

## MODEL QUESTION PAPER - 3

### SECTION I – ANALYSES OF BUSINESS SITUATIONS

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

#### FIRST PASSAGE

The Parks company, located in New York City, had engaged exclusively in the manufacture of baking powder in the seventy-five years since its founding. Sales were approximately \$800,000 annually. The sales volume, measured in commodity units instead of dollars, had showed a decline of about 11 percent over the past decade. The company had a small office force and employed approximately 50 people in the production process, which was divided into (1) the mixing department (2) the assembly department, and (3) the final inspection and packing department.

In 1935, distribution had been foreign as well as national. Forty years later, the sale of the product was confined to New England and the Middle Atlantic states. Mr. Andrew H. Pendler, the president, attributed this significant decrease in both market area and sales volume to high train rates, sterner competition and trade dislocations caused by World War II.

Mr. Gordon Janis, the sales manager, after studying the market closely, arrived at a different set of reasons why sales had been dropping. In the first place, according to Janis sales to commercial consumers had diminished to practically nothing. Many modern bakeries bought the necessary chemicals and manufactured their own baking powder. Secondly, the population had become urbanized. Formerly, when a larger portion of the citizenry was suburban, many housewives had done their own baking. People in cities were close to bakeries and other outlets where they could buy the finished product, and improved transportation had enabled fresh bakery products to be readily available at retail outlets. The third reason which Mr. Janis considered significant was the growing popularity of ready mixes. The natural tendency of practically all human beings is to get as much as they can for a minimum of effort. Since ready-mixes did save housewives a good deal of labour, this type of product had been well received.

Mr. Janis believed that the company could not cope with first two factors, and therefore his suggestion for increasing sales was to branch out and manufacture ready mix baking products which would compare favourably with nationally-known brands. Management was particularly receptive to Janis's idea because production of ready-mixes would require only minor changes in personnel and the cost of additional machinery would be relatively small. Two additional machines were necessary each costing approximately \$10,000.

Mr. Pendler was determined to succeed in the marketing of the new product. He believed that a thorough market analysis was a prerequisite to making a final decision as to whether Janis's idea was commercially sound. Pendler wanted to know whether a small company like Parks could battle for a share of the ready-mix market against much bigger competitors. His concern centered on two key variables. First, he questioned the ability of his marketing people to develop a product which would be sufficiently differentiated from competitors' product. Parks would have to market a product which had some distinct advantage over competing products. This advantage could be in the form of an improvement over existing brands, for example, a mix that was easier to prepare. Second, a strong advertising campaign was necessary to enter market with

an unknown product. Potential consumers would have to be made aware of the new brand and its advantages. Pendler wanted to know how much such an advertising campaign would cost and whether the company had the financial resources to finance it.

Janis was given the task of preparing a marketing research report which would provide answer, to Pendter's questions. Graduate students were hired to poll housewives as they entered supermarkets. Each student questioned a number of housewives about their purchases of ready-mixes, how frequently they used the products, what they liked and or disliked about the mixes. After about fifty interviews, Janis believed that he had collected enough information to reach certain conclusions.

Janis tabulated the research data and funds the following: Most housewives said that they purchased ready-mixes and preferred to prepare their own cakes, rather than buy them from a bakery or supermarket. Housewives felt that ready-mixes were preferable to commercially-prepared cakes because of their freshness and economy. In particular, respondents liked the convenience of being able to bake a cake "in an emergency" if unexpected company came to visit. Other reasons mentioned for preferring ready-mixes were: "Tastes fresh", modern thing to do," my neighbours use it" and "I can choose some of the ingredients."

Few respondents using ready-mixes mentioned any dislikes. Some of the negative reactions mentioned were: "Lack of recipe variety", "my husband doesn't like them", and "all the mixes are the same."

Most of the housewives polled recalled seeing some advertising for ready-mixes during the last week. Half of the respondent recalled specific advertising themes of the major producers. Overall reaction to the advertising was favourable.

Examining the survey results, Janis concluded that Parks should market a ready mix of its own. He reasoned that since consumer reaction was so favourable, there was room in the market for another brand. Janis recommended, however, that since the research did not reveal how Parks might differentiate its products from those already on the market, the best marketing strategy would be to charge a lower price than that of competing products. With a lower price, he asserted, Park's ready mix would sell well to the economy-minded housewife.

Advertising was a problem. It was clear that, given the relatively small marketing budget available to Janis's Parks could not emulate the sort of advertising campaign used by existing ready-mix manufacturers. Janis believed that if Parks would concentrate solely on the economy-minded market segment, advertising themes could be developed and a campaign launched within the company's budget constraints. Janis's report and conclusions were forwarded to Mr. Pendler. After a short deliberation, Pendler approved the ready-mix project.

