

TANCET

Sample Paper 4



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MBA Model Paper 4

SECTION - I ANALYSIS OF BUSINESS SITUATIONS

Directions : There are two passages in this section. Read each one; read also the directions for answering questions under the passage before answering.

Passage - 1 :

The Climax Corporation manufactured a line of major electrical appliances distributed through sixty wholesalers, many of which were company-owned. Retailers carried competitive lines, but wholesalers did not, portable appliances moved to market through nonexclusive distributors.

The company depended on wholesalers to provide service either directly or through, supervision of retailers' service departments. When the warranty was involved, the manufacturer supplied the parts and the wholesaler the labour. Retailers who performed the service function were given a larger discount than those who returned the goods to the wholesaler to fulfill the guarantee.

In 1980, home officials began questioning the adequacy of the service thus rendered either under the terms of the warranty or independently. Typical retailers carried several brands and in general did not have competent service personnel. The result was that the blame for the defect was passed back to the manufacturer. This, said the sales manager, was a major consideration. Others believed that reduction of service costs would follow from centralizing the entire operation in the hands of a relatively few factory service branches or in carefully trained service personnel employed by a relatively few widely distributed wholesalers. Costs would be thus reduced, and at the same time, the quality of service rendered would be enhanced, it was claimed.

The product service manager argued that more money should be spent on training retail sales service personnel. Retailers like to render service, he claimed, since it helps to bring traffic into their stores and thus is profitable. A third possibility explored was the promotion of good service by concerns who service but do not sell appliances.

During the conference, the rise of the discount house was discussed. It was thought to be a phenomenon partly based on the realization that good independent service can be secured in most markets and for most appliances. There may be an exception in the case of TV sets, it was admitted, since it is common to find great resentment as to quality of service and delay in meeting calls.

The subsequent discussion raised questions as to the validity of the policy of requiring the retailer to give free service time under the terms of the guarantee. Often owners expected to receive this service free, even though they had bought the appliances elsewhere. Some company officials believed that the company should pay dealers for their time costs when they enabled the company to make good on its guarantee. One executive pointed out, during a heated discussion on this point, that at least one major automobile company now paid its dealers for making repairs under the warranty.

About this time the sales manager read about a consumer survey that found that the average owner gave little thought to service availability when buying an appliance, except perhaps in the

case of TV sets. But, when trouble arose the owner expected the maker to "stand behind his product" and not fall back on any excuse as to costs or time involved limitations which are found in the normal warranty

Climax's operations manager was given the responsibility to set up a task force which would study each of the alternatives discussed during the conference. The alternatives were to be examined with regard to customer service and cost. The task force was asked to make its recommendation directly to the service manager.

Two of the alternative methods for increasing service were almost immediately discarded as impractical. It was found that retail sales personnel would not have adequate time to devote to Servicing appliances. Investing capital in concerns which service but do not sell appliances might increase level of service, but Climax would have little if any control over their operation. These concerns were independently owned and had no more allegiance to Climax than they did to any number of manufacturers whose appliances they serviced. Some concerns were highly reliable, but others had a record of spotty service. Weighed against other available alternatives, these options had few benefits to Climax.

It was the conclusion of the operations group that a choice had to be made among three options: (1) factory service branches, (2) wholesaler service departments and (3) a combination of both factory and wholesaler service.

The factory service had number of advantages to Climax. Because Climax would provide the service at its own locations with company personnel, it could closely supervise the quality of the work done. Factory supervision of service was more difficult whenever the work was done by independent dealers. Moreover, under the factory system, Climax could ensure that service personnel undergo that most rigorous initial and refresher training programs. Another advantage of centralized factory service was that parts inventories would be minimized by storage in only a few service locations. Finally, under this system, Climax would determine the price of service, thereby ensuring- that consumers would not be overcharged.

The major disadvantages of centralized factory service was that Climax would have to invest in service -locations, provide parts inventories, and train personnel. Because of the size of this investment, few locations could be established.

Compared to factory service, wholesaler-operated locations would be more difficult to supervise. As a result, the level of service was bound to vary from location to location. Even though the consumer survey indicated that service was not an important consideration in the pre-purchase decision as to whether to buy an appliance, poor service experienced by a customer might lower the chance that a Climax appliance would be bought again.

Wholesaler service would require less investment for Climax. Although Climax would have to take some of the responsibility for training wholesaler personnel, it would not have to invest in service locations nor in inventory parts. Initial investment and operating costs would not limit the number of service centres as it would be eager to offer the service as an added customer benefit. Climax's investment would be even smaller if service facilities were maintained by independent, non-factory-owned wholesalers.

A final alternative was a combination of both factory service centres and wholesaler operated service departments. Under this option, wholesalers would be encouraged to offer service whenever possible, while Climax would maintain centralized service centres in areas where wholesaler service was inadequate or spotty.

