JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

THIRD TRIMESTER (BATCH 2023-25)

ENDTERM EXAMINATION, APRIL 2024

(Set 1)

Course Name	Economics of Strategy	Course Code	**20707**
Max. Time	**2 Hours**	Max. Marks	**40 MM**

INSTRUCTIONS:

1. **It is an open book exam (course books- Economics of Strategy- Besanko et.al./ Games of Strategy- Avinash Dixit),**
2. **Handwritten notes are not allowed**
3. **Answer all questions**

Q1. In a two-player, one-shot, simultaneous-move game, each player can choose strategy A or strategy B. If both players choose strategy A, each earns a payoff of $400. If both players choose strategy B, each earns a payoff of $200. If player 1 chooses strategy A and player 2 chooses strategy B, then player 1 earns $100 and player 2 earns $600. If player 1 chooses strategy B and player 2 chooses strategy A, then player 1 earns $600 and player 2 earns $100. (2*4=8 marks) (CLO3)

a. Create pay off matrix of this game.

b. Assess each player's dominant strategy, if it exists.

c. Judge the Nash equilibrium (or equilibria) of this game.

d. Analyze the outcome with the highest aggregate payoff sustainability in equilibrium? Explain why or why not?

Q2. Read the case "Kanpur Confectioneries Private Limited A)" and answer the following questions.

a. Analyse the company performance since Mr. Alok Gupta took charge in 1982? Compare it with the time when Mr. Alok father was in charge. (4*2= 8 marks) (CLO1)

b. Appraise the proposal of APL with an explanation of its impact on family business and justify your final decision. (24 marks) (CLO2)

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KANPUR CONFECTIONERIES PRIVATE LIMITED (A)

On September 10, 1987, Alok Kumar Gupta, 47, Chairman and Managing Director of Kanpur Confectioneries Private Limited (KCPL), and his brothers, Vivek, 42, and Sanjay, 33, met to decide whether they should accept a proposal by A-One Confectioneries Private Limited (APL) to become one of its contract manufacturers (CMUs). APL, a leading national player in the Indian confectionery industry, was seeking to expand its supply to the Northern market by subcontracting production to small and medium companies in North. It wanted to retain full control over the quality and quantity of biscuits supplied by them. It had promised to compensate its CMUs adequately by way of volume of business and conversion charges. To KCPL, the advantages of the deal were, getting an assured return on its investment and accessing APL's manufacturing expertise. The disadvantages were, the possible loss of independence in decision making, dilution of "MKG"—the company's own brand, and loss of family prestige.

The Company

KCPL was established in 1945 by Mohan Kumar Gupta, then 28, in Jaipur, in the Northern Indian state of Rajasthan. Prior to that, he was a worker in a candy unit in Jaipur. In 1945, he obtained the dealership of a Candy Company in Jaipur and distributed candies to retailers. With the surplus earned from this business, he set up a production unit in Jaipur in 1946 and began selling sugar candies under the brand "MKG". His success attracted competition and in the next four years thirty business units were set up in the unorganized sector in Rajasthan to sell a variety of candies. As competition in the sector increased, net profit margins from the candy business decreased. Mohan Kumar faced a financial crisis as KCPL's costs were higher than those of its competitors and it could not charge a higher price than competition because the customers did not consider its candies to be different from others. He decided to shift KCPL's production base to the neighboring state of Uttar Pradesh (UP) and reduce costs. In 1954, he set up a candy producing unit on a one-and-a-half-acre plot in Radha Industrial Estate in Kanpur, a large industrial city in UP. The unit was first of its kind in UP. He appointed three sales representatives to cover the entire state, establish dealerships and promote "MKG" as a leading brand. He advertised "MKG" in regional (Hindi) newspapers and on hoardings at major intersections. He expanded his business geographically by establishing a dealers' network in the neighboring states of Bihar and Madhya Pradesh (MP).

Prepared by Professor Mukund Dixit and Vandana Dixit, Indian Institute of Management, Ahmedabad.
The names of places, products and people are disguised. The case writers express their gratitude to the members of the family for their cooperation in writing this case.

