\frac{1}{2}-3}$, $= 2^{\frac{7}{2}} \cdot 3^{-\frac{5}{2}}$

Comparing Powers with Same bases,
$.7x = \dfrac{7}{2}, x = 5, -1.25y = -\dfrac{5}{2}, y = 2$, $\therefore$ 5th option.

72. $f(x) = \max(2x + 1, 3 - 4x)$, $f(x)$ will attain its maximum at $x =$? determined by when

$2x + 1 = 3 - 4x$, or $x = \dfrac{1}{3}$. At x

$= \dfrac{1}{3}$ $f(x) = f\left(\dfrac{1}{3}\right) = \max\left(2 \times \dfrac{1}{3} + 1, 3 - 4 \times \dfrac{1}{3}\right) = \dfrac{5}{3}$

73. Let digit at unit place is x and ten's place is y.
$\therefore 10y + x - (10x + y) = 18$,
$9y - 9x = 18$, $y - x = 2$
Six Cases Other than (13, 31) are (24, 42), (35, 53), (46, 64) (57, 75), (68, 86) (79, 97) are possible

74.
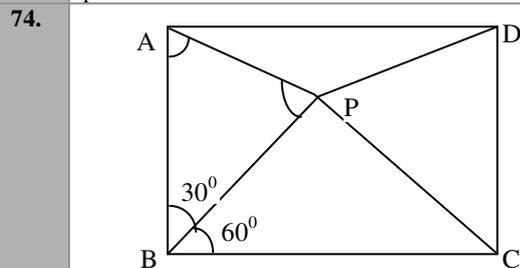
ΔBPC is equilateral
Δ APB , BP = AB $\Rightarrow$ Triangle is isosceles
$\angle ABP = 30° \Rightarrow \angle BAP = \angle APB = 75°$
$\Rightarrow \angle DAP = \angle ADP = 15°$
$\Rightarrow \angle APD = 180 - (15 + 15) = 150°$

75. Arun will cover 60 km in 2 hrs.

So Barun will take $\dfrac{60}{10} = 6$ hrs to meet Arun.

So in 6 + 2 = 8 hrs, Arun would have covered $30 \times 8 = 240$ km in 8 hrs.

So Kiranmala will take $\dfrac{240}{60} = 4$ hrs to overtake Arun.

Hence Kiranmala would start after 8 – 4 = 4 hrs after Arun.