Directions : The questions that follow relate to the preceding passage. Evaluate, in terms of the passage, each of the items given. Then select your answer from one of the following classifications.

- 1) A MAJOR OBJECTIVE in making the decision : one of the goals sought by the decision maker.
 - 2) A MAJOR FACTOR in making the decision: an aspect of the problem, specifically mentioned in the passage, that fundamentally affects and /or determines the decision.
 - 3) A MINOR FACTOR in making the decision: a less important element bearing on or affecting a Major Factor, rather than a Major Objective directly.
 - 4) A MAJOR ASSUMPTION in making the decision: a projection or supposition arrived at by the decision maker before considering the factors and alternatives.
 - 5) AN UNIMPORTANT ISSUE in making the decision: an item lacking significant impact on, or relationship to, the decision.
- 1) **Training of retail service personnel.**
 - 2) **The rise of the discount house.**
 - 3) **Lack of competent service personnel at most typical retailers.**
 - 4) **Technical level of service demanded by consumers.**
 - 5) **Centralization of Climax products through 60 wholesalers.**
 - 6) **Distribution of Climax products through 60 wholesalers.**
 - 7) **Increasing the level of service.**
 - 8) **Consumer belief that manufacturers are responsible for product defects.**
 - 9) **Investment required in service centres under each plan.**
 - 10) **Consumer pre-purchase decisions.**
 - 11) **Portable appliances sold by nonexclusive distributors.**
 - 12) **Cost of parts inventories.**

Passage — 2 :

Mr. Frank Kennedy, Chief Operating Executive of Best Detergent Company, is upset over the sales records for 1981. To his dismay, although profits have increased, sales have decreased. Mr. Kennedy is concerned because, in his opinion, if sales continue to drop, a fall in profits cannot be far behind. Mr. Kennedy attributes this drop in sales to the failure of his company to introduce new or improved products and to the fact that most of his company's lines are in the maturation state of the product's life cycle.

Mr. Kennedy's basic strategy for running the Best Detergent Company is one that leans towards simple company survival as compared to profit maximization, because of his age (63) and the fact that he will retire in two years. Kennedy does not want to take any unnecessary risks. He wants to leave the company in good standing.

In order to solve this problem, Mr. Kennedy met with Chris Simmons, Vice-President of Marketing, who wants to introduce a new product and with Roger Decker, Vice President of the International Division of the Best Detergent Company, who wants to improve an already established product. Mr. Kennedy feels he can trust these two men to come up with an idea that

will pull sales back up. Of course, the final decision as to which strategy will be left to Mr. Kennedy. Kennedy emphasized to these two men that the goal of this project was to increase sales in order that the desired profit level was to increase sales in order that the desired profit level be maintained for at least the next two years or more. As Mr. Simmons and Mr. Decker will be at the company for at least ten more years, a poor recommendation not only may hurt the company, but may hurt the professional reputation of these two men as well.

Chris Simmons, vice-President of marketing, is pondering over the possibility of introducing a new and what he feels to be a superior fabric softener. His research consultants have been working on this product for the past 18 months. Tests were done to *see* how well the fabric softener did its job. The fabric softener was concentrated and therefore, only a small amount was needed; this made it economical. Its fragrance was pleasing, and it rinsed well out of the clothes as it softened them. The product had another desirable trait - although its colour was blue, the softener did not stain if directly spilled on an article of clothing. Most blue softeners in the market today do stain. The product would be sold in 16-ounce containers.

Since the Best detergent company is a multinational corporation, the management desires products that will sell well in other countries too. Mr. Simmons feels that fabric softener will do well not only in the United States, but also in France, England and Italy, the three countries Best operates in. Simmons feels the quality of this product is so superb that it will be a welcome change from all the average softeners available at the present time.

In Mr. Simmons' opinion, the introduction of a new product will help change the company's image from one of the established products to one of contemporary, up-to-date innovations. According to Mr. Simmons, stagnation of product lines is a major problem of the company. The introduction of a new fabric softener will solve this problem of stagnation, and it is the feeling of Mr. Simmons that his product will not only meet Mr. Kennedy's requirement for profit level, but will exceed it. Mr. Simmons is anxious to get this product on the market as soon as possible. Being number one with a new product line can very well influence the success of the product. If this product were first on the market, it would as a result of lack of competition, obtain higher-than-average profits. It is the opinion of Mr. Simmons that success of this product is inevitable because when consumers see the Best name, they will associate it with the quality detergent products that the Best Company is known for.

Mr. Simmons' last point to persuade Mr. Kennedy to use this opinion is the amount of time, energy and money spent on research and development for this product. If this product is not marketed, all effort to produce a superior product may be lost because of the fact that another company may develop a similar product or may steal the idea.

