CAT - 4

INSTRUCTIONS FOR THE TEST

1. The total time for the test is **120 minutes**.
2. This test is divided into **three sections** totally comprising 110 questions. Questions carry different marks, as indicated in the paper.
3. You may work **on any part of the test** at any time during the test.
4. For each question, four suggested answers are given of which only one is correct. There are four circles against each question number in the answer sheet. Each circle is designated as 1, 2, 3, 4 corresponding to your answer choices. Mark your response to each question by **darkening the circle** completely.
5. The last part of this test booklet comprises a **sample bubble sheet**. It is suggested that you answer all questions by shading the relevant oval in the bubble sheet.
6. Confine all rough work to whatever blank space is available in this test booklet. **No additional paper** may be used.
7. Using a HB pencil only. Use of calculators, scales and other measuring instruments is **not permitted**.
8. You will be required to demonstrate **adequate competence** on each of the three sections.
9. Wrong answers carry negative marks. The **negative marking scheme** is 1/3 of the marks allotted to the question. Hence desist from guessing wildly.

Section 1
Questions 32

1. The cost of 20 apples. 20 bananas and 20 oranges is Rs. 220. A boy had Rs. 19 for which he could buy an apple, two bananas and three oranges. But he wanted to buy three apples, two bananas and one orange by paying some more money. How much more money will he fall short of? (2 marks)

1] Rs.6 2] Rs. 5 3] Rs. 8 4] indeterminate

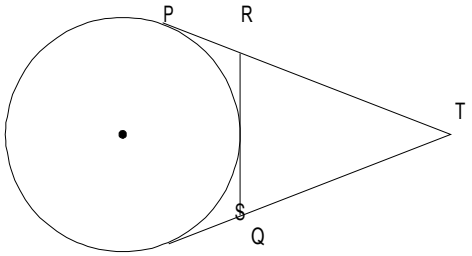
2. At the time of the birth of twins, the average age of a couple was 24 years. When the twins attained the mother's age, the average age of this family of four was 35 years. What was the father's age when the twins attained the mother's age? (2 marks)

1] 23 years 2] 62 years 3] 48 years 4] 52 years

3. Anoop and Sudheer have Rs. 28 each. Both have the money in the denomination of five rupees, one rupee and fifty paise coins. They have atleast one coin of each denomination. If Anoop and Sudheer have maximum and minimum possible number of coins respectively with them, then how many coins more than Sudheer does Anoop have? (1 mark)

1] 3 2] 37 3] 34 4] 48

4. In the given figure TP, TQ, and RS are tangents; and P, Q are the points of contact. What is the perimeter of ΔRST ? (2 marks)



1] $\frac{TP}{2}$ 2] 2TP 3] TP 4] Indeterminate

5. Manzoor had two equations containing three variables each. If they were x + 2y + 5z = 33, 2x + 3y + z = 27, then which of the following choice will help him get a unique solution for x, y and z? (2 marks)

1] 7x + 10y – z = 75 2] 8x + 13y + 13z = 147
3] 4z – x – y = 6 4] x + 5y + 3z = 34

6. There are some boys and some girls. If each child sits on one chair, one boy will have no chair to sit. If two boys sit on one chair and one girl occupies one chair, then three chairs are unoccupied. How many boys are there? (1 mark)

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

7. What is the length of the median which bisects the longest side of a triangle with sides $\sqrt{11}$, $\sqrt{15}$, and 4 cm ? (2 marks)

1] 9 cm 2] $\sqrt{11}$ cm 3] 3 cm 4] $3\sqrt{2}$ cm

8. 20% of a larger number is 2.3 less than 30% of a smaller number. The larger number also exceeds the smaller number by 10. What is the value of the larger number? (1 mark)

1] 67 2] 33 3] 53 4] 47

9. Of the two machines purchased, the first one's share of cost is 62.5%. Depreciation is to be calculated annually at the rates of 15% and 20% on the first and second machines respectively, of the value of each machine at the beginning of the year. At the end of two years, the total value of depreciation is what percent of the total cost? (Round up to first decimal place). (2 marks)

1] 30.8 2] 29.1 3] 25.3 4] 18.8

10. One-third of 24 litres of 75% milk, one-fourth of 32 litres of 62% of milk and one-fifth of 40 litres of 63% milk are mixed together. How many litres of the resulting mixture shall be replaced by pure water, so that the ratio of milk to water after replacement is 4:5? (2 marks)

1] 9.6 2] 16.8 3] 8.0 4] 16.0

DIRECTIONS questions 11 and 12: ***Read the following data***

The first word in a set A is called rank 1, the second is called rank 2, and so on. All possible four-lettered words are made using letters of the word PREY exactly once, and these word are arranged in the set A in the reversed alphabetical order (i.e. exactly opposite of the standard dictionary order).

11. What is the rank of the word PREY? (2 marks)

1] 17 2] 18 3] 16 4] 6

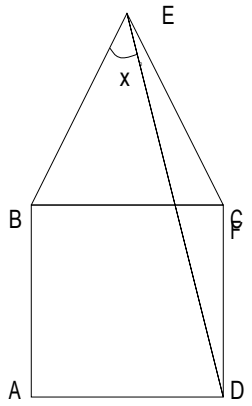
12. Which of the word will be ranked as 18? (1 mark)

1] PRYE 2] PYRE 3] PERY 4] PYER

13. A cow is tied to the corner of a square field of side 20 metres, with a rope of length 20 metres. A goat is tied to the diagonally opposite corner such that its grazing area just touches that of the cow. What is the area that can be totally grazed by the goat ? (2 marks)

1] $\frac{\pi[20(\sqrt{2}-1)]}{4}$ 2] 10 10 $(\sqrt{2}-1)$ 3] $20(\sqrt{2}-1)$ 4] None of these

14. In the given figure, equilateral triangle ECB surmounts square ABCD. What is $\angle x$? (1 mark)



1] 50^0 2] 45^0 3] 35^0 4] 30^0

15. A and B started a business by investing Rs. 35,000 and Rs. 13,000 respectively. At the end of every month, A withdraws certain amount from his investment and B invests the same amount as A has withdrawn. At the end of the year they share the profits in the ratio 1:1. Find the amount withdrawn by A every month. (1 mark)

1] Rs.1000 2] Rs.2000 3] Rs.3000 4] Rs.4000

16. When the length of a rectangle is decreased by thirty five percent and its breadth increased by fifty percent, the perimeter remains unchanged. By what percentage is the breadth less than the length? (1 mark)

1] $6\frac{2}{3}\%$ 2] 15% 3] 20% 4] 30%

17. A mechanical bug jumps 1 metre in four directions – north, south, east and west; every time returning to the original position before re-jump, and leaves an ink mark wherever it lands. Then from each of the new points thus created as starting points, the bug again jumps in all 4 directions, again coming back to the starting point before every jump, and leaving the ink mark. How many unique ink marks are thus created by the bug ? (2 marks)

1] 9 2] 11 3] 13 4] 16

18. In the previous questions, how many new spots were created in the second round of jumps ? (1 mark)

1] 4 2] 6 3] 8 4] 10

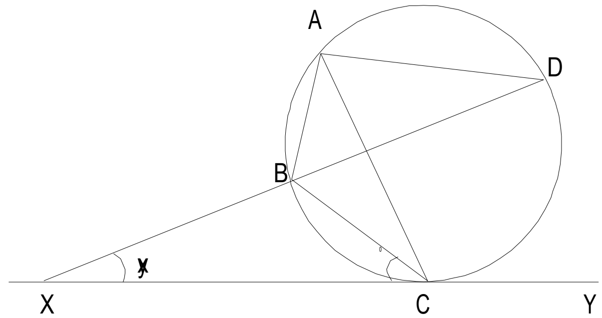
19. What is the remainder when 2^{73} is divided by 21? (1 mark)

1] 2 2] 6 3] 11 4] 13

20. A number when successively divided by 3, 4 and 7 leaves respective remainders of 2, 1 and 5. What is the remainder, when any such number is divided by 21? (1 mark)

1] 2 2] 4 3] 6 4] indeterminate

21. In the given figure, $\angle BXC$ is x^0 and $\angle BCX$ is y^0. In terms of x^0 and y^0, what is the value of $\angle DCY$? (2 marks)