Without further investigation, the manufacture of Park's ready-mixes was started. After several months, ready-mix sales still amounted to less than 10 percent of gross sales, and 85 percent of ready-mix sales were in New York city. The entire position of the company was in jeopardy. Both Mr. Pendler and Mr. Janis were worried about the business, but neither seemed to know what to do.

**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) **Declining sales volume.**
- 2) **New York City location of Parks Company.**
- 3) **Production of a successful ready-mix baking product.**
- 4) **Urbanization of the population**
- 5) **Increased world trade.**
- 6) **Start-up costs for development of ready-mix product.**
- 7) **Differentiation of Park's ready-mix from competing products.**
- 8) **Specific advertising themes recalled by shoppers being interviewed.**
- 9) **\$10,000 cost for one additional machine**
- 10) **Size of the office staff employed at Parks.**
- 11) **Park's ability to compete with bigger companies.**
- 12) **Number of housewives interviewed for marketing survey.**
- 13) **Modern bakeries practice of producing their own baking powder.**
- 14) **Financial resources of Parks.**
- 15) **Cost of Park's advertising campaign.**

## **SECOND PASSAGE:**

Source Perrier was one of the largest distributor of natural water drinks in France. By the early 1970s it was having difficulty in sustaining growth of its sales in France and looked to develop a market in the United States. Its American operation was headed by Bruce Nevins.

There were a number of conditions that made Nevins optimistic about the acceptance of Perrier water by American consumers. The most important of these was the growing diet consciousness. Miller brewing had hit the market with phenomenal success a few years earlier with the introduction of Life beer. Since cyclamates had been banned in soft drinks, producer;; had turned to saccharin which many people found distasteful. There was also no popular low-calorie drink that was considered chic to order. The use of the adjective "diet" simply announced that the drinker was encountering weight problems. If people could be persuaded that Perrier tasted good, then it could be a preferred low-calorie alternative.

Another trend was towards natural foods for health reasons. Even tap water and the 75 percent of bottled water that was processed from tap water become suspect. In the process of purification, cancer-suspect chlorine derivatives were added to water. Furthermore, certain viruses, sodium, and heavy metals were still found in most purified water and soda water. Perrier came from

natural springs, contained high calcium, no sodium, and no additives. It could be promoted as a natural drink with healthy properties even though some of the bubbles were lost when the water was removed from the springs and put back in during the bottling process.

A third factor was a growing U.S. preference for imports. This was apparent not only by noting the rising ratio of imports to gross national expenditures, but also by the acceptance of "foreignness". "In terms of food, so-called gourmet restaurants, cookbooks, dinner clubs, ingredients, and wines were becoming commonplace, and French items were practically synonymous with the word gourmet. Perrier might successfully capitalize on these attitudes.

The marketing program for Great Waters of France really got underway in 1977. One of the first questions was in which part of the market to position Perrier. The three trends discussed above would clearly lead to different price, promotion, and distribution strategies because of facing different competitors in each segment. In order to go after the diet market segment, for example, Perrier would come face-to-face with Coca-Cola and Pepsi-Cola, who between them controlled 45 percent of the soft-drink market. These firms, along with the many others that competed for the remaining 55 percent of sales, fought vigorously in the market by keeping prices fairly low, advertising heavily, and clamouring for shelf space in the soft-drink section of supermarkets. The difficulty of competing in this segment is evident by the experience of Schweppes, which in spite of establishing U.S. bottling facilities and engaging in heavy marketing outlays, had failed to get even 1 percent of the market. To compete in this mass market segment might also cause Perrier to lose the snob appeal it held among high-income buyers.

To compete in the natural or health foods segment would pit Perrier against other bottled water producers and various tonics that contained healthful additives. This was a very small market as compared with soft drinks. In 1976, sales of bottled water were \$189 million of which 93 percent was from purified domestic still water. This water largely sold in five-gallon containers at low prices through home or commercial delivery. Less than 20 percent of bottled water was sold in retail stores, and there was little brand identification. To expand retail sales would probably mean concentrating on gaining shelf space in health food sections of stores. Since bottled water sales were determined to be much more geographically concentrated than soft-drink sales, it would be far easier for Perrier to target its promotion and distribution for this segment. About 50 percent of sales, for example, was in California.

The gourmet market was the one to which Source Perrier had been selling for some 70 years. There were undoubtedly usages as well as distributional gaps in this market. The total sales of mineral water in 1976 was only \$15 million. Primary demand might be increased and Perrier might be made more and new distribution to the growing gourmet sections of supermarkets.