With little advertising, this fabric softener could increase profits greatly as little money would spend on other marketing functions. For instance, no money would be spent to develop new distribution channels, as marketing channels and promotional arrangements - which have been result of years of work - have been established in the United States and in France, England and Italy.

On the other hand, Roger Decker does not think establishing a new product line is the answer to the dilemma. Mr. Decker feels that improving an established product is more what Mr. Kennedy is looking for. Decker also thinks more profits and greater success will be gained this way.

Mr. Decker would like to improve one of the company's best-selling detergents by adding a fabric softener to the actual detergent. Many other companies have done this in the past and have met with great success. As yet, Best detergents has failed to enter this market.

Mr. Decker feels that this method of dealing with the problem is better than creating a new product. Less risks are involved, and the product already has a steady following of consumers. In addition to this, Mr. Decker has discovered through a study that was done that people prefer one laundry product to do the jobs of both cleaning and softening. More importantly, the foreign market is not as interested in softening agents as they are in cleansers. If a cleaning product were to have a softener in it, there is good chance that European consumers will buy and be satisfied with the product. They will not, according to Mr. Decker, buy a separate fabric softener.

Mr. Decker is against the fabric softener idea basically because of his idea of what the Best Detergent Company is. Mr. Decker feels that what Best does best is make detergents. To establish a fabric softener product line would be out of the jurisdiction of the Best Company. Best has always dealt with powdered laundry detergents. They do not have the knowledge, experience or the facilities to deal with a liquid product.

Mr. Decker is aware of the high rate of new product, failures in the consumer goods industry. Losses due to new product failure in the detergent industry are also substantial, not to mention the fact that a product failure will mar the hard-earned reputation of the Best Detergent lines already established. This, as a result, could stop consumers from purchasing other Best products and may push them into trying other brands of detergents.

Going with records, Mr. Decker knows that whenever Best has introduced an established product as "New and Improved" sales have increased. There is consumer attraction to those products which can offer something new. Furthermore, to discredit Mr. Simmons' argument further, Mr. Decker feels that additional research and development would be useful in the objective of incorporating a softener into an established detergent. In this way some of the money, time and energy already spend on R & D will be salvaged.

Mr. Decker estimated that it would take about 18 months of intensive development to commercialize a detergent containing a softener. Projected total costs of the commercialization were \$2million. This figure included \$750,000 for development and testing and the rest for marketing expenses, including \$1 million for advertising. On the other hand, launching a new product as Mr. Simmons proposed, would take two years and its cost would be double than that of the improved product. Much of the added expense would be allocated to marketing functions, especially advertising. ML., Decker believed that at least \$2million would have to be allocated to advertising, of which 41million would be spend on a television campaign, to successfully commercialize a new product.

Mr. Simmons did not refute Mr. Decker's estimates. He countered that a new" product could contribute five times the sales of an existing, even if improved product. The increased sales and profit contribution would more than pay for the additional marketing expenses incurred.

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- 13) **Introduction of a fabric softener.**
- 14) **Attributes of a fabric softener.**
- 15) **Best Detergent, a multinational company.**
- 16) **Modernizing the company's image.**
- 17) **Developing products as fast as possible.**
- 18) **Survival of the Best Detergent Company.**
- 19) **Mr. Kennedy's plans to retire in two years.**
- 20) **Increasing sales of the Best Detergent Company.**
- 21) **Stagnation of product lines.**
- 22) **Development time of the fabric softener.**
- 23) **Costs of advertising.**
- 24) **Marketing ability of Simmons and Decker.**
- 25) **Colour of the fabric softener.**

SECTION II READING COMPREHENSION

Directions: This section contains two reading passages. You have to read each carefully. Each passage is followed by questions based on its content. After reading each passage, choose the best answer to each question. The questions are based on what is stated or implied in each passage.

PASSAGE 1

What happens when we touch one billion, the possibility seems frightening. Today, the greatest crisis the country faces is the increase in population. There are many problems which are being caused by population, like health, unemployment, shortage of food, malnutrition, housing problem, illiteracy, ecological imbalance, etc.

The country is outstripping China in population growth, adding the population of Australia almost every year and making sure that one person in every four is an Indian. According to India's Census of 1981, the country has a population of 685 million, which is double the 1947 figures. Between 1995 and 2000 A.D. India is expected to add 22 million mouths.

The rapid increase in population has serious implications for the overall socio-economic development of the country. India has a multilingual society with wide variation in demographic situation. People practice different religions and there are numerous cultural identities. Various social customs and beliefs favor large families and impede the process of change for adoption of modern methods of birth control. A universal desire to have at least one or two male children, and the mean age of marriage of women at 17.3 years, the lowest in the world, help in raising

large families. Mass illiteracy also contributes to the growth of population. Poverty too has something to do with it. To the very poor, every child is an earner and a helper. By 2000 A.D. we would well be 1022 million, says the Planning Commission Report. What would happen to our cities which are already bursting at the seams? Millions of people in these cities are living in slums. How much more can the slums take, before they give in? There is a shortage of 28.5 million dwelling units as per the latest report of National Building Organization. About 1.4 million people live in Jhuggi Jhopris in Delhi alone.