1] $(x + y)^0$ 2] $(x - y)^0$ 3] $90 - (x + y)^0$ 4] $180 - (x + y)^0$

22. If $\log_{2} a \; 6 \log_{?} a^{2} \; 15 \log a \; ... + (2n \quad n) \log a \; 136 \quad 9$, then the value of n (2 marks)

1] 17 2] 18 3] 36 4] 37

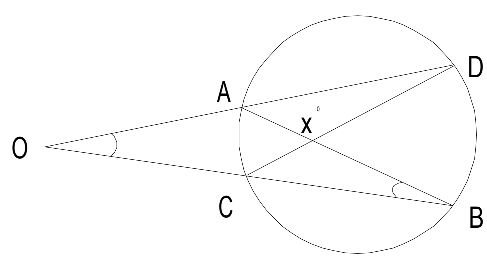
23. If $x = a\left(\frac{p^2 \quad q^2}{2pq}\right)^{\frac{1}{2}}$, then $\frac{\sqrt{x^2 \quad a^2}}{\sqrt{x^2 \quad a^2}} \quad \frac{\sqrt{x^2 \quad ax \quad a}}{\sqrt{x^2 \quad a^2}}$? (2 marks)

1] 1 2] 0 3] $\frac{p}{q}$ 4] $\left(\frac{p}{q}\right)^{\frac{2}{3}}$

24. If $\sqrt{x} \quad \sqrt{x \quad \sqrt{1 \quad x}} \quad 1$, then x^2 is ____ ? (2 marks)

1] 1 2] 0 3] $\frac{144}{625}$ 4] $\frac{256}{625}$

25. In the given figure, OA = 6, OC = 5, BC = 7, then what is DA ? (1 mark)



1] 10 2] 4.5 3] 4 4] 5

26. A, B, and C are members of clubs P, Q and R in such a way that each club has exactly two of the above three as members. The average contribution received by P from its two members is Rs.1,100. Similar averages of Q and R are Rs.1200 and Rs.1,000. Each one of A, B and C is exactly two membership each. If each one of the members contributed equal amounts to the two clubs he belongs to, what is the average value of the contributions made by A, B and C to the three clubs? (2 marks)

1] Rs.1.100 2] Rs.6,600 3] Rs.3,300 4] Rs.2,200

27. There are three numbers, which are in arithmetic progression, the common difference being 7. If the second number is diminished by 1 and the last number increased by 4, the numbers would be in geometric progression. Find the largest of the three numbers. (2 marks)

1] 13 2] 20 3] 24 4] 27

28. In triangle ABC, the side AB is extended to a point E such that BE = 3AB and the side AC is extended to a point D such that CD = 5AC. Find the area of the triangle AED, if the area of triangle ABC is 36 sq.cm^2. (2 marks)

1] 864 sq.cm^2 2] 432sq.cm^2 3] 216 sq. cm^2 4] 108sq. cm^2

29. Two persons A and B work at 75% and 50% of their work efficiency respectively and complete a work in $7\frac{1}{2}$ days. If A and B work at thrice and twice their work efficiency respectively, then in how many days will the work be completed? (1 mark)

1] $2\frac{1}{3}$ 2] $1\frac{4}{9}$ 3] $1\frac{7}{8}$ 4] indeterminate

30. When price of wheat increased by 44%, a family reduced its consumption in such a way that the expenditure on wheat is only 20% more than before. If 60 kg of wheat was the previous consumption. Find the decrease in the consumption. (1 mark)

1] 20 kg 2] $16\frac{2}{3}$ kg 3] 10 kg 4] None of these

31. Simplify $\frac{1 \quad 1 \quad 1 \quad \cdots\cdots \quad 1}{1 \cdot 3 \cdot 5 \cdot 7 \cdots\cdots (2x-1)(2x+1)}$. (2 marks)

1] $\frac{2x}{2x+1}$ 2] $\frac{2x}{2x-1}$ 3] $\frac{x}{2x+1}$ 4] $\frac{x}{2x-1}$

32. A dartboard has three concentric circles, small, medium and big. A person gets Rs. 10, Rs. 6 and Rs. 4 for hitting the small, medium and the big circles respectively. If he misses completely he loses Rs.15. The person hits each circle equal number of times but misses at least once on the whole. If he earns Rs.50 on the whole, what is the least number of times he could have thrown the dart? (1 mark)

1] 6 2] 14 3] 13 4] 16

Section 2
Questions 37

Direction for questions 33 to 51 : Read the passages and answer the questions that follow.

Passage 1 (each question is 2 marks)

MAN has 'needs'. He has basic physiological needs, like food and drink. He has other elementary needs, like clothing and heating. Finally he has, as it were, 'high standard' needs, like reading, listening to music, traveling, amusing himself. Human needs have no upper limit, but they have a lower limit – the minimum food necessary to maintain life.

The nature, magnitude, and form of human needs vary with cultural and geophysical environments, with class, with age, body size, sex, type, and degree of activity. The range of differentiation is indeed wide for the less elementary needs. But even for the very elementary ones there are noticeable differences.

Man satisfied his various needs in vastly different ways using an extremely varied 'basket' of commodities and services – bread, meat, wine, milk, cotton, wool, fuel, paper, steel, electricity, gas, and so on. One way of keeping an account in real terms of such an extraordinarily heterogeneous 'basket' is to refer to the energy value of each item. The unit of account generally used is the 'calorie'. A 'Kilo calorie' (kcal) represents the equivalent of the amount of heat required to raise the temperature of one kilogram of water by one degree centigrade. One kilowatt-hour is equivalent to 860 kilocalories. One horsepower-hour is equivalent to 641,7 kilocalories and one British Thermal Unit to 0,252 kilocalories.

Despite its apparent simplicity, this system of accounting is somewhat problematical and can be dealt with only by allowing a considerable margin of approximation. One of the main difficulties is afforded by the conversion of equivalents: their assessment involves arbitrary calculations in the attempt to express one form of energy in terms of another, to evaluate average efficiencies and load factors of major applications, and to rate the horsepower of machines in service.

'Just as a ball of celluloid poised on a jet of water from a fountain will keep its place and spin so long as energy is there, so life depends upon that flow of energy'. Man needs energy. But man himself produces energy. Most of his energy intake is lost in the form of heat, part is used in chemical processes, and part (about 10 percent) leaves the body as waste product, but some portion finally appears as nervous and mechanical activity. We cannot adequately measure the energy value of the nervous activity, but we can evaluate approximately the energy value of the mechanical activity. It has been calculated that the average efficiency of the human body as a machine varies from 10 to 25 percent depending on the type of work, the speed with which it is done, and the skill of the individual who is doing it. Mechanical efficiency of muscular work can be markedly affected by training. Improvements as great as 37 percent are quoted in the scientific literature. But it is generally admitted that for sustained work the maximum human efficiency to be expected is about 18 percent of the energy input.

Man can use his energy output to master and utilize other forms of energy. The more successfully he does so, the more he acquires control over his environment and achieves goals other than those strictly related to animal existence. 'Man', wrote Carlyle, 'is a tool-using animal. Weak in himself and of small stature, he stand on a basis, at most of the flattest soled, of some half square of foot insecurely enough… Three quintals are a crushing load for him; the steer of the field tosses him aloft like a waste rag. Nevertheless he can use tools. Without tools he is nothing. With tools he is all.'

33. The needs of men are satisfied in vastly different ways because
1] of the availability of a basket of commodities and services.
2] of the varying cultural and geophysical environments.
3] different man produced varying amounts of energy.
4] none of the above.

34. According to the passage, man is able to achieve goals other than those related to animal existence by
1] focusing his energy output towards utilizing other forms of energy.
2] himself producing energy, and minimizing wastage of energy.
3] increasing the effectiveness of muscular work by training.
4] more efficient usage of mechanical efficiency.

35. According to the passage.
1] The reason for a difference in human needs being wide for less elementary needs is because of class, age, body size, sex, type and degree of activity.
2] Average efficiency of human body as a machine may vary depending on some factors.
3] The maximum human efficiency that has been recorded is about 18 percent of energy input.
4] It is not possible to express one form of energy in to another because the system of accounting for energy uses significant approximations.