Perrier decided to hit the mass market by competing in the soft-drink market segment. One of the first problems that they had to overcome was the price of the product. Through massive distribution, they reasoned that the retail price could be cut about 30 percent. Even at that, the price was still about 50 percent higher than the average soft drink. This price was considered "rock bottom". The cost of transporting water across the Atlantic was expensive, resulting in an East Coast retail price in 1977 of 69 percent for a 23 ounce bottle. This included a retail gross margin of 27.6 percent as compared to 22.6 percent on soft drinks. Management reasoned that the higher margin would make supermarkets more willing to handle Perrier. A low margin was maintained by Perrier not only to become more price competitive with domestic soft drinks, but

also to dissuade other European firms from exporting to the United States. To get people to pay what was still a high price, it was necessary to segment the soft-drink market differently than anyone had heretofore done by aiming at an adult population and using the higher price to gain snob appeal.

Great waters of France felt that distribution was the real key to success. A sales force of forty people, almost all of whom were formerly with soft-drink firms, were hired. Through a close examination of demographics, three cities were picked for the first expansion efforts. The cities (New York, San Francisco, and Los Angeles) were those with the largest penchant for imported food items. The company made a film designed to convey to distributors and supermarket chains that Perrier water had a long-term viability. The film showed that the springs had been popular as far back as 218 B.C. When Hannibal partook of the waters and that the present firm dates back to 1903, supplies 400 million bottles a year, and outsells the leading cola in Europe to 2 to 1. Perrier sought the most aggressive distributors for these first and subsequent market areas. These included soft-drink bottlers, alcoholic beverage distributors, and food brokers, in different areas. It was essential that distributors be able to get supermarket space in the soft-drink sections, replenish stocks frequently, and set up point of purchase displays. One of the first distributors, Joyce Beverage Management, bought fifty-five trucks and hired 100 additional people to handle the Perrier account. In the introductory period, arrangements were made for secondary display stacks and in-store tasting. The company also gave cents-off coupons with purchases. Within a year, Perrier had moved from three to twenty major market areas. This was doubled in the second year.

For the big sales push, Perrier developed 11 -ounce and 6.5 ounce bottles, the latter sold in multipacks. They also developed a modern logo in the bottles, later to be replaced by the original label design, which was more congruent with the old-world image that the firm wishes to project. With initial distribution assured, it was necessary to get sufficient appeal so that the bottles on the shelves would be sold. In Europe, the company could make therapeutic claims; however the U.S. law was very strictly against this. In test marketing, Perrier tried such themes as "formerly heavy drinkers such as Richard Burton and Ed Me Mahon are now 'hooked' on Perrier and 'contains no sodium which causes heartburn'". These were abandoned in favour of message emphasizing its qualities as a natural thirst-quencher with no calories and no additives. Initial promotion was regional relying heavily on the print media. Groups of food and beverage writers were invited for dinners and exhibitions so that they would write about Perrier. Marathons were sponsored so that the product would be associated both with "healthiness" and "thirst-quenching". As distribution became national, Perrier got Orson Welles to give T.V. spots on network channels. The advertising budget was set high \$1 million, \$2 million, and \$7 million for respective fiscal years 1977, 1978, and 1979. Throughout this period, Perrier was able to maintain a snob appeal by getting tidbits in gossip about celebrations being seen sipping Perrier in the "right places".

Sales increased rapidly to 21 million bottles in 1977, 60 million in 1978 over 100 million in 1979, and over 200 million in 1980. The increase did not go unnoticed by either the media or by competitors. By 1979, a bottling executive said, "Everyone with water seeping from a rock is buying glass, slapping a label on it, and marketing a new bottled water". In the first quarter of 1979 alone, seven new bottled waters came on the market. Some of the old bottled spring water firms suddenly sought a larger share of the growing market. They promoted blind tasting comparisons to emphasize that American water was just as tasty as the imports. Nestle's Deer Park brand made a challenge with a spring water priced 35-40 percent below Perrier in a bottle



with a label that unashamedly copied Perrier. Its theme was, 'let your guests think it's imported, Norton Simon's Canada Dry began repositioning its club soda to be more competitive with Perrier. SAMI, a market research group, reported 104 brands of bottled waters in its territory. In view of the increased competition from American companies. Nevins was forced to review his company's marketing strategy.

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16. Perrier as a low - calorie alternative to soft drinks.
17. Growing U.S preference for imports.
18. No sodium in Perrier water.
19. Finding aggressive distributors.
20. Diet-consciousness of Americans.
21. The establishment of Perrier in 1903.
22. Cutting the retail price by 30 percent
23. Perrier's success in France.
24. Advantage of mineral water.
25. Cost of shipping to the United States.
26. Logging growth of Perrier in France.
27. Finding a market position for Perrier.
28. Proportion of bottled water sold in five-gallon containers.
29. Increased competition from American bottlers.
30. Banning of cyclamates in soft drinks.