By 1970, KCPL had emerged as a leader in the candy business in the region. In that year Mohan Kumar invested the surplus cash earned from candy business in setting up a unit to produce and sell glucose biscuits under the brand "MKG". At that time there were two large national and six regional biscuit manufacturers in India. KCPL was the second player in UP to set up a biscuit manufacturing unit. Prince Biscuits, promoted by Ghanshyam Das in 1960, was the first one. The demand for biscuits was growing at more than 15% per annum. The net profit margin in the biscuit business was attractive at 25%. Mohan Kumar saw the biscuit's venture as an extension of the candy business. Sugar was a raw material common to both businesses. However, he had to arrange for a regular supply of other raw materials such as refined wheat flour and vegetable oil (known locally as *vanaspathi*). He tied up with local merchants for raw material supplies and began production in 1970 itself. He rented warehouses in key towns to stock the biscuits and continued to advertise the brand in newspapers and retail shops. The production process was simple. The equipment needed for production was available indigenously. The business was profitable, but the acceleration of production was constrained by the scarcity of wheat flour, sugar and vegetable oil. He extended his range and offered cream, salt and Marie biscuits under the "MKG" brand.

In 1973-74, KCPL reached the number two position in the market with a monthly sale of 110 metric tons (MT=1,000 kgs). Prince Biscuits was the market leader with a monthly sale of 130 MT. Its plant at Agra, UP, had a monthly capacity of 150 MT. International Biscuits Ltd held the third position with a sale of 100 MT per month. Its plant in Mumbai, in the state of Maharashtra, had a capacity of 800 MT per month. It was a leading player in the Western and Eastern regions. A-One Confectioneries Limited, an overall national leader with a total capacity of 900 MT per month, did not have a significant presence in the North. In 1980-81, KCPL doubled its capacity from 120 MT per month to 240 MT per month. Its turnover from biscuits business was INR 20 million, an increase of 15% over 1979-80. Its net profits were INR 2 million, an increase of 12% over the previous year. In 1983-84, its sales increased to INR 30 million and its net profits to INR 2.5 million.

Technology and Operations in 1987

Arun Kapoor, Manager (Operations), a science graduate from the local college, supervised the overall operations of KCPL. The company sought the advice of technical consultants on issues relating to capacity expansion, equipment selection and productivity improvements. Biscuit making involved the preparation of dough by mixing together flour, sugar syrup, vegetable oil and certain preservatives in a given proportion; moulding the dough into various shapes and sizes; and baking the shapes to get ready-to-eat biscuits. It was the proportion of ingredients used in making its biscuit dough that enabled a company to develop a secret formula. KCPL bought flour in bags of 50 kgs, sugar in bags of 100 kgs and vegetable oil in tins of 15 kgs from local suppliers and stocked them near the mixing unit. The raw materials were quality checked in a laboratory for impurities and metal particles. Flour was cleaned and manually fed into the mixing unit. Sugar crystals were converted to sugar syrup by dissolving the crystals in water and heating the solution. The solution was cooled to room temperature and stored in cylinders. The syrup was mixed with flour and vegetable oil in small mixers. The mixed dough was fed into the moulding unit and the shaped wet biscuits were placed in the oven for baking. The baking temperature varied from stage to stage of the baking process, and the care with which the temperature was maintained at different phases of baking was an important determinant of quality. The ready-to-eat biscuits were sent to the manual packing department for making packets of 100 grams.

In 1986-87, the average monthly production of MKG biscuits was 120 MT. KCPL depended on both permanent and casual workers for its operations. The total monthly salary of its 90 permanent employees was INR 275,000. It employed casual workers on a daily basis to support the activities of the packing and material-handling department. The size of the casual workforce depended on the volume of production; on average, six casual workers supported one MT of production. Casual workers were local to the region and earned a daily wage of INR 50. Absenteeism of permanent workers was the prime problem in operations. As a result of absenteeism up to 50%, the daily production varied between two MT to six MT per day.