Passage 2 (each question is 1 mark)

Capital is made possible by saving. Only by forgoing present consumption can a society shift resources to the production of capital equipment. It is generally admitted that in any agricultural society, given the low per capita income, per capita saving is – in absolute terms – very low. This circumstance is badly aggravated by the way saved resources are used. Temples, pyramids, mansions, jewelry, warfare, and so forth generally absorb a large quota of resources squeezed out of current income. Furthermore, pre-industrial societies are typically characterized by inadequate transport facilities. Mass transportation is generally non-existent and communications are costly and insecure. Consequently any pre-industrial society must keep inventories in much larger proportion to current production than any industrial society does. This is true for any type of commodity, but particularly so for basic necessities. 'Keeping capital intact' recurrently requires large quotas of saving to rebuild inventories depleted by frequent famines. Such inventories are a form of investment, i.e. of capital accumulation, but with a 'stabilizing' character. Generally investment of a 'developmental' character is very small in any agricultural society.

It has been indicated that a society needs different amounts of capital at different stages. In order to pass from, let us say, an agriculture type of economic organization to an industrial one, a society must make substantial efforts to build up the capital necessary for the transition. If this transition is gradual, the process can be relatively smooth. If, on the contrary, the transition is forced to take place in a very short time, the process is bound to be painful. In such case, ' industrial' capital must be squeezed out from an income that is still 'agricultural'. The more abrupt the transition, the greater the hardships.

To accomplish the transition, a given society must reach an absolute level of capital formation, the so-called 'critical minimum level', failing which the transition is not possible. But an agricultural society cannot industrialize by increasing beyond the 'critical minimum' the total volume of wooden ploughs or hoe-sticks produced, any more than hunters can become farmers by increasing their output of flaked stones and arrows. Indeed, the required changes in capital formation are of qualitative as well as of a quantitative nature. The qualitative changes imply that the active population must acquire new skills, and that the total

population must adopt new patterns of living. Here we only have to remember that the need for new skills may mean that further capital is needed for investment in education.

In all agricultural society of our past we find that, mainly because of limitations of energy sources known and exploited, the great mass of people can hardly afford to satisfy anything but the more elementary needs, food, clothing, and housing, and even these at rather unsatisfactory levels. Correspondingly, most of the available resources are employed in agriculture, textile manufacture, and building.

Of these three sectors, agriculture is always by far the predominant one. It absorbs the greatest quota of available capital and labour. Further, it somehow represents the pivotal point around which all other activities tend to revolve. Building makes a large use of timber. And textile manufacture uses materials – wool or linen, cotton or silk – that are also produced 'in the fields'.

On the fringe, there is always some trade – in one form or another – heavily concentrated on agricultural products (grains, wines, spices, timber, etc.) and textiles. In terms of labour employed, trade is generally a minor sector, and merchants a minority. But trade always plays a strategically dynamic role. It allows specialization and better use of available resources. Its fluctuations are of paramount importance to the fortunes of the whole economy. All historical records seem to demonstrate that where trade flourished, demographic and economic levels were the highest attainable within the range of agricultural possibilities. Actually, almost all the great agriculture civilizations of the pre-industrial past were founded on the expansion of the mercantile sector. And it was an exaggerated expansion of this sector in seventeenth- and eighteenth-century England that created the material preconditions for the emergence of the Industrial Revolution.

36. According to the passage, all of the following are true except
1] A reason for low per capita saving in an agricultural society is low per capita income.
2] For a society to move from a level to a higher level, there needs to be an minimum absolute level of savings.
3] Every time a society reaches a "critical minimum" amount of capital, it moves to a higher level of society
4] Agricultures uses a larger amount of capital and resources when compared to other elementary needs.

37. According to the author, the ingredients that lead to a society moving from agricultural to industrialization necessarily needs
i] a minimum level of capital
ii] a increase in investment in education.
iii] an increase in basic skill sets of all its members iv]
a change in patterns of living of entire population.

1] i and ii, but not iii 2] i and iii 3] i and iv 4] i, iii and iv

38. According to the passage, agricultural society's investment in areas that enhance quality of work and life is less because
1] their saving are spent in unproductive areas that do not reap returns on investment.
2] of lack of transport facilities resulting in a need to store higher amount of capital as inventory.
3] of the need for accumulation of capital to meet the demands that may arise in times of emergency.
4] All of the above.

39. According to the author, Industrial Revolution in England was due to
1] significant rise in capital formation by the agricultural society.
2] an effort of the mercantile class that harnessed efforts of the agricultural class.
3] a class struggle between the producers (the agricultural society) and the consumers (the mercantile class)
4] an exponential increase in trading activity that lead to favourable conditions for the industrial revolution.

Passage 3 (each question is 1 mark)

Improvement in quality of the human species is not necessarily alternative to a growth in quantity. A larger population may mean greater possibilities in the division of labour and economies of scale. These possibilities may contribute to the growth of per capita income, to better levels of living, and to better education. But beyond certain points, quantity and quality may well become competitive. The question whether the allocation of available resources between quantity and quality has been on the whole well done in the history of mankind, is impossible to answer. Among other things it implies the objectively impossible assessment of all kinds of ethical and cultural values and standards. Some facts, though, may perhaps help to give at least a general idea about what the general tendency has been. When the Neolithic Revolution occurred about ten thousand years ago, there were – as we have seen – fewer than 20 million people on the earth. In 1950 A.D. there were almost 2,500 million. Now, of the adult portion of this population, about 50 percent were totally illiterate. A mere glance at these figures immediately suggests that far too much of the available resources was used up by the quantitative increase of mankind at the expense of its qualitative improvement.

We must invest more of our resources in the qualitative improvement of man. As Julian Huxley once said, we must place meaningful quality above meaningless quantity. There must be a combined effort in both the public and the private sectors toward such a goal. In this regard it should be remembered that what is needed is not merely more technical knowledge. What man today desperately needs is the kinds of education that allows him to make wise use of the techniques he possesses. 'We live at a time when man, lord of all things, is not Lord of himself. He feels lost amid his own abundance…… To modern man is happening what was said of the Regent during the minority of Louis XV: he had all the talents except the talent to make use of them.'

A well-known and reputable economist recently wrote that 'we do not know what the purpose of life is, but if it were happiness, then evolution could just as well have stopped a long time ago, since there is no reason to believe that men are happier than pigs or than fishes. What distinguishes men from pigs is that men have greater control over their environment, not that they are more happy. And on this test, economic growth is greatly to be desired'. The basic criticism of such a piece of logic was written centuries ago by Plato (Eutidemos, XI): ' Wealth is not a blessing in itself; if directed by ignorance wealth is a greater evil than poverty because it can push things more strongly than poverty in the wrong direction; if directed by wisdom and knowledge, wealth is a blessing'. 'Control over environment' may be used as it was used at Coventry and Hiroshima. If this is the purpose of human life, then I, for myself, would rather be a pig. We do not know what human happiness is. But we know what it is not. We know that human happiness cannot thrive where intolerance and brutality prevail. There is nothing more dangerous than technical knowledge when unaccompanied by respect for human life and human values. The introduction of modern techniques in environments that are still dominated by intolerance and aggressiveness is a most alarming development. Ethical progress has to accompany technical and economical development. While teaching techniques, we have to teach also respect for the dignity and worth and indeed the sanctity of human personality. Urgent action is needed lest the last state turn out to be worse than the first.

40. According to Plato,
1] Men are happier then pigs and fishes.
2] An ignorant wealthy person is potentially more dangerous than an ignorant poor man.
3] The end usage of wealth determines whether the uses is good or evil.
4] Intolerance and brutality to another human is usage of wealth in the wrong direction.

41. The authors argument favours quality over quantity on the ground that
1] more resources are used by people who do not deserve it, than by those who could use it better.
2] a quantitative increase in population has a negative correlation with the quality of population.
3] while quantity may itself be not harmful, quality recognizes the dignity and worth of human personality.
4] close to 50% of the world's population in 1950 was illiterate.