What happens to our poverty curve, our standard of living, our per capita gross national product? And the biggest difference would be made by unemployment. The live registers of employment exchange listed 26.2 million unemployed in 1985 in India, against 16.2 million in 1980, a 60% rise for five years. If we take a conservative 50% rise for five years, by 2000 A.D. unemployment figure would be 55.5 million. What would these additional millions be absorbed? Where will they work? Would they not boost the crime graph?

It is said that even if the entire 6 million of the unemployed do not take a crime, you can bet, quite a large number would be tempted to do so. Cannot education come to their rescue? Surely no!. First there are not enough teachers to meet the demand and moreover, the necessity to earn something to fill their own bellies and of their parents, makes education usually a low priority, in spite of facilities and incentives available to bring every child to school.

Rapid population growth has disturbed the ecological balance of nature. Water and water is everywhere but not a drop to drink. Hardly 69 per cent people shall have access to safe drinking water. The shades of prophecy are evident. What happened recently in trans-Yamuna areas in Delhi where thousands died and lakhs were affected by cholera and gastroenteritis for want of safe drinking water though water was around them? One shudders to think what is to follow.

The prices are going up and poverty is increasing, and about 40% population in India is below the poverty line. Food reserves are diminishing. Essential goods are scarce. Land is being divided into smaller units. The standard of living is going down. Can we check these deteriorating conditions?

China has managed to bring down the growth to 1.2% by enactment of law. We have yet to achieve 1985 target of 2.1%. In India, enactment of law for limiting family size is not feasible. Moreover, simply enacting a law won't make much difference, unless the law enforcing machinery, health workers and cooperation of the masses, join hands together. For national prosperity, we must have thorough planning. Unless population explosion is timely checked, a time will come for the survival of the fittest, and Darwin's theory will apply. Our survival hangs in the balance. Strong human power must intervene in the sad state of affairs.

26. Population explosion seems to be the greatest crisis our country faces today because:

- (a) it causes unemployment;
- (b) shortage of food and malnutrition;
- (c) acute housing problem;
- (d) all of the above.

27. According to the author, what is the relationship between the unemployed and the crime graph?

- (a) Very few of the unemployed take to crime.
- (b) All the unemployed take to crime.

- (c) A large number of the unemployed take to crime.
- (d) None of the above.

28. The standard of living is going down because of

- (a) scarcity of essential goods
- (b) increase in prices;
- (c) division of land into smaller units;
- (d) all of the above.

29. According to the author, population cannot be checked in India by an enactment of law because of:

- (a) different religions practiced in the country;
- (b) powerful law-enforcing machinery;
- (c) rise in educational standards;
- (d) none of the above.

PASSAGE 2

There is no such thing as 'brain-fag', thinking that long concentrated mental effort produced tiredness in the brain itself. Yet scientists believe that this state cannot exist. Your brain is not like your muscles. Its operations are not muscular but electro-chemical in character. When your brain appears to be tired after hours of mental work, the fatigue is almost certainly located in other parts of the body, your eyes or muscles of the neck and back. The brain itself can go on almost indefinitely.

A young woman undertook as an experiment to multiply in her head a series of two four digit numbers one after the other as rapidly as possible. She went on doing this for twelve hours. During that time there was only a slight decrease in her efficiency, measured by speed and accuracy. At the end of twelve hours she stopped only because of bodily fatigue and hunger.

What seems like mental fatigue is often merely boredom. In reading a difficult book, for example, you are torn between the desire to go on and the impulse to stop. According to an eminent psychologist, it is often not fatigue that you feel by inattention and the inability to ignore distracting thoughts.

The brain capacity is almost inexhaustible. That part of your brain involved in thinking and memory, and all your conscious activities, has at its most important part ten or twelve thousand million minute cells. Each of these has a set of tiny tendrils by means of which an electrochemical message can pass from one cell to another. Thinking and memory are associated with the passage of these electrical currents. The wisest man whoever lived comes nowhere near using the full capacity of his wonderful mental storehouse. Quite possibly, people in general employ only ten to twelve per cent of the capabilities of their brains.

Your I.Q. is less important than you probably think. Many of us have unnecessary inferiority complex about our I.Q.'s — the figure that represents native intelligence as compared to that of the average individual. It is easy to score lower in such a test than you deserve. This might result from temporarily ill health or emotional disturbances. So if you have ever seen your score on an I.Q. test you can reasonably be sure that your I.Q. is at least that high.