## SECTION II - READING COMPREHENSION

**Directions: This section contains three passages. You have to read each carefully. Each passage is followed by questions based on its contents. 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

Entrepreneurs innovate. Innovations the specific instrument of entrepreneurship. It is the act that endows resources with a new capacity to create wealth. Innovation, indeed, creates a resource. There is no such thing as a resource until man finds a use for something in nature and thus endows it with economic value. Until then, every plant is a weed and every mineral just another

rock. Not more than a century ago, neither mineral oil seeping out of the ground nor bauxite, the ore of aluminium, were resources. They were nuisances; both render the soil infertile. The penicillin mold was a pest, not a resource., Bacteriologists went to great lengths to protect their bacterial cultures against contamination by it. Then in the 1920s, a London doctor Alexander Fleming, realized that this pest was exactly the bacterial killer bacteriologists had been looking for and the penicillin mold became a valuable resource.

The same holds just as true in the social and economic spheres. There is no greater resource in an economy than purchasing power. But purchasing power is the creation of the innovating entrepreneur. The American farmer had virtually no purchasing power in the early nineteenth century, he therefore, could not buy farm machinery. There were dozens of harvesting machines on the market, but however, much he might have wanted them, the farmer could not pay for them. Then one of the many harvesting machine inventors, Cyrus McCormick, invented installment buying. This enabled the farmer to pay for a harvesting machine out of his future earnings rather than out of his past savings and suddenly the farmer had purchasing power to buy farm equipment.

Equally whatever changes the wealth-producing potential of already existing resources constitutes innovation. There was not much new technology involved in the idea of moving a truck body off its wheels and onto a cargo vessel. This innovation, the container, did not grow out of technology at all but out of a new perception of the cargo vessel as a materials-handling device rather than a ship which meant that what really mattered as to make the time in port as short as possible. But this humdrum innovation roughly quadrupled the productivity of the ocean-going freighter and probably saved shipping. Without it, the tremendous expansion of world trade in the last forty years - the fastest growth in any major economic activity over recorded could not possibly have taken place. What really made universal schooling possible - more so than the popular commitment to the value of education, the **systematic** training of teachers in schools of education, or pedagogic theory - was that lowly innovation, the textbook. Without the textbook, even a very good teacher cannot teach more than one or two children at a time.

Innovation as these examples show, does not have to be technical, does not indeed have to be a thing altogether. Few technical innovations can compete in terms of impact with such social innovations as the newspaper or insurance. Installment buying literally transforms economies. Wherever introduced, it changes the economy from supply-driven to demand-driven, regardless almost of the productive level of the economy. The hospital, in its modern form a social innovation of the enlightenment of the eighteenth century, has had greater impact on health care than many advances in medicine- Management, that is the useful knowledge that enables man for the first time to render productive people of different skills and knowledge working together in an organization. It has converted modern society into something brand new, something, by the way, for which we have neither political nor social theory; a society of organizations.

Books on economic history mention August Borsing as the first man to build steam locomotives in Germany. But surely far more important was his innovation-against strenuous opposition from craft guilds, teachers and government bureaucrats of what to this day is the German system of factor organization and the foundation of Germany's industrial strength. It was Borsing who devised the idea of the Master the highly skilled and highly respected senior worker who runs the shop with considerable autonomy; and the apprenticeship system, which combines practical

training on the job with schooling in the classroom. And the twin inventions of modern government by Machiavelli in the Prince and of the modern national state of his early follower, Jean Bodin, sixty years later, have surely had more lasting impacts than most technologies.

**31. For the American farmer, the innovation was:**

- (a) harvesting machine;
- (b) installment plan;
- (c) cooperative farming;
- (d) none of the above.

**32. Natural resources are so called because:**

- (a) these are found in nature;
- (b) somebody has been able to locate these;
- (c) somebody has been creative enough to put these to use;
- (d) none of the above.

**33. The innovation of a text book has:**

- (a) helped the teachers;
- (b) helped the students;
- (c) helped the cause of universal education;
- (d) helped the publishers do a business.

**34. Which of the following statements could be termed to be true as per the author**

- (a) ship is different from a cargo vessel.
- (b) every innovation has to be technical.
- (c) hospital is a technical innovation.
- (d) management is purely a non-technical innovation.

## **PASSAGE 2**

Emile Durkheim, the first person to be formally recognized as a sociologist and the most scientific of the pioneers, conducted a study that stands as a research model for sociologists today. His investigation of suicide was, in fact, the first sociological study to use statistics. In 'Suicide' (1964, originally published in 1897) Durkheim documented his contention that some aspects of human behavior — even something as allegedly individualistic as suicide - can be explained without reference to individuals.

Like all of Durkheim's work, suicide must be viewed within the context of his concern for social integration. Durkheim wanted to see if suicide rates within a social entity (for example, a group, organization, or society) are related to the degree to which individuals are socially involved (integrated and regulated). Durkheim described three types of suicide, egoistic, anomic and altruistic. Egoistic suicide is promoted when individuals do not have sufficient social ties. Since single (never married) adults, for example, are not heavily involved with family life, they are more likely to commit suicide than are married adults. Altruistic suicide, on the other hand, is more likely to occur when social integration is too strong. The ritual suicide of Hindu widows on their husbands' funeral pyres is one example. Military personnel, trained to lay down their lives for their country, provide another illustration.