42. "He feels lost amid his own abundance…..". The "He" refers to
1] the Lord 2] Louis XV 3] Julian Huxley 4] Man

43. The author uses the example of Plato largely to
1] negate the opinion of the economist favouring economic growth.
2] bolster his argument favouring quality over quantity.
3] show how inhuman and barbaric man can be in trying to control the environment, as demonstrated in examples of Coventry and Hiroshima.
4] juxtapose the ideas of the economist with that of Plato to provide a rational and balanced perspective of the "quality v/s quantity" debate.

Passage 4 (each question is 2 marks)

This brings us to the central philosophical issue of quantum mechanics, namely, " What is it that quantum mechanics describes?" Put another way, quantum mechanics statistically describes the overall behavior and/or predicts the probabilities of the individual behavior of what?

In the autumn of 1927, physicists working with the new physics met in Brussels, Belgium, to ask themselves this question, among others. What they decided there became known as the Copenhagen Interpretation of Quantum Mechanics. Other interpretations developed later, but the Copenhagen Interpretation marks the emergence of the new physics as a consistent way of viewing the world. It is still the most prevalent interpretation of the mathematical formalism of quantum mechanics. The upheaval in physics following the discovery of the inadequacies of Newtonian physics was all but complete. The question among the physicists at Brussels was not whether Newtonian mechanics could be adapted to subatomic phenomena (it was clear that it could not be), but rather, what was to replace it.

The Copenhagen Interpretation was the first consistent formulation of quantum mechanics. Einstein opposed it in 1927 and he argued against it until his death, although he, like all physicists, was forced to acknowledge its advantages in explaining subatomic phenomena.

The Copenhagen Interpretation says, in effect, that it does not matter what quantum mechanics is about. The important thing is that it works in all possible experimental situations. This is one of the most important statements in the history of science. The Copenhagen Interpretation of Quantum Mechanics began a monumental reunion which was all but unnoticed at the time. The rational part of our psyche, typified by science, began to merge again with that other part of us which we had ignored since the 1700s, our irrational side.

The scientific idea of truth traditionally had been anchored in an absolute truth somewhere "out there"—that is, an absolute truth with an independent existence. The closer that we came in our approximations to the absolute truth, the truer our theories were said to be. Although we might never be able to perceive the absolute truth directly—or to open the watch, as Einstein put it—still we tried to construct theories such that for every facet of absolute truth, there was a corresponding element in our theories.

The Copenhagen Interpretation does away with this idea of a one-to-one correspondence between reality and theory. This is another way of saying what we have said before. Quantum mechanics discards the laws governing individual events and states directly the laws governing aggregations. It is very pragmatic.

The philosophy of pragmatism goes something like this. The mind is such that it deals only with ideas. It is not possible for the mind to relate to anything other than ideas. Therefore, it is not correct to think that the mind actually can ponder reality. All that the mind can ponder is its ideas about reality. (Whether or not that is the way reality actually is, is a metaphysical issue). Therefore, whether or not something is true is not a matter of how closely it corresponds to the absolute truth, but of how consistent it is with our experience.

The extraordinary importance of the Copenhagen Interpretation lies in the fact that for the first time, scientists attempting to formulate a consistent physics were forced by their own findings to acknowledge that a complete understanding of reality lies beyond the capabilities of rational thought. It was this that Einstein could not accept. "The most incomprehensible thing about the world", he wrote, "is that it is comprehensible." But the deed was done. The new physics was based not upon "absolute truth," but upon *us*.

Henry Pierce Stapp, a physicist at the Lawrence Berkeley Laboratory, expressed this eloquently:
[The Copenhagen Interpretation of Quantum Mechanics] was essentially a rejection of the presumption that nature could be understood in terms of elementary space-time realities. According to the new view, the complete description of nature at the atomic level was given by probability functions that referred, not to underlying microscopic space-time realities, but rather to the macroscopic objects of sense experience. The theoretical structure did not extend down and anchor itself on fundamental microscopic space-time realities. Instead it turned back and anchored itself in the concrete sense realities that form the basis of social life…. This pragmatic description is to be contrasted with descriptions that attempt to peer "behind the scenes" and tell us what is "really happening."

44. According to the philosophy of pragmatism
1] what the mind ponders, in reality, is an illusion.
2] what is true is not determined by proof of its correlation to absolute truth, but by the consistency of our experiences.
3] the mind converts ideas into reality.
4] the mind converts realities into ideas.

45. According to the Copenhagen Interpretation
1] Newtonian principles of physics were adequate to explain concepts in subatomic phenomenon.
2] absolute truth could only be achieved with a combination of rational and irrational psyche.
3] there is a correlation between reality and theory.
4] rationality alone was incapable of a complete evaluation of reality.

46. "The most incomprehensible thing about the world is that it is comprehensible." By this Einstein
1] mocked the attempt of quantum physicists to explain the functioning of the universe.
2] accepted defeat on the argument that new physics was based not upon absolute truth but upon us.
3] demonstrated his opposition to the view that complete understanding of reality lay beyond the capability of a rational mind.
4] won over the critics of Newtonian physics and rejected the theories of quantum mechanics.

47. According to the author,
1] Elementary space-time realities was insufficient to understand the complexities of nature.
2] The Copenhagen Interpretation is an epoch making annul in the history of science.
3] the Copenhagen Interpretation was a starting point of a series of interpretations that lead to the formulation of definitions of quantum mechanics.
4] Einstein disapproved of the usage of quantum mechanics to explain subatomic phenomena.

Passage 5 (each question is 1 mark)

In 1987 two reports castigated Britain's preparation and development of her managers in comparison with other leading industrial nations. The hangover of management as a class was still there. Some of the discrepancies were telling:

-- In Japan and the USA some 85 percent of top managers had degrees whilst the only available comparative figure in Britain was 24 percent.

-- Britain graduated only 1,200 MBAs in 1987 compared with 70,000 in the USA.

-- Nearly half of America's 300 biggest companies provided five days off the job training each year for their managers. The comparable figure in Britain (with some noticeable exceptions) was closer to one.

-- Most would-be managers in West Germany do not join their firm until the age of 27 after periods in an apprenticeship, in military service and in 6-year university degrees, whereas the well-educated Britisher joins at 22.

The two reports only confirmed what was long suspected that British managers were amateurs, sometimes talented amateurs, by comparison with other managers in other countries. The new organizations needed something better.

The reports found ready listeners both among leaders of business and among the young. There was an explosion of interest in MBA degrees, a rush by organizations to link their development plans to some form of qualification and a general readiness to accept that at least the technical knowledge and skills of management, ' business education' as the reports termed it, could be taught and should be taught at an early age even if the human and conceptual skills needed to be honed by experience. The new activity was an outward and visible sign that management was increasingly seen to be the name for an activity and not a class of people. Another discontinuity had occurred even if not everyone perceived it this way at first.

It cannot stop, however, with business education and early qualifications. If executives in every part of the organization, any organization, are to be truly professional they must continue to build on that early base of understanding. Life for a manager, say the Japanese, should be a continual process of self-enlightenment, which is their way of saying that study and learning should never stop. In Japanese organizations, in fact, the seniors spend more

time on thinking and study than their juniors, reading books and articles; meeting with experts; going on study tours to find out how their competitors work; sitting with their subordinates, *listening* to them not talking at them.

The Japanese are more conscious than most that the other two skills of management, as defined long ago by Professor Katz of Harvard, the human skills and the conceptual skills, are as important as the technical skills, Neither of these two skills can be taught in the classroom, although they can be discussed and debated there; both skills need to be developed by practice, improved by comment, sketched by example; they have to be worked at, for they do not come easily to most people or without effort.

The point about the new organizations is that everyone in the core will increasingly be expected to have not only the expertise appropriate to his or her particular role but will also be required to know and understand business, to have the technical skills of analysis and the human skills and the conceptual skills and to keep them up to date. Intelligence, for the manager, has three dimensions. The Japanese use mentors to make sure it happens, at least at the beginning. The Americans rely on a philosophy of individual initiative and corporate support which suits their more individualistic culture. The properly intelligent manager, they believe, will develop himself or herself. The British have hitherto relied on a Darwinian belief that the best will come through in the end, but that belief is a wasteful and a cruel philosophy in a world where good jobs are precious and talent rare. The threefold intelligence which the new organizations need in all their people does not just happen. The seeds of intelligence may have to be there in the beginning, at the recruitment stage, but those seeds will need a climate in which to germinate and careful husbandry to let them grow. The intelligent organization has to be a learning organization, at every level.