Induction of Family Members

Mohan Kumar had six sons. Alok Kumar, his eldest son, joined the business in 1960 after earning a degree in commerce. Vivek, his second son, joined the company in 1965 after graduating with a degree in mechanical engineering. Sanjay, the youngest, came on board in 1974 with an arts degree. Mohan Kumar's three other sons started their own trading concerns in metal parts and containers. In 1982, he handed over the leadership of KCPL to his eldest son. Alok Kumar, Vivek and Sanjay had sons who were still in school. The allocation of responsibilities among the family members was clear. Alok looked after the finance and liaison functions; Vivek was in charge of human resource (HR) management and manufacturing; and Sanjay was responsible for marketing, logistics and administration. They did not interfere in each other's areas. They regarded decision making within the family as a participative process. The family members met on the fifth of every month to review business operations and performance and think through their plans for the future. They felt free to disagree on issues without disrespect to the fraternal hierarchy.

Mohan Kumar had stated explicitly that the company should respect the laws of the land, run the business on ethical lines, treat the consumer as king, pay taxes regulatory and not exploit labour. The family members earned a salary. The company believed in the policy of ploughing its surplus back into the business. The banker to the company was the State Bank of India. Their association with SBI, dated back to 1954.

The Brand

"MKG" was a popular brand in the Northern region. "MKG" biscuits were known for their quality, crispness and affordable price. KCPL did not sell loose biscuits. However, the owners of small neighborhood grocery stores (known locally as *kirana* shops) often broke open the packs and sold the biscuits loose to their customers. The main consumers of "MKG" biscuits were middle-class families in urban and semi-urban areas. Families in metropolitan cities preferred products by APL or International. Cafeterias at institutions bought biscuits by floating competitive tenders and placing orders with the lowest bidder. In 1986-87, KCPL sold 360 MT of biscuits to small and medium-sized institutions. The total demand from these institutions was estimated at around 2,400 MT per month. Large institutions preferred the other three brands.

Competition and Kcpl's Performance

Two national players, APL and International Biscuits Limited, dominated the industry. Competition increased with the establishment of 70 units in the unorganized sector between 1975 and 1980. Some of them were set up in the backyards of entrepreneurs and were operating under unhygienic conditions. They either sold unbranded biscuits or sold them under brand names similar to the leading brands. They even imitated the packaging style of the leading brands. The industry was well aware that the units in the unorganized sector avoided paying taxes. Manufacturers had to pay excise duty of 15% and sales tax of seven per cent of sales value. During the same period, eight new biscuit production units were set up in the organized sector in UP.

In the new competitive environment, KCPL found itself stuck in the middle between two types of players—those who competed on price and those who competed on scale and image. It could not increase its prices to meet rising labor and material costs. It was not a large national player that could benefit from economies of scale, nor did it have a premium image to command higher prices. It could not withstand the competitive pressure. Hence, between 1983-84 and 1986-87, its sales declined. Its capacity was rendered surplus. It incurred a loss. (See Exhibit 1 for details of the monthly operating performance of "MKG" operations in 1986-87).

The candy business was also on the decline. Owing to increased competition from both organized and unorganized players, KCPL's margins declined. The business became unattractive and uncompetitive, and the family members decided to shut down the candy line in 1985.

Arrangements with Pearson

In 1985, Pearson Health Drinks Limited (Pearson), a multinational company selling a nourishing health drink called "Good Health," decided to diversify into health biscuits by building on its goodwill in the health drink market. It also decided that it would not set up its own manufacturing facility. Instead, it would outsource its supply from small- and medium-scale units and provide technical support. Ramakant Joshi, a consultant to KCPL who had previously worked with Pearson, recommended KCPL's case to Pearson. Pearson promised an offtake of 100 to 125 MT per month and a conversion rate of INR 3 per kilo after fully reimbursing the cost of materials. It also agreed to allow KCPL to continue to run its existing line of business.

KCPL saw this as an opportunity to utilize its surplus capacity. It also hoped to learn new tools of quality management. It did not see Pearson as a competitor. The agreement was signed at Pearson's corporate office in Paris in May 1986. The initial order from Pearson was for 50 MT per month between May 1986 and March 1987. Pearson relied on KCPL's expertise and did not provide any technical guidance. Its officers inspected the quality of the biscuits before dispatch. The market response to Good Health biscuits was not very encouraging. They were seen as higher priced biscuits than APL, without any additional benefits. The price of APL biscuits was two-thirds of "Good Health" biscuits. APL had stressed in its advertisements that its biscuits contained milk solids.