Durkheim's third type of suicide — anomic suicide — increases when the social regulation of individuals is disrupted. For example, suicide rates increase during economic depressions. People who suddenly find themselves without a job or without hope of finding one are more prone to kill themselves. Suicides may also increase during periods of prosperity. People may loosen their social ties by taking new jobs, moving to new communities, or finding new mates.

Using data for the government population reports of several countries (much of it from French Government Statistical Office), Durkheim found strong support for his line of reasoning. Suicide



rates were higher among single than married people, among military personnel than civilians, among divorced than married people, and among people involved in nationwide economic crises.

It is important to realize that Durkheim's primary interest was not in the empirical (observable) indicators he used such as suicide rates among military personnel, **married** people, and so forth. Rather, Durkheim used the following indicators to support several of his contentions: (1) Social behavior can be explained by social rather than psychological factors, (2) suicide is affected by the degree of integration and regulation within social entities, and (3) Since society can be studied scientifically, sociology is worthy of recognition in the academic world. Durkheim was successful on all three counts.

**35. In his study of suicide Durkheim's main purpose was:**

- (a) to document that suicide can be explained without reference to the individual;
- (b) to provide an explanation of the variation in the rate of suicide across societies;
- (c) to categorize various types of suicide;
- (d) to document that social behavior can be explained by social rather than psychological factors.

**36. According to Durkheim, suicide rates within a social entity can be explained in terms of:**

- (a) absence of social ties;
- (b) disruption of social regulation;
- (c) nature of social integration;
- (d) all of the above.

**37. Since single adults are not heavily involved with family life they are more likely to commit suicide which Durkheim categorized as**

- (a) anomic suicide;
- (b) altruistic suicide;
- (c) egoistic suicide;
- (d) 2 and 3

**38. Higher suicide rate during rapid progress in a society is a manifestation of**

- (a) altruistic suicide;
- (b) anomic suicide;
- (c) egoistic suicide;
- (d) none of the above.

**39. Ritual suicide of Hindu widows on their husbands' funeral pyres was:**

- (a) a manifestation of strong social integration;
- (b) an example of brutality against women;
- (c) an example of anomic suicide;
- (d) an example of egoistic suicide;

**40. Increase in the suicide rate during economic depression is an example of**

- (a) altruistic suicide;
- (b) anomic suicide;
- (c) egoistic suicide;
- (d) both 1 and 3.

### **PASSAGE 3**

How quickly things change in the technology business! A decade ago, IBM was the awesome and undisputed king of the computer trade, universally feared and respected. A decade ago, two little companies called Intel and Microsoft were mere blips on the radar screen of the industry, upstart start-ups that had signed on to make the chips and software for IBM's new line of personal computers. Though their products soon became industry standards, the two companies remained protected children of the market leader.

What has happened since is a startling reversal of fortune. IBM is being ravaged by the worst crisis in the company's 79 year history. It is undergoing its fifth restructuring in the past seven years as well as seemingly endless rounds of job cuts and firings that have eliminated 100,000 jobs since 1985. Last week IBM announced to its shell-shocked investors that it lost \$ 4.97 billion last year the biggest loss in American corporate history.

And just when IBM is losing ground in one market after another. Intel and Microsoft have emerged as the computer industry's most fearsome pair of competitors. The numbers on Wall Street tell a stunning story. Ten years ago, the market value of the stock of Intel and Microsoft combined amounted to about a tenth of IBM's. Last week, with IBM's stock at an 11 year low. Microsoft's value surpassed it? old mentor's for the first time ever (\$26.76 billion to \$26.48 billion) and Intel (\$24.3 billion) is not far behind. While IBM is posting losses. Intel's profits jumped 30% and Microsoft's rose 44%.

Both Intel, the world's largest supplier of computer chips, and Microsoft, the world's largest supplier of computer software, have assumed the role long played by Big Blue as the industry's pacesetter. What is taking place is a generational shift unprecedented in the information age - one that recalls a transition in the U.S. auto industry 70 years ago. When Alfred Sloan's upstart General Motors surpassed Ford Motor as America's No. 1 car maker. The transition also reflects the decline of computer manufacturers such as IBM, Wang and Unisys, and the rise of companies like Microsoft, Intel and AT&T that create the chips and software to make the computers work "Just like Dr. Frankenstein, IBM created these two monster competitors, " Says Richard Shaffer, publisher of the Computer Letter, "Now even IBM is in danger of being trampled by the creations it unleashed."