America's big corporations talk of five days off-the-job training for every executive every year. One British bank is trying to gear up its middle managers to run a kind of federal organization, and is currently requiring them to spend nine weeks every year on study courses. That is 20 percent of their working time. Perhaps it should not all be spent on courses, but to expect the intelligent executive to devote one fifth (one day a week) of his or her time preparing themselves for a different and a better future would not be unreasonable in new organizations. It has, after all, long been a tradition of universities that one day a week should be reserved by their faculty for study and research. If all organizations are going to be universities of a sort, pursuing truth in their own fields, running a learning culture, growing new knowledge and new people, then 20 percent of time devoted to these ends would not be a wasted investment.

48. The British, according to the author, believe that
1] in the corporate world, the rule of the game is survival of the fittest.
2] training on the job is a wasted investment.
3] Americans are individualistic in their approach to life and business
4] not all skills of management can be learnt in a class room.

49. According to the author, the Japanese spend more time in thinking and studies as they grow old because
1] human and conceptual skills do not come easily to all.
2] of their belief in the continual process of self-enlightenment
3] listening to them, is more important than talking.
4] youngsters do not have the patience and skills to learn from experience.

50. According to the author, one of the reasons why the British did not consider business education important before 1987 was
1] the lack of colleges offering the MBA degree.
2] a lack of interest among the student community for management education
3] the belief that technical knowledge and skills of management could not be taught at an early age.
4] none of the above

51. All of the following are true about acquisition of three dimensions of intelligence, except
1] according to the Japanese mentors should guide the youth acquiring these skills.
2] in the American way, given the infrastructure and support, the intelligent manager would learn how to acquire these skills.
3] according to the British, if the seeds of intelligence are sown, an environment that encourages and nurtures it during growth would be sufficient.
4] none of the above.

Directions for questions 52 and 54 : A passage is given followed by four options. Choose the one that captures the idea of the passage in the most precise and concise manner, without changing the context of the passage. **(All questions are for 2 marks)**

Passage

52. Paradoxically, rich societies seem to breed dependency. If you are poor you are forced in to self-sufficiency. As you get rich it is easier and more sensible to get other people to do what you do not want to do or cannot do, be it fixing the roof or digging the garden. It makes economic sense to let others make your clothes and to buy them in the store, that way you get better clothes and more time to do what you are good at. It goes on and on. Convenience foods take the chore out of cooking, and package holidays the work out of leisure. We all of us become more specialized, better at one thing and worse at others. Like knowledge-based organizations we contract out everything we are not good at and so breed a raft of services on which we now depend.

1] As you get richer, you spend more time on activities that you are good at, and outsource the others, there by breeding dependency. Eg. Fixing roofs, digging garden, etc.

2] Over time, one tends to specialize and focus on things they are good at. Outsourcing other activities makes economic sense because you spend more time in activities that you are best at. Hence you become richer, just like knowledge based organizations.

3] Being poor forces one into self – sufficiency and being rich forces us into dependence. The richer you get, the more you outsource activities that you do not specialize in, and as a result spend more time on activities that you are best at, making you richer.

4] While a poor person is forced into self–sufficiency, it makes economic sense for a rich man to outsource non-core activities like fixing the roof or digging the garden, etc. This way we focus on tasks we are better at, become specialists at some and novices on others, there by breeding a society that is dependent. A knowledge based organization works in a similar way.

Passage

53. When I tell my friends that I study physics, they move their heads from side to side, they shake their hands at the wrist, and they whistle, " Whew! That's difficult." This universal reaction to the word " physics" is a wall that stands between what physicists do and what most people think they do. There is usually a big difference between the two. Physicists themselves are partly to blame for this sad situation. Their shop talk sounds like advanced Greek, unless you are Greek or a physicist. When they are not talking to other physicists, physicists speak English. Ask them what they do, however, and they sound like the natives of Corfu again.

On the other hand, part of the blame is ours. Generally speaking, we have given up trying to understand what physicists (and biologists, etc) really do. In this we do ourselves a disservice. These people are engaged in extremely interesting adventures that are not that difficult to understand. True, how they do what they do sometimes entails a technical explanation which, if you are not an expert, can produce an involuntary deep sleep. What physicists do, however, is actually quite simple. They wonder what the universe is really made of, how it works, what we are doing in it, and where it is going, if it is going anyplace at all. In short, they do the same things that we do on starry night when we look up at the vastness of the universe and feel overwhelmed by it and a part of it at the same time. That is what physicists really do, and the clever rascals get paid for doing it.

1] There are two reasons why physicists are not well understood. One is because they talk in an incomprehensible technical language that sound like Greek to a layman and the second is that they research ordinary things and are paid for it.

2] People's understanding of what physicists do is different from reality. A reason for this is the technical jargon in their explanations. Another is our refusal to understand what they do, which actually is rather simple; and the surprising thing is that they make a living out of doing these simple but interesting things.

3] While physicists do interesting things, little is known to a layman about what they do and how they do it. There are two reasons for this. One is that explanation of their work requires understanding of technical terms and the other is the lack of appreciation of the layman into the work done by the physicists.

4] As in the case of all sciences, technical jargon keeps physics away from the common man. While physicists are unable to express themselves to the common man, the common man has lost interest in physics.

Passage

54. It will be 2040 before this scenario fully becomes a reality, but the people who will be old then are alive now and unless they quickly change their breeding habits the numbers of their children are quite predictable. This world will happen and it will start to happen before the end of this century.

Once again, there have been old people before, but never before so many of them. I knew only one grandparent – the others had died before I was born. My children knew all four. Their children will almost certainly know a great-grandparent or two. People in their sixties and retired will still be someone's children. The infrequent has become the commonplace and the world as we know it will inevitably change in some way. It is happening because, in the richer countries, it is becoming harder to die.

1] By 2040, if the current youth population does not change its breeding habits, the percentage of older people in the world population would put a strain on resources. This will be more acute in richer countries with better health facilities.

2] Notice the aging population and that with every passing generation, the probability of a child seeing the generation before his parents becomes higher. There would be more older people, especially in richer countries than ever before and given the current birth rates this would be a reality by 2040, unless youth of today have more children.

3] While there are fewer people dying and fewer children being born, by 2040 the population of older people would be at its highest and children would be able to see not only their grand parents, but even great-grand parents. And this is most likely to happen in richer countries.

4] As birth and death rates decline, the impact on rich countries of aging population would be high. Chances are that you will live to see the birth of you great grand children, unless you change your breeding habits.

Directions for questions 55 and 60 : Each questions has 5 or 6 sentences labeled with an alphabet. Arrange the sentences so as to form a coherent paragraph. **(Questions 56, 58 and 60 are for 2 marks each, the rest are for 1 mark each.)**

55. A. Marley was dead, to begin with.
B. There is no doubt whatever about that.
C. The register of his burial was signed by the clergyman, the clerk, the undertaker, and the chief mourner.
D. Scrooge signed it.
E. And Scrooge's name was good for anything he chose to put his hand to.
1] ABCDE 2] ACBDE 3] ACEDB 4] BACED

56. A. He attracted me by three things: his candid simplicity, his marvelous familiarity with ancient armor, and the restfulness of his company- for he did all the talking.
B. It was in Warwick Castle that I came across the curious stranger whom I am going to talk about.
C. We sat together, and he at once began to say things which interested me.
D. Presently he turned to me and said, just as one might speak of the weather, or any other common matter- “You know about transmigration of souls; do you know about transposition of epochs- and bodies?”
E. For as he talked, he seemed to drift away imperceptibly out of this world and time, and into some remote era and old forgotten country.
F. And exactly as I would speak of my nearest personal friends or enemies, or my most familiar neighbors, he spoke of Sir Bedivere, Sir Bors de Ganis, Sir Launcelot of the Lake, Sir Galahad, and all the other great names of the Table Round.
1] DBACEF 2] BACEFD 3] BCAFED 4] CABFED