What is the physical basis of high intelligence? Contrary to a common belief, it does not require an unusually large skull. It is likely to be associated with especially large number of surface

convolutions in the cerebral cortex, the great top part of the brain. Highly intelligent people also have good blood circulation to the brain, bearing oxygen, glucose and certain other important chemicals. It is possible that a person with very special talent — a mathematical or musical genius, for example, may have an unusually thick bundle of nerve fibers in one particular place in the brain.

But the physical endowment of your brain is far less important than what you do with it. The number of brain cells in an individual with an I.Q. of 100 (which is average) is large enough so that, used to the full, it could far exceed the record, so far as memory is concerned, of the greatest genius whoever lived. A person of average I.Q., who industrially stores up knowledge and skills year after year, is better than a person with very high I.Q. who refuses to study. Research has indicated that some of the most important men in history had no more than ordinary I.Q.'s.

Among them are statesmen such as Cromwell, John Adams and Lincoln; military heroes like Drake, Napoleon and Nelson, writers like Goldsmith, Thackeray and Emerson. All these men, to be sure, were above the average in intelligence; yet they ranked far below the most brilliant of the individuals studied. What they possessed in high degree was character, and the ability to keep plodding ahead until they achieved what they had set out to do.

Age need not prevent your learning. One of the commonest misconceptions about the brain is that as you grow older something happens to it causing the learning process to become more difficult. This is true only to such a minute extent that for most of us, it is of no practical importance.

Learning is associated with ability to create new reverberating electric circuits in the brain and as long as that power remains you can continue to acquire new knowledge and skill — even at ninety.

It is true that all old people suffer impairment of their physical powers and that some experience a decline of mental power. The best current medical opinion is that, in both cases, what happens is a series of minor accidents to various parts of our marvelously complicated psychological mechanism. None of these may be serious by itself, but the total effect, can be severe. Impairment of the brain in the aged is associated with decreased circulation of the blood and the precious substances it carries, especially oxygen and glucose. This is probably why old people remember happenings of their youth more vividly than those of the recent past; the youthful memories were implanted when blood circulation was better.

Yet severe mental impairment occurs only in some elderly people. Everyone knows of men and women who are vigorous and alert mentally into the ninth or even tenth decade of life. Their existence proves that impaired mental powers are not an inevitable accompaniment of passing years, but a result of disease processes. Questions:

30. Out brain can function continuously for:

- (a) twelve hours and after that it gets tired;
- (b) an indefinite period of time;
- (c) a long period, provided the menial exercise is interesting;
- (d) none of the above.

31. Approximately, what percentage of brain capacity is utilized by man'?

- (a) 100%
- (b) 50%
- (c) 25%
- (d) 12%

32. The author is of the opinion that a person with average intelligence:

- (a) cannot expect to achieve as high as a genius can do;
- (b) usually has think bundle of nerve fibers in a particular place of the brain;
- (c) usually possesses high perseverance to achieve what he sets to do;
- (d) can exceed the record of the greatest genius if he uses his intelligence in full.

33. I.Q. of an individual represents;

- (a) his absolute intelligence, independent of any training he had in the past;
- (b) his power of learning under adverse situations;
- (c) native intelligence as compared with that of the average individual;
- (d) the probability of high achievement.

34. Which one of the following can be concluded from the passage?

- (a) Highly intelligent persons usually have large skull.
- (b) As man grows old, he loses the capacity of learning very rapidly.
- (c) Even the wisest man of the world does not utilize the full capacity of the brain.
- (d) The most intelligent men of the world are likely to achieve very little.

35. Psychologists are of the opinion that:

- (a) inability to ignore distracting thoughts while performing some menial work is misinterpreted as mental fatigue;
- (b) intensive exercise of any part of the brain encourages the growth of additional all important myelin;
- (c) we can make use of our unconscious mind;
- (d) we should not unnecessarily tax our brain with complicated mental work.

36. The author feels:

- (a) success depends much upon the way we utilize mental capacity;
- (b) impairment of physical powers due to old age does not hamper its capacity of learning;
- (c) Only persons with average intelligence have tenacity to overcome the difficulties of life and that is why most of the great men are of average intelligence;
- (d) in order to achieve success in life, the main factor is a high-level intelligence.

37. Which one of the following is not true of our brain?

- (a) The capacity of our brain is almost inexhaustible.
- (b) The operations of the brain are electrochemical in character.
- (c) Brain's function depends on good blood circulation bearing oxygen, glucose and certain other important chemicals.
- (d) An individual with average intelligence does not possess as much memory capacity as a genius does because of inadequacy of the number of cells in his brain.