Although Intel and Microsoft still have close relationships with Big Blue, there is little love lost between IBM and its potent progeny. IBM had an ugly falling-out with former partner Microsoft over the future of personal-computer software. Microsoft developed the now famous disk operating system for the IBM-PC-called DOS and later created the operating software for the next generation of IBM personal computers, the Personal SystemV2. When PS/2 and its operating system, OS/2 failed to catch on, a feud erupted over how the two companies would upgrade the system. Although they publicly patched things up, the partnership was tattered. IBM developed its own version of OS/2, which has so far failed to capture the industry's imagination. Microsoft's competing version, dubbed New Technology, or NT, will debut in a few months and will incorporate Microsoft's highly successful Windows program, which lets users juggle several programs at once. Windows, NT, however, will offer more new features, such as the ability to link many computers together in a network and to safeguard them against unauthorized use.

IBM and Intel have also been parting company. After relying almost exclusively on the Santa Clara, California company for the silicon chips that serve as computer brains. IBM has moved to reduce its dependence on Intel by turning to competing vendors. In Europe, IBM last year began selling a lost-cost line of PC's called Ambra, which runs on chips made by Intel rival Advanced Micro Devices. IBM also demonstrated a sample PC using a chip made by another Intel enemy, Cyrix. And last October IBM said it would begin selling the company's own chips to outsiders in direct competition with Intel.

IBM clearly feels threatened. And the wounded giant still poses the biggest threat to any future dominance by Intel and Microsoft. Last year it teamed up with both companies' most bitter rivals - Apple Computer and Motorola - to develop advanced software and microprocessors for a new generation of desktop computers. In selecting Apple and Motorola, IBM bypassed its longtime partners. Just as Microsoft's standard operating system runs only on computers built around Intel's computer chips. Apple's software runs only on Motorola's chips. Although IBM has pledged that the new system will eventually run on a variety of machines, it will initially run

only computer programs written for Apple's Macintosh or IBM's OS/2. Its competitive juices now flowing. IBM last week announced that it and Apple Computer will deliver the operating system in 1994 - a year ahead of schedule.

**41. As a result of greater competition in the US Computer industry:**

- (a) Some computer companies are expanding while others are contracting;
- (b) Employment in the industry is going down;
- (c) The industry is becoming more monopolized;
- (d) The share value of IBM is going up relative to that of Intel and Microsoft.

**42. Why is something that happened 70 years ago in the US auto industry being mentioned here?**

- (a) General Motors broke away from Ford Motor.
- (b) A new company went ahead of an established market leader.
- (c) Like Dr. Frankenstein. Ford Motor created a monster in General Motors.
- (d) Microsoft, Intel and AT&T were originally created by IBM.

**43. Who is mentioned as the principal supplier of silicon chips to IBM?**

- (a) AT&T.                      (b) Microsoft.                      (c) Cyrix                      (d) Intel.

**44. The personal computer called Ambra is marketed by:**

- (a) Cyrix.                      (b) IBM.                      (c) Intel.                      (d) Microsoft.

**45. What was the original reason for the feud between IBM and Microsoft?**

- (a) The two companies developed competing softwares,
- (b) Microsoft and Intel learned up against IBM.
- (c) IBM began to purchase microchips from Intel instead of Microsoft.
- (d) IBM made losses while Microsoft made profits.

### SECTION III - PROBLEM SOLVING

**Directions: For each of the following questions, select the choice which best answers the question.**

**46. If  $\log_4 (x^2 + x) - \log_4 (x + 1) = 2$ , x equals:**

- (a) 2                      (b) 4                      (c) 5                      (d) 16

$$(625)^{6.25} \cdot (25)^{2.60}$$

**47. When simplified ----- equals:**

$$(625)^{6.75} \cdot (5)^{1.20}$$

- (a) 625                      (b) 6.25                      (c) 25                      (d) 0.25

**48. If HCF and LCM of 77, 99 and x are respectively 11 and 3,465 then x is equal to:**

- (a) 33                      (b) 44                      (c) 55                      (d) 66

**49. In order to compute 0.15% of a number, the number must be multiplied by:**

- (a) 0.0015                      (b) 0.015                      (c) 0.15                      (d) 1.5

**50. p is 95% of q. What percentage of p is q?**

- (a) 95%                      (b) 105%                      (c) 105.3%                      (d) 195%

**51. The sum of two numbers is 10; their product is 20. The sum of their reciprocals is:**

- (a) 2                      (b)  $\frac{1}{2}$                       (c)  $\frac{1}{10}$                       (d)  $\frac{1}{30}$

**52. If  $4^x - 4^{x-1} = 24$ , then  $(2x)^x$  equals:**

- (a) 1                      (b) 125                      (c)  $\sqrt{5}$                       (d)  $25\sqrt{5}$

**53. If a Solid block is cut by horizontal plane, the cross-section is a circle. And if it is cut by a vertical plane, the cross-section is a square. That block is a:**

- (a) Sphere                      (b) Cone                      (c) Cylinder                      (d) None of the above

54. A dealer buys a lot of 50 chairs for Rs 5,000 but 20 of them are damaged. He decides to sell each damaged one at three-fourths the price of the normal one. To make a profit of 35% on the whole, the selling price of a chair should be:

- (a) Rs 135                      (b) Rs 150                      (c) Rs 160                      (d) Rs 175

55. A sum of money at compound interest, compounded annually, amounts in 2 years to Rs 2,704 and in 3 years to Rs 2,812.16. The rate of interest is:

- (a) 8%                      (b) 6%                      (c) 4%                      (d) 5%

56. If a sum of money double itself in 16 years at a certain rate of interest, it will become ..... times itself in 8 years at die same rate.