57. A. He called at a house just after dark one evening, knocked, and when the occupant came to the door, shot him dead, and then tried to escape, but was captured.
B. He did many such things, but at last he did something that was serious.
C. Baldwin, from his boyhood up, had been of a vindictive, malignant, quarrelsome nature.
D. He put a boy’s eye out once, and never was heard upon any occasion to utter a regret for it.
E. For instance, there was the Baldwin case, in Ohio, twenty-two years ago.
F. This country, during the last thirty or forty years, has produced some of the most remarkable cases of insanity of which there is any mention in history.
1] CEABDF 2] FADBCE 3] FECDBE 4] FECEBD

58. A. One day, everybody was talking about it.
B. Dil was on his way to work at the construction site when he stopped briefly to listen to a man propounding the benefits of a herb against impotence.
C. It had even been printed in the newspapers.
D. Then he noticed, out of the corner of his eye, long lines of goats converging onto the green. "What's going on?" he asked.
E. And the people told him: "Everybody's buying meat so they can have one last good meal before they die."
F. A great and learned *sadhu* had prophesized a conflagration, a natural disaster of such proportions that more than half of the world's population would be killed.
1] ABDFEC 2] FACBED 3] FACDEB 4] ACFBDE

59. A. He told me that it was Elvis' wavy hair and the way he moved his body.
B. About nine o'clock on Saturday morning I decided to ask Eugene Correthers, one of the older boys, what it was that made this Elvis guy so special.
C. Whatever it was he had hidden away must have been pretty darn good because he had every young girl at the orphanage wrapped around his little finger.
D. I mean, he had a head, two arms and two legs, just like the rest of us.
E. At ten years old I could not figure out what it was that this Elvis Presley guy had that the rest of us boys did not have.
1] DEBAC 2] EABCD 3] EDBAC 4] EDCBA

60. A. *What's a jarwal?*
B. The jarwal stared at her malevolently, saliva dripping from its gaping jaws, making its fearsome teeth glisten in the harsh winter sunlight.
C. I don't know.
D. A bit like in Alien, only more like the maggot.
E. Something fierce and nasty.
F. A huge maggot-like beastie with a ferocious temper and huge teeth.
1] ACEBDF 2] AECBDE 2] BACEDF 4] BACEFD

Directions for questions 61 to 69 : Each of the following has a statement structured in four different ways. Select the one which is concise, precise and is grammatically correct. **(All questions are for 1 mark)**

61. 1] The number of students applying for the exams are on the increase.
2] The number of student applicants is on the increase.
3] The number of students applying for the exam is on the increase.
4] Increasingly students are applicants for this exam.

62. 1] I am in opposition of him joining the board as a non-executive director.
2] I oppose his joining the board as a non-executive director.
3] I oppose him joining the board as a non-executive director.
4] His joining the board as a non-executive director, I am in opposition of.

63. 1] In order to facilitate collective bargaining, a union was formed.
2] The union was formed in order to facilitate collective bargaining.
3] An union was formed to facilitate collective bargaining.
4] Collective bargaining, for the facility of which, a union was formed.

64. 1] The reason her and her sister decided to take the tram was that there was a forecast about an impending storm.
2] The reason she and her sister decided to take the tram was because there was a forecast about an impending storm.
3] The reason for she and her sister deciding on taking the tram was because there was a forecast about an impending storm.
4] The reason she and her sister decided to take the tram was that there was a forecast about an impending storm.

65. 1] More leisure, as well an abundance of goods, are attainable through automation.
2] More leisure and goods is attainable by means of automation.
3] More leisure as well as an abundance of goods is attainable through automation.
4] Increased leisure and abundant goods are attainable if one uses automated means.

66. 1] Being that the United States has a food surplus it is hard to see why anyone in that country should go hungry.
2] Since the United States has a food surplus, it is hard to see why anyone in that country should go hungry.
3] Being that the United States has a food excess, it is hard to see why anyone in that country should starve.
4] Since food is in excess in the United States, it is very strange that there are people hungry in the country.

67. 1] What a man cannot state, he does not perfectly know.
2] A man cannot state if he does not perfect know.
3] A man cannot perfectly know if he does not state.
4] What a man cannot state is the reason he does not perfectly know.

68. 1] There is no objection to him joining the party.
2] There is no objection on him joining the party.
3] No objection will be raised upon him joining the party.
4] There is no objection to his joining the party.

69. 1] Everyone is expected to attend the afternoon session but the field supervisor and I.
2] Everybody is expected to attend the afternoon session but the field supervisor and I.
3] Everyone is expected to attend the afternoon session but the field supervisor and me.
4] All are expected to attend the afternoon session but the field supervisor and myself.

Section 3
Questions 41

Directions for questions 70 to 74 : (The questions are for 2 marks each)

The following table gives details of 2 tests CAT and XAT held in 2005.

Test	No. of Parts	No. of sections	No. of questions	Marks for the question	Marks for incorrect answer
CAT	3	6	130	1 or 2	– 1/3 of marks for the question
XAT	Not Applicable	4	145	1	– 1/4 of marks for the question

CAT was of 3 parts. Part 1 had sections 1 and 2, part 2 comprised section 3 and 4, and part 3 comprised sections 5 and 6. Section 1, 3 and 5 comprised questions of 1 mark each, and the other sections were of questions of 2 marks each.

Sectional net scores are computed as (number of correct answers $\times$ marks for the questions) + (number of incorrect answers $\times$ marks for incorrect answers).

Total score is computed as sum of sectional scores + marks for un-attempted questions. All un-attempted questions carry marks of – 0.25 in both papers.

Given below is the performance of four friends in the two tests. (C = Number of Correct responses and I = Number of Incorrect answers)

		Section 1		**Section 2**		**Section 3**		**Section 4**		**Section 5**		**Section 6**	
		C	**I**	**C**	**I**	**C**	**I**	**C**	**I**	**C**	**I**	**C**	**I**
Amit	**CAT**	7	3	5	2	6	2	8	1	20	4	6	0
	XAT	12	3	18	4	22	2	16	3	-	-	-	-
Alok	**CAT**	20	10	0	0	22	10	0	0	15	9	4	4
	XAT	18	2	18	8	20	5	14	2	-	-	-	-
Anil	**CAT**	14	2	2	2	15	2	2	2	16	2	2	2
	XAT	15	4	15	2	18	4	18	4	-	-	-	-
Arun	**CAT**	22	0	0	0	0	2	7	2	20	3	6	3
	XAT	12	0	18	4	19	2	20	12	-	-	-	-

70. Who scored most in CAT ?
1] Amit 2] Anil 3] Alok 4] Arun

71. Who scored least in XAT ?
1] Amit 2] Anil 3] Alok 4] Arun

72. The cut-off in CAT was net score of 12 in Part 1, 15 in Part 2 and 18 in Part 3. How many of the friends scored more than the cut-offs in all three parts of the CAT paper ?
1] 1 2] 2 3] 3 4] 0

73. Who got the maximum negative marks in CAT ? (i.e. exclude all positive marks scored from the total score.)
1] Amit 2] Anil 3] Alok 4] Arun

74. Least absolute difference between the two tests shows most consistency. Who showed most consistency ?
1] Amit 2] Anil 3] Alok 4] Arun

Directions for questions 75 to 78 : (The questions are for 1 mark each)
This is a story of 6 friends each of who secured admission to different B-schools. When the time came to make a choice, there was absolute chaos. Can you help them decide which B-school they should choose, based on the following rules.

Name	Final Admission Offers from these B-schools
Anjaan	IIM – A, MDI, SP Jain, FMS
Bekar	IIM – C, IIM – B, FMS
Chatur	IIM – I, IIM – K, MDI
Dukhi	XLRI, SP Jain, TISS
Kushal	XLRI, IIFT, Bajaj, IIM – K
Mangal	IIM – L, IIM – K, FMS

Colleges that are located in the same city are FMS, MDI and IIFT in Delhi, and SPJain, Bajaj and TISS in Mumbai. All other colleges are in different cities. It is also known that
- ¾ If Anjaan chooses IIM – A, then Mangal chooses IIM – L. Else both go to FMS.
- ¾ Not more than 3 friends go to colleges in the same city.
- ¾ If Dukhi joins SP Jain, then Kushal chooses XLRI.
- ¾ If Chatur chooses MDI, then Bekar chooses either IIM – B or IIM – C.
- ¾ If Dukhi joins XLRI, then Kushal too chooses XLRI.
- ¾ If Anjaan chooses IIM – A, then atleast one of the 6 friends chooses XLRI.