PASSAGE 3

Nonetheless my fascination with gold remains. I pick up odd snippets of information about it as a jackdaw, collects useless shining objects. Once I even went down one of the main shafts of the Kolar goldfields, to find out how they mined gold. I remember I was made to leave my watch and wallet in the office —just in case. One of the work faces was then said to be the deepest in the world, two miles underground. Here the men who dug out the ore had to work bending double, and in heat well above 40 degree centigrade. When, after reclaiming my watch and wallet, I was taken round a sort of museum, my guide showed me their prize exhibit, a gold brick the size of a building brick, and made the customary joke. Please take it away if you can lift it. I forget how much it weighed but it must have been well above 50 kilograms.

It seems that gold has been mined for more than 6,000 years. Even so, the entire output will not make a cube with its sides measuring 54 feet - say, no bigger than a square five-storey building.

The U.S. President, Franklin Rossevelt fixed the price of gold at S35 an ounce. This was in 1934. That price remained valid, at least in America-till 1971, when President Nixon raised it to \$38, and then a year later, to \$42.1 have just seen an advertisement in an American magazine, offering US mint gold coins of one ounce each for \$585. Aside from the gold brick in Kolar, the largest gold object I have seen, is an elephant ambari or closed howdah. Right up to the India-China conflict, nearly 50 or so of our Maharajas still had such gold ambaris, about the size of a Maruti car. To be sure they were not made wholly of gold because I doubt if even an elephant could carry such a weight on its back. They were made of wood and covered with a thick sheet of gold. Even so they must have used up around a quarter-ton of gold.

One such ambari, perhaps the last in the world, forms one of the decorative objects in the sitting room of Ram Mahai, the residence of Rajmata Vijayaraje Scindia of Gwalior. It is just part of the furniture and no special effort is made to protect it. I suppose its sheer weight is its best security. You'd have to bring in an elephant to shift it.

38. The author:

- (a) considers objects made of gold as useless shining objects;
- (b) has fascination for objects made of gold;
- (c) has been associated actively with the mining of gold in the Kolar gold fields;
- (d) None of the above.

39. The underground temperature down in the Kolar gold fields is:

- (a) below the freezing point; (b) well below 4° centigrade;
- (c) same as the one prevailing on surface outside; (d) well above 40° centigrade.

40. The deepest underground gold mine is:

- (a) in the U.S.A. two miles underground; (b) at Gwalior;
- (c) at Kolar; (d) none of the above.

41. The official price of gold per ounce in U.S.A. during the period 1934 to 1970:

- (a) surprisingly remained constant; (b) rose from S 35 to \$ 42;
- (c) jumped from S42 to \$585; (d) none of the above.

42. Weight of gold brick of the size of a building brick estimated by the author is estimated to be:

- (a) less than 10 kgs; (b) exactly 15 kgs;
- (c) well below 50 kgs; (d) well above 50 kgs.

43. Mining of gold:

- (a) is more or less a modern phenomenon dating back to 1934;
- (b) dates back to 585 to 600 years;
- (c) seems to exist for more than 6000 years;
- (d) none of the above.

44. The remark made to the author at Kolar with respect to the exhibit of the gold brick "Please take it if you can lift it":

- (a) is part of a bet and he could have actually done it if his physical capacities permitted him
- (b) is just a customary joke;
- (c) is just a wish of the author;
- (d) none of the above.

SECTION III

PROBLEM SOLVING

Directions: For each of the following questions, select the choice which best answers the questions or completes the statement.

45. The digit in the unit place of the number represented by $(7^{95} - 3^{58})$ is :
(1) 7 (2) 0 (3) 6 (4) 4
46. The traffic lights at three different road crossings change after every 48 sec. 72 sec. and 108 sec. respectively. If they all change simultaneously at 8 : 20 : 00 hours, then they will again change simultaneously at :
(1) 8 : 27 : 12 hours (2) 8 : 27 : 24 hours (3) 8 : 27 : 36 hours (4) 8 : 27 : 48 hours
47. The sum of two numbers is 528 and their H.C.F. is 33. The number of pairs of such numbers satisfying the above condition is :
(1) 6 (2) 12 (3) 8 (4) 4
48. The present age of father is five times the age of the son. Five years ago the age of father was ten times the age of his son at that time. How old is father at present?
(1) 45 years (2) 40 years (3) 48 years (4) 49 years
49. A sum of money is to be divided among P, Q and R in the ratio of 2 : 3 : 5. If the total share of P and R together is Rs 400 more than that of Q, what is R's share in it?
(1) Rs 400 (2) Rs 500 (3) Rs 600 (4) Rs 7.50
50. A box contains Rs. 56 in the form of coins of one rupee, 50-paise and 25-paise. The number of 50-paise coins is double the number of 25 paise coins and four times the number of one rupee coins. How many 50 paise coins are there in the box?
(1) 64 (2) 32 (3) 16 (4) Data inadequate
51. On increasing the price of T.V. sets by 30 %, their sales decreases by 20%. What is the effect on the revenue receipts of the shop?
(1) 4% increase (2) 4% decrease (3) 8% increase (4) 8% decrease
52. An article when sold for Rs 840 earns a profit which is double the amount of loss when the same article is sold for Rs. 600. What is the C.P. of the article?
(1) Rs. 500 (2) Rs. 680 (3) Rs. 720 (4) Data inadequate
53. The sum of five terms of an in arithmetic progression is 70. The product of the extreme terms is 132. Find the series
(1) 8,12,.... (2) 10,12,14,..... (3) 6,10,14,..... (4) 8,12,16,.....
54. Avinash borrowed Rs. 5000 from Sanjay at simple interest. After 3 years, Sanjay get Rs. 300 more than what he had given to Avinash. What was the rate of interest per annum?
(1) 2% (2) 5% (3) 8% (4) 10%
55. The difference in compound interest and simple interest on a certain amount at 10% per annum at the end of the third year is Rs. 620. What is the principal amount?
(1) Rs. 40,000 (2) Rs. 1,20,000 (3) Rs. 10,000 (4) Rs. 20,000
56. Bombay Express left Delhi for Bombay at 14 : 30 hours, travelling at speed of 60 kmph and Rajdhani Express left Delhi for Bombay on the same day at 60 : 30 hours, travelling at a speed of 80 kmph. How far away from Delhi will the two trains meet?
(1) 120 km (2) 260 km (3) 480 km (4) 500 km
57. A person walks at 5 kmph for 6 hours and at 4 kmph for 12 hours. The average speed of the man is :
(1) 4 km/h (2) $4\frac{1}{3}$ km/h (3) $4\frac{1}{2}$ km/h (4) $4\frac{2}{3}$ km/h

