

MANAGEMENT PROGRAMME**Term-End Examination****June, 2007****MS-96 : TOTAL QUALITY MANAGEMENT**

Time : 3 hours

Maximum Marks : 100

(Weightage 70%)

Note :

- (i) There are two sections : Section A and Section B.
 - (ii) Attempt any **three** questions from Section A, carrying 20 marks each.
 - (iii) Section B is **compulsory** and carries 40 marks.
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SECTION A

- 1. Explain Crosby's Quality Management Maturity grid and its relevance in the present context. 20
- 2. What do you understand by a Quality Planning Road Map ? Explain how it helps in meeting the customer needs of an organization. 20

3. Critically analyse the rationale of quality circles in the present context. 20
4. Briefly discuss Maslow's need hierarchy and its role in determining the quality of an organization, giving examples. 20
5. Write short notes on any **four** of the following : 20
- (a) ISO 9000 Quality Management System
 - (b) Extrinsic and Intrinsic Motivation
 - (c) Deming's systems view
 - (d) Standardisation space
 - (e) Quality crisis
 - (f) Kaizen

SECTION B

6. Read the following case and answer the questions given at the end.

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CATERPILLAR AND KOMATSU COMPETE GLOBALLY THROUGH QUALITY

Caterpillar Inc., the world's largest producer of earth-moving equipments and machinery had a product line including tractors, loaders, off-highway trucks and pipe layers. Caterpillar also made diesel and turbine engines and lift trucks. Sales in 1994 were forecast to be \$13.5 billion, 55 percent of them being international sales.

Caterpillar's fiercest global rival throughout the 1980s had been Komatsu Ltd. of Japan. Komatsu's 1994 global construction equipment sales were forecast at \$7.5 billion. Komatsu's objective was to catch up to Caterpillar and surpass it in the global market-place. Komatsu's advantage over Caterpillar in the 1980s was its lower-cost labour.

In the mid 1980s, Komatsu's US market share was close to 15 percent. In 1988 Komatsu started a joint venture in the US with Dresser Industries for manufacturing and distribution in Caterpillar's backyard. The combined Komatsu-Dresser US market share jumped to 20 percent while the US market share of Caterpillar

was 35 percent. It appeared that Komatsu-Dresser might overtake Caterpillar. In the face of such growing international competition, what could Caterpillar do ?

Instead of retreating in the face of fierce Japanese competition, Caterpillar had fought back hard on at least three fronts :

- (i) Caterpillar had made a dramatic investment in and *commitment to quality*. Its Plant-With-A-Future (PWAFF) idea included Total Quality Control (TQC), Computer Integrated Manufacturing (CIM) and Just-In-Time Production. Conceptually "PWAFF was a purely customer-driven manufacturing philosophy." CIM and JIT helped in the implementation of Total Quality Control. Also part of Caterpillar's commitment to quality included educating its suppliers in the quality improvement methods at Caterpillar's *Quality Institute*.
- (ii) Caterpillar kept a lid on its costs so that Komatsu did not achieve a substantial competitive cost advantage. As a result of Caterpillar's cost cutting effort, Caterpillar had to face a strike by US Auto Workers in 1992. Caterpillar also kept its supplier's costs low by educating its suppliers to use quality control techniques as a way to reduce the cost of manufacturing.

- (iii) Caterpillar kept its dealer network strong to provide prompt services to its customers. In 1992 Caterpillar estimated that its 65 full line US dealers had a network of \$1.72 billion versus Komatsu-Dresser's network of \$ 300 million for its 60 US and Canadian dealers.

Caterpillar recognised the importance of suppliers and dealers as part of Caterpillar's system to provide value to the customer.

"Providing value to the customers" was a large part of Caterpillar's competitive strategy.

Caterpillar's commitment to quality, its cost controls and its networks of suppliers and dealers paid off in the early 1990s. Caterpillar gained market share at Komatsu's expense in the US, in four key products (Crawler tractors, crawler loaders, hydraulic excavators and wheel loaders). Komatsu-Dresser's unit market share dropped from 20.3 percent in 1988 to 18 percent in 1991. Caterpillar's US market share rose from 34.5 percent to 36.4 percent in the same period. Komatsu-Dresser's joint venture had problems in terms of realising the goal of overtaking Caterpillar. After suffering a loss associated with the labour strike in 1992, Caterpillar's profits were growing strongly in 1993 and 1994.

Komatsu decided to diversify away from construction equipment, with only half of its sales in the mid 1980s in construction equipment. “Komatsu is not only for a bulldozer any more” was the statement of the executive managing director of Komatsu’s international operations.

Caterpillar concentrated on its construction equipment business with quality, cost control and network of suppliers and dealers. Its strategy of *providing value to its customers* became part of its *competitive strategy*. This helped Komatsu answer the corporate-strategy question of what business it was in by diversifying away from construction equipment.

Questions :

- (a) How important for its competitive strategy was Caterpillar’s strategy of providing value to its customers through quality, price and dealer networks ?
- (b) How did Komatsu’s decisions to diversify affect its competitive strength in construction equipment ?