75. No friend went to XLRI. Then we can say that
1] Anjaan went to SP Jain. 2] Dukhi went to TISS.
3] Kushal went to IIM – K. 4] Mangal went to IIM – K.

76. If Mangal chooses IIM – L and Chatur chooses MDI then which of the following is definitely true?
1] Anjaan does not go to IIM – A. 2] Bekar chooses FMS.
3] 2 friends go to XLRI 4] No one goes to FMS.

77. If 3 friends have gone to colleges in the same city, then
1] All 3 have gone to FMS
2] Atleast 2 have gone to FMS.
3] All 3 have gone to Delhi based colleges
4] Atleast 2 have gone to colleges outside Delhi and Mumbai.

78. If Chatur goes to MDI and only one of the 6 goes to an IIM, then which of the following is definitely false ?
1] Dukhi went to XLRI. 2] Kushal went to XLRI.
3] Both Dukhi and Kushal go to XLRI. 4] Kushal went to IIFT.

Directions for question 79 to 82 : (The questions are for 0.5 marks each)
In each question, a question is followed by two statements labeled A and B.
Mark 1 if statement A alone is sufficient to answer the question.
Mark 2 if both statements A and B are also not sufficient to answer the question.
Mark 3 if both statements together are required to answer the question.
Mark 4 if statement B alone is sufficient to answer the question.

79. Has there been an increase in the number of seats at the IIMs ?
A. The number of IIMs in the country has doubled.
B. The number of applicants to the IIMs has more than tripled.

80. How many vowels are there in the Zombino alphabets ?
A. There are 3 times more consonants then vowels in Zombino language.
B. Zombino alphabets have vowels, consonants and pecos, atleast 1 of each, and there are 8 alphabets in all.

81. How many roses were exchanges on the Rose Day at IIM-Z ?
A. Each boy of IIM-Z gave each girl of IIM-Z exactly 1 rose, and the number of roses exchanged was between 70 and 100.
B. No girl gave a rose to any boy, and the number of girls at IIM-Z is a prime number between 20 and 30.

82. How much time does it take for A to complete the test ?
A. If 3 friends A, B and C take the test one after the other, the total time required is 60 minutes.
B. When B and C take the test one after the other, it takes them 10 more minutes than it takes A and C to take the test one after the other.

Directions for questions 83 to 85 : (The questions are for 2 marks each)
The Insurance Against Ticketless Travel Association (IATTA) in the Mumbai Local trains hatch a beautiful plot. Each member is required to pay a small sum as subscription money called 'Alpha' on a monthly basis. He then would not buy the train ticket when he travels for the entire month. If on any day he is apprehended by the authorities for traveling ticketless, then the association pays the fine for him. The fine is 20 times the cost of the ticket. The subscription 'Alpha' is twice the cost of a daily ticket.

Let Beta be the number of members and Gamma be the average number of members who get caught everyday. All passengers travel all 30 days. All members travel equal distances and they all travel second class.

83. If Beta = 200 and Alpha = 10, then at what value of Gamma does the association makes no profit or loss ?
1] 2/3 2] 20 3] 30 4] none of these

84. If Alpha = 50, Gamma = 1 and Beta = 5000, then what is the profit made by the IATTA ?
1] 25000 2] 235000 3] 15000 4] none of these

85. If Alpha = 20 and Gamma = 30, then how many members does IATTA need to break even?
1] 90000 2] 9000 3] 18000 4] none of these

Directions for questions 86 to 89 : (The questions are for 1 mark each)
Six persons A, B, C, D, E and F get together at beach-resort. There are equal number of males and females among them. There are two pairs of brother-sister and two pairs of husband-wife among them. Also, both brothers are younger than their sisters and one wife is older than her husband. Also,

(1) A is married and he is older than his wife.
(2) C is A's son and he is also married.
(3) A has no daughters.
(4) F is unmarried female.
(5) E is C's uncle.

They hire two boats and decide that three persons will travel in each boat.

(6) All persons of same sex cannot sit in one boat.
(7) Out of three persons who have to sit in a boat, the two members of same sex must be younger than the member of the opposite sex.

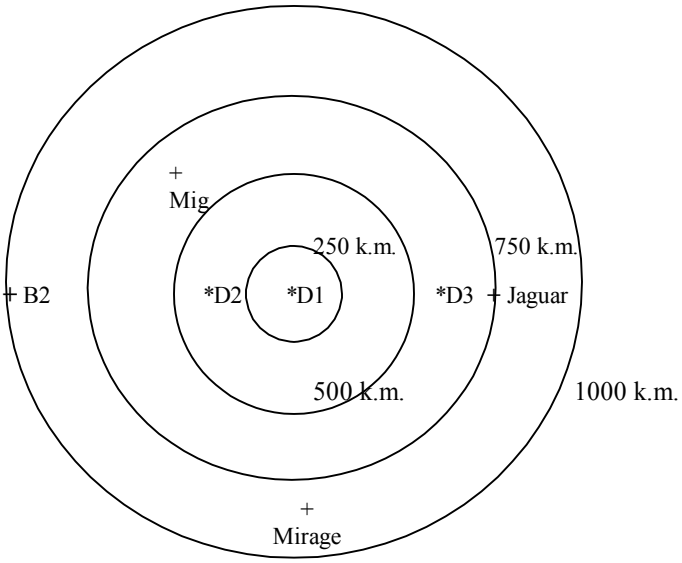
86. Who is A's wife ?
1] B 2] D 3] F 4] Indeterminate

87. Which of the following members can go on same boat ? [Use conditions (1) to (6) only.]
1] ACE 2] EDF 3] ACB 4] both [2] & [3]

88. Who is E's sister ?
1] A 2] B 3] D 4] Indeterminate

89. Who is the youngest among A, F, and C ?
1] A 2] F 3] C 4] Indeterminate

Directions for questions 90 – 95 : (The questions are for 1 mark each)
The following graph represents the distance of 4 fighter planes – Mig, Jaguar, Mirage and B2 from three enemy destinations D1, D2 and D3. The table gives the speeds of each of the 4 planes. All planes take the shortest possible route to their destinations, unless otherwise stated.



While D1, D2 and D3 (all not on circles) are in a straight line with B2 and Jaguar (both on the circles), Mirage (not on the circle) is to the exact south of D1 and Mig (not on the circle) is to the exact North West of D1. The distances mentioned on the circles are as measured from D1, and any plane or target that lies between two circles can be taken as the exactly between two circles.

Speeds of the 4 planes in kmph

Plane	Minimum Speed	Maximum Speed	Average Speed
Mig	100	400	250
Jaguar	50	200	125
Mirage	75	300	187.5
B-2	40	200	120

90. If all planes take the shortest possible route at top speed to D1, then which plane can reach D1 first ?
1] Mig 2] Jaguar 3] Mirage 4] 1 or 2

91. If Juguar and Mirage fly at top speeds towards D2 and D1 respectively, then they will
1] reach their destination together.
2] Jaguar reaches D2 before Mirage reaches D1
3] Mirage reaches D1 before Jaguar reaches D2
4] Cannot say

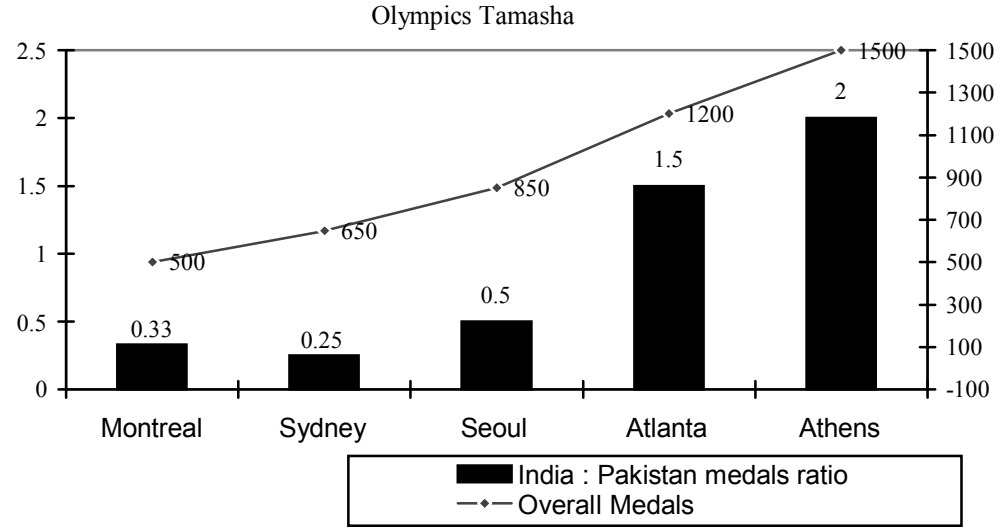
92. If all planes fly at their average speed, then the order in which they will arrive at D1 is
1] Mig, Mirage, Jaguar, B2 2] Mirage, Mig, Jaguar, B2
3] Mig, Jaguar, Mirage, B2 4] None of these