58. A car can finish a certain journey in 10 hours at a speed of 48 kmph. In order to cover the same distance in 8 hours, the speed of the car must be increased by :
- (1) 6 km/h (2) 7.5 km/h (3) 12 km/h (4) 15 km/h
59. I have to be at a certain place at a certain time and find that I shall be 20 minutes too late if I walk at 3 km/h and 10 minutes too soon if I walk at 4 km/h. How far I have to walk?
- (1) 6 km (2) 10 km (3) 12 km (4) 16 km
60. A can do a certain job in 12 days. B is 60% more efficient than A. The number of days, it takes B to do the same piece of work is :
- (1) 6 (2) $6\frac{1}{4}$ (3) $7\frac{1}{2}$ (4) 8
61. 12 children take 16 days to complete a work which can be completed by 8 adults in 12 days. 16 adults started working and after 3 days, 10 adults left and 4 children joined them. How many days will it take them to complete the remaining work?
- (1) 6 (2) 8 (3) A (4) 3
62. Two pipes can fill a tank in 10 hours and 12 hours respectively while a third pipe empties the full tank in 20 hours. If all the three pipes operate simultaneously, in how much time the tank will be filled?
- (1) 7 hours (2) 8 hours (3) 7 hours 30 min (4) 8 hours 30 min
63. A man row a boat at 10 kmph in still water. If the speed of the stream is 6 kmph, the time taken to row a distance of 50 km down the stream is.
- (1) 8 hours (2) 5 hours (3) 10 hours (4) 20 hours
64. In seven given numbers, the average of first four numbers is 4 and that of the last four numbers is also 4. If the average of these seven numbers is 3, the fourth number is :
- (1) 3 (2) 4 (3) 7 (4) 11
65. $2\log 169 - 3\log 143 + \log 1100 - \log 1300 + \log 121$
- (1) 0 (2) 1 (3) 10 (4) None of these
66. Find the length of the longest pole that can be placed in a room 12 m long, 9m broad and 8 metres high
- (1) 15 m (2) 16 m (3) 17 m (4) 18 m
67. A cylindrical piece of metal of radius 2 cm and height 6 cm is shaped into a cone of same radius. The height of the cone is :
- (1) 8 cm (2) 12 cm (3) 14 cm (4) 18 cm
68. A cylindrical vessel 60 cm in diameter is partially filled with water. A sphere 30 cm in diameter is dropped into it. The increase in the level of water in the vessel is
- (1) 2 cm (2) 3 cm (3) 4cm (4) 5cm
69. In a group of 6 boys and 4 girls, four children are to be selected, in how many different ways can they be selected such that at least one boy should be there?
- (1) 159 (2) 194 (3) 205 (4) 209 (e) None of these
70. In how many ways can the letters of the word 'LEADER' be arranged?
- (1) 72 (2) 144 (3) 360 (4) 720 (e) None of these

SECTION IV DATA SUFFICIENCY

Directions: Each question below is followed by two statements numbered as (a) and (b). You have to determine whether the data given in the statements is sufficient for answering the question. Use the data given, plus your knowledge of mathematics and every day facts, to mark your answer as

- 1) If statements (a) alone is sufficient to answer the question, but statement (b) alone is not sufficient.
- 2) If statements (b) alone is sufficient to answer the question, but statement (a) alone is not sufficient.
- 3) If both statements together are needed to answer the question, but neither statement alone is sufficient.
- 4) If either statement (a) or (b) by itself is sufficient to answer the question.
- 5) If not enough facts are given to answer the question.

