

**JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA**  
**PGDM / PGDM (M) / PGDM (SM)**  
**FOURTH TRIMESTER (Batch 2016-18)**  
**END TERM EXAMINATIONS, SEPTEMBER 2017**

Course Name	<b>Operations Management – II</b>	Course Code	<b>OP-401</b>
Max. Time	<b>2 hours</b>	Max. Marks	<b>60</b>

**INSTRUCTIONS:** Attempt all questions. Students are allowed to use calculator.

**Q.No.1** Answer the questions mentioned at the end of case study.

**OPERATIONS STRATEGY DEVELOPMENT AT ASKEYS:**

Askeys has been manufacturing ice cream cones, wafers and other biscuits normally eaten with ice cream since 1910. The ice cream cone was first introduced in 1904 at the St Louis World Fair in America. Six years later, Askeys brought the ice cream cone to the UK when founder, Italian Laurens Tedeschi, set up business in Kensal Road, London. The company moved to Aylesbury, a small town some 35 miles north-west of London, in the 1960s. The business was sold to Kellogg's, the American food manufacturing giant, most famous for its breakfast cereal in the 1970s. Under their ownership, Askeys was used solely as a manufacturing site, with all marketing, sales and distribution, together with all support services such as purchasing and personnel being run from Kellogg's UK head office in Manchester. During this period, the factory concentrated on the mass production of a limited range of standard cones and wafers. These were mostly sold to ice cream parlours and kiosks, ice cream vans and other outside caterers. Sales to this market were highly seasonal, and also weather dependent, and so such stocks were considered essential if peak summer demand was to be met. Indeed, the storage area for finished products was built to be as large as the manufacturing facility itself. However, through the 1980s, the market was changing and sales through supermarkets became much more important. By the 1990s, the vast majority of Askeys products were sold via the major national supermarkets. Although most of these sales were still under the Askeys brand, some products were provided under supermarket own labels. A large, but diminishing quantity of business remained destined for the catering trade and ice cream vendors. During this time production processes were labour intensive, particularly in the packaging areas. The handling and packing of such large numbers of low value extremely brittle products like ice cream wafers and cones was considered best entrusted to human dexterity. Production continued uninterrupted around the clock Monday to Friday with a shift system. Extra hours including weekends were worked if required in the summer. During this time, Askey's profitability declined under the relentless downward price pressure exerted by the supermarkets. Nonetheless, Askeys retained its position as the largest British manufacturer of ice-cream accompaniments, producing literally millions of wafers and cones of all shapes and sizes every year. Very little effort was put into developing new products.

In 1995, Askeys was acquired from Kellogg's in a management buy-in led by two experienced food industry executives, financed by venture capitalists. The new owners set about extending the product range. Over the next decade other ice cream biscuits were added to the Askeys range, including the waffle cone, supplied to ice cream manufacturers for the production of 'cornetto' type ices, and a wide range of fans, curls and dessert baskets aimed at the catering trade (including fast food outlets and restaurants) and home sales via supermarkets. A range of crumb products, used by caterers and food manufacturers as toppings, or as ingredients for cakes and biscuits was also developed. They also experimented with the manufacture of non-related products with the installation of a 'dry mix' plant. This was intended to be used for the production of powdered soups and desserts. Askeys now has a wide range of products aimed at home consumers, the catering trade and other food manufacturers. To meet the demand for these, the factory has had to learn to cope with a vastly increased product range. Many of these products have a very variable demand and are often made in relatively small batch sizes. Alongside this, they have had to continue to meet large-scale demand for the traditional cone and wafer products. Although this has not been without its problems, Askey's manufacturing operations have gradually developed the new competencies required. In

2004 Askeys was sold to The Silver Spoon Company, Britain's largest sugar and sweetener producer. The company says it intends to continue expanding the business through exploring new markets, expanding existing ones and new product development.

**Questions**

- 1a** How has Askeys' operations strategy changed over the years? **(5 Marks)**
- 1b** In which aspects of performance has Askeys' operations had to excel in order to compete in its chosen markets? **(7.5 Marks)**
- 1c** Which perspectives of operations strategy best describes the operations strategy process at Askeys at the different stages of its history? Give your reasons. **(7.5 Marks)**

**Q.No.2** A U.S. manufacturing company operating a subsidiary in an LDC (less-developed country) shows the following results:

	U.S.	LDC
Sales (units)	100,000	20,000
Labor (hours)	20,000	15,000
Raw materials (currency)	\$20,000	FC 20,000
Capital equipment (hours)	60,000	5,000

- 2a.** Calculate partial labor and capital productivity figures for the parent and subsidiary. Do the results seem misleading? **(3 Marks)**
- 2b.** Compute the multifactor productivity figures for labor and capital together. Do the results make more sense? **(3 Marks)**
- 2c.** Calculate raw material productivity figures (units/\$ where \$1 = FC 10). Explain why these figures might be greater in the subsidiary. **(4 Marks)**

**Q.No.3** Old Pueblo Engineering Contractors creates six-month "rolling" schedules, which are recomputed monthly. For competitive reasons (it would need to divulge proprietary design criteria, methods, and so on), Old Pueblo does not subcontract. Therefore, its only options to meet customer requirements are (1) work on regular time; (2) work on overtime, which is limited to 30 percent of regular time; (3) do customers' work early, which would cost an additional \$5 per hour per month; and (4) perform customers' work late, which would cost an additional \$10 per hour per month penalty, as provided by their contract.

Old Pueblo has 25 engineers on its staff at an hourly rate of \$30. The overtime rate is \$45. Customers' hourly requirements for the six months from January to June are

Jan.	Feb.	Mar.	Apr.	May	June
5000	4000	6000	6000	5000	4000

Develop an aggregate plan; assuming 20 working days in each month and suggest better solution (compare at least two strategies). **(10 Marks)**

**Q. No.4** Assume that Product Z is made of two units of A and four units of B. A is made of three units of C and four units of D. D. is made of two units of E.

Lead time for purchase or fabrication of each unit to final assembly are; Z takes two weeks; A,B, C and D takes one week each; and E take three weeks. Fifty units are required in period 10. (Assume that there is currently no inventory on hand of any of these items.) Show the bill-of-materials and develop an MRP schedule. **(10 Marks)**

**Q. No.5 5a)** Consider the following data on jobs waiting to be processed on a single machine in a job shop. They are listed in order their arrival at machine. Develop a schedule for these jobs based on the following rule: First Come First Serve (FCFS), Shortest Operating Time (SOT) and Earliest Due date (EDD). Suggest better priority rule for sequencing these jobs. **(5 Marks)**

Job	A	B	C	D	E
Processing Time (Days)	5	3	4	7	2
Due Date (Days)	8	5	12	14	11

**5b)** Discuss the purposes and differences between the p-charts and X-bar & R charts. **(5 Marks)**