APL'S Offer

On September 8, 1987, Bharat Shah, Chairman of APL, mentioned at a meeting of the Confectioneries Manufacturers Association of India (CMAI) that his company was interested in augmenting its supply capacity by promoting CMUs that made biscuits for APL according to APL's specifications. He also stated that his company would provide technical guidance to the CMUs and pay fair conversion charges. Alok Kumar met Shah after the conference and asked him whether he was serious about the proposal. Shah replied in the affirmative.

To APL, the CMU route was an attempt to reduce its manufacturing costs. APL was an overall national leader with a reputation for quality and price competitiveness. It had not changed its prices in the last three years. It had set up its production plant in Chennai, in the Southern Indian state of Tamil Nadu. Its monthly capacity in 1986-87 was 1,200 MT. It had mechanized most of its operations and reaped the benefits of large-scale economies. It had introduced quality control procedures based on Japanese practices, which had enabled the company to minimize wastage and improve its responsiveness to customers' orders. It had aspirations of becoming a leader in every region. It had entered the Northern sector in 1973-74. By 1986-87, it had become a leading player in the region with a monthly sale of 200 MT.

The Proposal

APL offered to place an initial order for 70 MT of glucose biscuits per month. It also offered to supply the pre-printed packaging material carrying APL's name. It would inspect KCPL's production processes and recommend changes in processes and equipment if needed. The changes had to be carried out by KCPL at its own cost. APL would post two quality control officers at KCPL's plant to facilitate KCPL's adherence to quality procedures. It would also supply APL's "secret ingredient" for producing APL biscuits. KCPL would be free to buy its materials from its own merchants or buy from one of APL's authorized suppliers. It offered to reimburse the raw material expenses as per its norms of consumption and pay a conversion charge of INR 1.50 per kg to cover labor, overhead and depreciation expenses. The initial contract was to be for three years. Shah had hinted that he would increase the offtake from KCPL, if it met the quality expectations of APL. In terms of control, KCPL would be required to send a daily production and raw material consumption report to APL.

The Family Discussion

Alok Kumar presented APL's proposal to his brothers. The proposal had both advantages and disadvantages. A clear advantage was that it required no marketing, brand building and distribution expenses on KCPL's part and minimized its business risk. It would also help KCPL utilize its surplus capacity. The main disadvantage was the possible loss of independence. The brothers also feared that they might not be able to focus on strengthening the "MKG" brand, which had been built by their father. In fact, the family's name and prestige was tied to the success of the biscuit line. In KCPL's early years, Mohan Kumar had envisioned that it would emerge as a leading national brand and compete successfully with APL.

There was also some anxiety over how the relationship with APL would work out and how APL's experience of managing large plants in Chennai would help in running a small plant in Kanpur. Would there be interference? Would they be asked to make additional investments in manufacturing? Was the conversion charge fair? How Pearson would view the venture was another issue. There were other questions as well that involved some soul searching: What did the family members want from their business ventures? What legacy would they like to leave to their sons in the future? They had to decide quickly. They were not sure whether other biscuit manufacturers were also interested in the opportunity and were preparing to make their move, beating KCPL.

EXHIBIT 1

DETAILS OF KANPUR CONFECTIONERIES' MONTHLY OPERATIONS for "MKG" BRAND IN 1986-87

Dimension	MKG	APL
Sale per month (MT)	120	1,200 National (200 North)
Price per MT (INR)	18,100	19,000
Consumption of flour per MT (in kgs)	750	700
Consumption of vegetable oil per MT (in kgs)	150	140
Consumption of sugar per MT ton (in kgs)	200	190
Price of flour per bag of 50 kgs	500	490
Price of vegetable oil per tin of 15 kgs	520	500
Price of sugar per bag of 100 kgs	1,200	1,150
Preservatives and packaging costs per MT	1,000	1,000
Casual labor cost per MT (INR)	300	400
Wage rate	50	80
Permanent salary bill per month (INR)	275,000	NA
Interest per month (INR)	10,000	NA
Other fixed commitments (INR)	60,000	NA

Note: *The data relates to "MKG" biscuit operations. They do not cover the impact of the Pearson contract.*
Source: *Discussions with company executives and traders.*