- (a)  $1(1/2)$                       (b)  $1(1/4)$                       (c)  $1(1/3)$                       (d)  $1(1/5)$

57. A clerk borrowed a sum of money at compound interest from a credit society. He had to pay it back in two equal yearly instalments of Rs 4,410 each. If the rate of interest was 5% per annum, the money borrowed by him was:

- (a) Rs 8,820                      (b) Rs 8,400                      (c) Rs 8,000                      (d) Rs 8,200

58. If Sunil Kumar travels at the rate of 3 kmph, he reaches his office 15 minutes late. If he travels at the rate of 4 kmph, he reaches his office 15 minutes earlier. The distance of his office is ..... km,

- (a) 3.5                      (b) 7                      (c) 2                      (d) 6

59. A sample of 50 litres of glycerine is found to be adulterated to the extent of 20%. How much pure glycerine should be added to bring the percentage of impurity down to 5%?

- (a) 60 litres                      (b) 40 litres                      (c) 150 litres                      (d) 190 litres

60. A cistern without lid containing 8,000 litres of water measures externally 3m 3dm  $\times$  2m 6dm  $\times$  1m 1 dm, the sides being 5 cm thick. The thickness of the bottom of the cistern is:

- (a) 2.5 cm                      (b) 1 dm                      (c) 1 cm                      (d) 5 cm

61. Raman Kumar has a garden 30 m long and 20 m broad. He decides to increase the length by 6 m. By how many metres should he increase the breath so that the garden remains similar in shape?

- (a) 4 m                      (b) 6 m                      (c) 22 m                      (d) 24 m

62. The area of a right triangle is S sq cm and one of the sides containing the right angle is l cm. The altitude on the hypotenuse is:

- (a)  $25/t$  cm                      (b)  $(S^2 - t^2)$  cm  
 (c)  $\sqrt{[t^2 + (4S^2)/t^2]}$  cm                      (d)  $2St \sqrt{[t^4 + (4S^2)/t]}$  cm

63. The side of a square is 2 dm. Semi-circles are constructed on each side of the square. The area of the whole figure in  $\text{dm}^2$  is:

- (a)  $4 + 2\pi$                       (b)  $4 + 4\pi$                       (c)  $4\pi$                       (d)  $8\pi$

64. In a chess board, eight rooks are to be placed such that no two rooks are in the same row or in the same column. In how many ways the eight rooks can be placed in the chess board?

- (a) 64                      (b) 5040                      (c) 40320                      (d) 16777216

65. A and B are two single digit number. If A73B92 is divisible by 99, then

- (a) A = 9 and B = 6                      (b) A = 6 and B = 9  
 (c) A = 5 and B = 1                      (d) A = 4 and B = 2

66. There are two outlet taps, A and B in a tank. When both taps are opened, the tank with full of water is drained in 45 minutes. If the tap A is opened and the tap B is closed, the tank will be drained in 1 hour. If the tap B is opened and the tap A is closed, how long will it take to drain the tank?

- (a) 2 hrs.                      (b) 3 hrs.                      (c) 2 hrs. 30 min.                      (d) 4 hrs.

**67. There are 100 students in a class and they were given two tests. In the first test, only 37 passed whereas in the second test 49 passed. At least how many students failed in both the tests?**

- (a) 12                      (b) 14                      (c) 43                      (d) 51

**68. Which of the following statements are true?**

- A) If a perfect square is divided by 3, the remainder is always 0 or 1  
B) If a perfect square is divided by 7, the remainder can never be 3 or 5  
C) If a perfect cube is divided by 5, the remainder can never be 2 or 3  
D) If a perfect cube is divided by 9, the remainder is always 1 or 8  
(a) A and B only      (b) A and C only      (c) B and D only      (d) C and D only

**69. Which of the following three measures cannot be sides if a triangle?**

- (a) 2 cm, 3 cm, 4 cm                      (b) 3 cm, 4 cm, 5 cm  
(c) 4 cm, 8 cm, 5 cm                      (d) 7 cm, 11cm, 15 cm

**70. How many times 7 appear when the integers between 10 and 100 are written?**

- (a) 17                      (b) 18                      (c) 19                      (d) 20

#### SECTION IV - DATA SUFFICIENCY

**Directions:** Give answer (a) if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question. Give answer (b) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question. Give answer (c) if the data in both statements I and II together are necessary to answer the question. Give answer (d) if the data in statement I or in statement II alone are sufficient to answer the question. Give answer (e) if the data even in both statements I and II together are not sufficient to answer the question.

