SECTION – 2

QUESTION-2.

ANSWER:-

New Product Development: Challenges And Implications

In the last decades of 20th century, Western industries faced intensive competition with Japanese industries. Automotive industry was one of the industries that were seriously affected by this competition. Attempts to find Japanese advantages led to different results. Some believed that not having warehouse is the main advantage, some others believed Quality Circles is the advantage and some others saw some other aspects of Japanese industries as the main advantage. In the NBC documentary (1980, June 24) If Japan Can . . . Why Can't We? Americans found out about Dr. Deming. Chrysler Corporation, Ford Motor Company, and General Motors Corporation (1995) developed Advanced Product Quality Planning (APQP) and Control Plan: Reference Manual, a standard procedure for simultaneous engineering as a part of QS-9000 which was a standard based on ISO 9000. Finally Massachusetts Institute of Technology (MIT) (1980) executed the International Motor Vehicle Program (IMVP) to find out what Japanese were actually doing. IMVP project leaders Womak, Jones, and Rose (1991) reported IMVP findings in the book The Machine that Changed the World and consequently Womak and Jones (1996) theorized on these findings in the book Lean Thinking.

Lean Thinking is the paradigm shift to design, manufacturing, and business in the 21st century. Womak and Jones defined Lean Thinking principles as:

• Specify value

• Identify the value stream

• Make value flow continuously

• Let customers pull value

• Pursue perfection

In addition, basic value streams are identified as:

• Product design and development value stream: From design concept to product launch.

• Production and delivery value stream: Raw materials transformation into deliverable products and services to customers.

• Information value stream: From order to delivery.

Thus, product design and development is a basic value stream in any business. Keeping this in mind, New Product Development chapter covers the following subtopics:

• Business and product strategy

• Product development strategy

• Product planning

• Product portfolio management

• Technology planning

• Product design process: Integrated Product and Process Development, Advanced Product Quality Planning (APQP), Lean Product Development

• Design for X: Design For Manufacturing (DFM), Design For Assembly (DFA), design for reliability, design for six-sigma

• Product documentation and change management: Configuration Management (CM)

• Product Lifecycle Management (PLM)

• Product development tools and methods: Quality Function Deployment (QFD), Failure Modes and Effect Analysis (FMEA), Geometric Dimensioning and Tolerancing (GD&T), Design of Experiments (DOE) conventional and Taguchi methods