93. If the 4 planes race from D1 to D3, and fly at their average speeds, then the difference in time between the plane that arrives first with the second, third and fourth planes respectively (in hours) is
1] 0.83, 2.5. 2.7 2] 1, 1.5, 2 3] 1.5, 3, 3.5 4] None of these

94. If B2 flies at top speed and Jaguar at average speed, then what is the difference in time taken between the two to reach D1 ?
1] 30 minutes 2] 1 hour 3] 5 hours 4] None of these

95. What is the average of the maximum speed of the 4 planes ?
1] 275 kmph 2] 300 mmph 3] 350 kmph 4] None of these

Direction for questions 96 to 100: (The questions are for 1 mark each)
The following graph gives the ratio of medals won by India and Pakistan in the last 5 Olympics and the total number of medals given at the Olympics. The Olympics are arranged in chronological order, with Montreal being the first.



96. The total number of medals won by India and Pakistan together in Seoul Olympics is ___
1] 3 2] 10 3] 4 4] Indeterminate

97. India won 1 medal in Montreal and increased it by 1 in each Olympics thereafter, and increased it to 6 each in Atlanta and Athens. Then the total number of medals won by Pakistan from the five Olympics is _____
1] 15 2] 45 3] 35 4] None of these

98. If India and Pakistan won 10% of the medals in Sydney, then how many more medals did Pakistan win at Sydney when compared to India ?
1] 39 2] 52 3] 65 4] Indeterminate

99. For the 5 Olympics we can say that
1] India overall won more medals than Pakistan.
2] India overall won less medals than Pakistan
3] India overall won medals equal to that of Pakistan
4] None of the above can be said.

100. Given that India has consistently increased its medal tally, we can say that Pakistan's medal tally has
1] consistently increased
2] first increased and then decreased
3] first increased, then decreased, then increased again
4] nothing can be said about Pakistan's medal tally

Directions for questions 101 to 104 : The following table is a row wise and column arrangement of numbers. **(The questions are for 1 mark each)**

	Column 1	**Column 2**	**Column 3**
Row 1	**5**	**4**	**-2**
Row 2	**-3**	**0**	**3**
Row 3	**2**	**1**	**3**

The game has the following rules.

- Your initial value or score is the value of the cell that you start with.
- A higher row or column is one whose subscript is higher than the comparator cell.
- If you move to a higher row, you add the current score with the value of the new cell, and if you move to a lower row, you subtract the value of the new cell from the current score.
- If you move to a higher column, you multiply the current value of the cell to the new cell, and when you move to a lower column, you divide the current value with the value of the new cell and take the quotient as the new - new value.
- The player can move only one column or one row at a time, and cannot move diagonally.

101. What is your score if your player moves Row 1 Column 1 ↑ One row higher ↑ One column higher ↑ one column lower ?
1] 0 2] 1 3] -1 4] None of these

102. Player X starts from Column 1 Row 3 and ends up with a negative value in the minimum possible number of moves. How many moves has X made ?
1] 3 2] 1 3] 2 4] 4

103. Player Y starts with a negative score and within 1 move, becomes positive. He must now be on the cell
1] R1C3 2] R2C3 3] R1C2 4] R1C1

104. Player Z starts from Row 1 Column 1 and within 'x' moves finds the value of his player becoming infinity ? What is the minimum possible value of 'x' ?
1] 4 2] 3 3] 5 4] None of these

Directions for question 105 to 110 : (Questions 105 and 106 are for 0.5 marks each)
In a survey of 100 CEOs, who were asked to rank what they considered the most important (Rank 1), less important (Rank 2) and least important (Rank 3) between money, power and fame, the results were as follows.

	Money	Power	Fame
Rank 1	20	50	30
Rank 2	30	40	30
Rank 3	50	10	40

105. If Rank 1 has 5 point, Rank 2 has 3 points and Rank 3 has 1 point, then which parameter scored the maximum points ?
1] Money 2] Power 3] Fame 4] All are equal

106. If Rank 1 has 5 point, Rank 2 has 3 points and Rank 3 has 1 point, then which parameter scored the minimum points ?
1] Money 2] Power 3] Fame 4] All are equal

Additional information for 107 to 110 : (The questions are for 2 marks each)
From the past experiences of the survey team, it is known that 50 % of the CEOs lie about all 3 parameters, 25 % lie about at least 1, and 25 % speak the truth.

107. What is the minimum number of CEOs who could have rated money as Rank 1 ?
1] 0 2] 20 3] 50 4] Indeterminate

108. What is the maximum number of CEOs who could have rated money as Rank 1 ?
1] 95 2] 90 3] 80 4] None of these

109. What is the maximum number of CEOs who could have rated money as Rank 3 ?
1] 75 2] 90 3] 100 4] None of these

110. What is the maximum number of CEO's who could have rated power as rank 3 ?
1] 85 2] 75 3] 95 40 100

SAMPLE OMR SHEET

NAME _____ DATE _____

DIRECTIONS :
1 Mark your answer by darkening the appropriate circle with an HB Pencil.
2 Erase clearly any answer you want to change.
3 Make no stray mark anywhere on the score sheet.

	1 2 3 4		1 2 3 4		1 2 3 4		1 2 3 4		1 2 3 4
1	O O O O	26	O O O O	51	O O O O	76	O O O O	101	O O O O
2	O O O O	27	O O O O	52	O O O O	77	O O O O	102	O O O O
3	O O O O	28	O O O O	53	O O O O	78	O O O O	103	O O O O
4	O O O O	29	O O O O	54	O O O O	79	O O O O	104	O O O O
5	O O O O	30	O O O O	55	O O O O	80	O O O O	105	O O O O
6	O O O O	31	O O O O	56	O O O O	81	O O O O	106	O O O O
7	O O O O	32	O O O O	57	O O O O	82	O O O O	107	O O O O
8	O O O O	33	O O O O	58	O O O O	83	O O O O	108	O O O O
9	O O O O	34	O O O O	59	O O O O	84	O O O O	109	O O O O
10	O O O O	35	O O O O	60	O O O O	85	O O O O	110	O O O O
11	O O O O	36	O O O O	61	O O O O	86	O O O O	111	O O O O
12	O O O O	37	O O O O	62	O O O O	87	O O O O	112	O O O O
13	O O O O	38	O O O O	63	O O O O	88	O O O O	113	O O O O
14	O O O O	39	O O O O	64	O O O O	89	O O O O	114	O O O O
15	O O O O	40	O O O O	65	O O O O	90	O O O O	115	O O O O
16	O O O O	41	O O O O	66	O O O O	91	O O O O	116	O O O O
17	O O O O	42	O O O O	67	O O O O	92	O O O O	117	O O O O
18	O O O O	43	O O O O	68	O O O O	93	O O O O	118	O O O O
19	O O O O	44	O O O O	69	O O O O	94	O O O O	119	O O O O
20	O O O O	45	O O O O	70	O O O O	95	O O O O	120	O O O O
21	O O O O	46	O O O O	71	O O O O	96	O O O O	121	O O O O
22	O O O O	47	O O O O	72	O O O O	97	O O O O	122	O O O O
23	O O O O	48	O O O O	73	O O O O	98	O O O O	123	O O O O
24	O O O O	49	O O O O	74	O O O O	99	O O O O	124	O O O O
25	O O O O	50	O O O O	75	O O O O	100	O O O O	125	O O O O