**71. How many candidates were interviewed everyday by the panel A out of the three panels A, B and C?**

- I. The three panels on an average interview 15 candidates everyday.  
II. Out of a total of 45 candidates interviewed everyday by the three panels, the number of candidates interviewed by panel A is more by 2 than the candidates interviewed by panel C and is more by 1 than the candidates interviewed by panel B.

**72. What will be the average weight of the remaining class?**

- I. Average weight of 30 children out of total 46 in the class is 22.5 kg and that of the remaining children is 29.125 kg. A child having weight more than 40 kg is excluded.  
II. Average weight of a class of 46 children is 23.5 kg. A child weighing 46 kg is dropped out.

**73. The average age of teacher and students in a class is 3 years more than the average age of students. What is the age of the class teacher?**

- I. There are 11 students in the class.  
II. The average age of teacher and students is 14 years.

**74. How many children are there in the group?**

- I. Average age of the children in this group is 15 years. The total age of all the children in this group is 240 years.  
II. The total age of all the children in the group and the teacher is 264 years. The age of the teacher is 9 years more than the average age of the children.

**75. The average age of P, Q, R and S is 30 years. How old is R?**



- I. The sum of ages of P and R is 60 years.
  - II. S is 10 years younger than R.
- 76. What is the average age of children in the class?**
- I. Age of the teacher is as many years as the number of children.
  - II. Average age increased by 1 year if the teachers age is also included.
- 77. What is the difference between the digits of a two-digit number?**
- I. The sum of the digits of that number is 8.
  - II. One-fifth of that number is 15 less than half of 44.
- 78. What is the two-digit number whose first digit is  $a$  and the second digit is  $b$ .**
- I. The number is a multiple of 51.
  - II. The sum of the digits  $a$  and  $b$  is 6.
- 79. What is the number?**
- I. The sum of the two digits is 8. The ratio of the two digit is 1 : 3.
  - II. The product of two digits of a number is 12. The quotient of two digits is 3.
- 80. What is the two digits number?**
- I. The difference between the two digits is 9.
  - II. The sum of the digits is equal to the difference between the two digits.
- 81. Average age of employees working in a department is 30 years. In the next year, ten workers will retire. What will be the average age in the next year?**
- I. Retirement age is 60 years.
  - II. There are 50 employees in the department.
- 82. Divya is twice as old as Shruti. What is the difference in their ages?**
- I. Five years hence, the ratio of their ages would be 9:5.
  - II. Ten years back, the ratio of their ages was 3 : 1
- 83. What is Reena's present age?**
- I. Reena's present age is five times her son's present age.
  - II. Reena's age two years hence will be three times her daughter's age at that time.
- 84. What is Sonia's present age?**
- I. Sonia's present age is five times Deepak's present age.
  - II. Five years ago her age was twenty-five times Deepak's age at that time.
- 85. How much profit did Anand make by selling a bed?**
- I. He bought the bed with 40% discount on labelled price.
  - II. He sold it with 20% profit on the labelled price.

#### 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, grammar or punctuation. If there is no error, indicate 5 as the answer

**Questions:**

86. Don't wait for him; I doubt that he will come. No error.
- A                      B                      C                      D                      E
87. He was cleverly cornered; he had no choice than to accept our terms. No error.
- A                      B                      C                      D                      E

88. ~~The question was that how he had managed to amass such a huge fortune.~~  
A B C D  
No error.  
E
89. This book is as good though cheaper than the other books. No error.  
A B C D E
90. If he gives a written apology, then no action will be taken against him.  
A B C D  
No error.  
E
91. He is a saintly person; honor and glory have no charm for him. No error.  
A B C D E
92. The management came to know much later, the workmen as well as the  
A B  
supervisor has been dismissed. No error.  
C D E
93. Not only the flower plants but the grass also have withered due to heat.  
A B C D  
No error.  
E
94. They did not take any precaution because neither he nor his servants was  
A B C  
aware of the danger. No error.  
E E
95. Let us sign the agreement, either of these two proposals are acceptable to me.  
A B C D  
No error.  
E
96. He is one of my friends who is the member of the national team. No error.  
A B C D E
97. Every one of the arrested men have confessed his fault. No error.  
A B C D E
98. Don't buy any of these books, most of these gives outdated information.  
A B C D  
No error.  
E
99. Prizes were not given on the basis of merit; every boy and every girl were  
A B C  
given a prize. No error.  
D E
100. He had to stand throughout the journey; females had occupied all the available  
A B C D  
seats. No error.  
E