71. What is Reena's rank in the class?

- I. There are 26 students in the class.
- II. There are 9 students who have scored less than Reena.

72. It is 8.00 p.m., when can Hemant get next bus for Ramnagar from Dhanpur ?

- I. Buses for Ramnagar leave after every 30 minutes, till 10 p.m.
- II. Fifteen minutes ago, one bus has left for Ramnagar.

73. On which day the flat was purchased by Rohan in 1996 ?

- I. Certainly before 18th December, 1996 but definitely not before 15th December, 1996.
- II. Certainly after 16th December, 1996 but not later than 19th December, 1996.

74. Buses are always punctual in city X. How long, at the most, will Mr. Roy have to wait for the bus ?

- I. Mr. Roy has come to the bus stand at 9 A.M.
- II. There is a bus at 10 A.M. and possibly another bus even earlier.

75. How many brothers does Tarun have ?

- I. Tarun's father has three children.
- II. Tarun has two sisters.

76. Rohit, Kajol, Tanmay and Suman are four friends. Who is the oldest among them?

- I. The total age of Kajol and Tanmay together is more than that of Suman.
- II. The total age of Rohit and Kajol together is less than that of Suman.

77. Among four brothers — Anil, Pawan, Neeraj and Sahil, who is the heaviest?

- I. Anil and Pawan are of the same weight.
- II. Pawan weighs more than Neeraj, but less than Sahil.

78. Who is C's partner in a game of cards involving four players A, B, C and D ?

- I. D is sitting opposite to A.
- II. B is sitting right of A and left of D.

79. What is Gagan's age?

- I. Gagan, Vimal and Kunal are all of the same age.
- II. Total age of Vimal, Kunal and Anil is 32 and Anil is as old as Vimal and Kunal together.

80 Four plays A, B, C and D were staged one on each day on four consecutive days, but not necessarily in that order. Which day was the play C staged ?

- I. The first play was staged on 14th, Tuesday and was followed by play D.
- II. Play A was not organised on 16th and there was a gap of one day' between A and B.

81 Vipin's and Javed's salaries are in the proportion of 4 : 3 respectively. What is Vipin's salary?

- I. Javed's salary is 75% that of Vipin's salary.
- II. Javed's salary is Rs 4500.

82 At what time did Sonali leave her home for office?

- I. Sonali received a phone call at 9.15 a.m. at her home.
 II. Sonali's car reached office at 10.15 a.m., 45 minutes after she left her residence.
- 83 How many sons does D have ?**
 I. A's father has three children.
 II. B is A's brother and son of D.
- 84 What is the monthly salary of Praveen ?**
 I. Praveen gets 15% more than Sumit while Sumit gets 10% less than LokeshI.
 II. Lokesh's monthly salary is Rs 2500.
- 85. In the last month the company decided to increase the cost of its mixer by 10 percent. What is the present price of the mixer?**
 I. The cost of mixer and juicer together was Rs 2850 a month ago.
 II. The amount of 10% increase on the mixer comes to Rs 220.

SECTION - V
ENGLISH USAGE

Directions: In each of the sentences below, four words or phrases have been underlined. Select the underlined part which contains an error in usage or grammar or punctuation. If there is no error, indicate (5) as the answer.

86. I am preparing for the examination; the teacher will take test tomorrow.
 A B C D
No error.
 E
87. If you know swimming we will not hire a boat. No error.
 A B C D E
88. The whole of this area may be flooded because the river has over flown its
 A B C
banks. No error.
 D E
89. He is a sincere man; he has never and will never betray his friends. No error.
 A B C D E
90. What to speak of food they did not have even fruit to eat. No error.
 A B C D E
91. He is a quarrelsome person and is ready to pick up quarrel with any one.
 A B C D
No error.
 E
92. She is not as efficient and energetic as she used to be five years before.
 A B C D
No error.
 E
93. He has no other alternative; supposing if he fails what he will do. No error.
 A B C D E

94. Misfortunes when faced bravely and manly become less troublesome.
A B C D
No error.
E
95. He was unwilling to do this work; I made him to do this. No error.
A B C D E
96. I don't think I will finish this book today; it comprises of as many as ten chapters. No error.
A B C D
E
97. It has special significance for the devout as it is considered as the abode of a god. No error.
A B C D
E
98. I don't know how to operate this machine if I know it I would have told you. No error.
A B C D
E
99. Mahatma Gandhi taught us that one should respect the religion of others as much as his own. No error.
A B C
D E
100. If you will come tomorrow we will go to the market and do our shopping together. No error.
A B C D
E