

## ASSIGNMENT-3

### :QUESTION/ANSWERS:-

Q1. What is the main goal of Technology management at the national level ?

Ans

- Technology management (MoT) is concerned with development, planning, implementation and assessment of technological capabilities to shape and accomplish the strategic and operational objectives of an organization or central planning goals and priorities of a nation.
- The main objective of Technology management (MoT) at national level is to assure that the nation and its business firms gain sustainable technological competitiveness in the international markets and maintain strong position in the international business on long-term basis.
- At national level, the domain of technology management includes the following areas :
  - i). Developing appropriate technology strategy for the nation.
  - ii). Technology forecasting
  - iii). Justification / appropriateness of new technology.
  - iv). Sustainable technologies
  - v). Development of renewable energy technologies
  - vi). Sustainable economic growth
  - vii). Planning national technology portfolio.
  - viii). Managing technology absorption
  - ix). Managing technology diffusion
  - x). Performance measurement of new technology

2). What are the key phases of the Strategic Technology management System (STMS) ?

Ans

- The key phases of the Strategic technology management System are :
  - ii). Technology creation ,
  - ii). Technology monitoring ,
  - iii). Technology assessment ,
  - iv). Technology transfer ,
  - v). Technology acceptance ,
  - vi). Technology utilisation ,
  - vii). Technology maturity ,
  - viii). Technology decline

i). Technology creation :-

- This phase involves creation and generation of new technologies . This phase involves following activities :
  - a). Creativity and invention
  - b). Innovation
  - c). Senior management commitment to technology creation and generation.

ii). Technology monitoring :-

- This phase calls for monitoring technology trends and changes implementing new technology . It involves following activities
  - a). Installing and developing information systems for monitoring technological trends and changes .
  - b). Customer and supplier interface to understand

market and technological changes.

c). People links to understand market trends and technological changes.

iii). Technology Assessment :-

• This phase involves following activities :

- a). Understanding direction of markets in terms of technology.
- b). Integration of technology and business planning.
- c). Customer interfaces to assess the commercial feasibility of prospective technologies.
- d). Assessing contributions of technology projects to business strategy.

iv). Technology Transfer :-

• This phase involves following activities :

- a). Entering strategic alliances to develop or acquire potential technologies.
- b). Using product design teams for reaping benefits of planned technological change.
- c). Reducing functional barriers to technology transfer.

v). Technology Acceptance :-

• This phase involves following activities :

- a). Supportive organizational design and structures.
- b). Supportive corporate culture
- c). Senior management commitment

3). What is technology forecasting , and why it is important ?

Ans

• Technology forecasting is the process of predicting the future development, adoption, and impact of technologies. It involves analyzing trends, historical data, and expert opinions to estimate how technology will evolve over time.

• The importance of Technology forecasting are :

- i). Helps businesses and governments prepare for future changes.
- ii). Supports Strategic planning and decision making.
- iii). Guides Research and Development Investments.
- iv). Reduces Uncertainty in Technology adoption.
- v). Enhances competitiveness by staying ahead of Market Trends.
- vi). Helps in Risk management and Resource allocation.

4). What do you mean by technology absorption and diffusion ?

Ans

i). Technology absorption :-

- Technology absorption refers to the process by which an organization, industry, or country adopts, internalizes, and effectively utilizes a new technology. It involves acquiring, understanding, adapting, and improving a technology to suit local needs and enhance productivity.

ii). Technology diffusion :-

- Technology diffusion refers to the process by which a new technology spreads across organizations, industries or societies. It involves the gradual adoption of innovations by individuals and businesses over time. The key aspects of Technology diffusion are :

- i). Awareness , ii). Evaluation , iii). Adoption ,  
iv). Expansion , v). Maturity .

5). What are the main steps in the product development process ?

Ans

- Product development typically refers to all of the stages involved in bringing a product from concept or idea, through market release and beyond. In other words, product development incorporates a product's entire journey .
- Step-1 : "IDEA Generation"
  - a). To systematically search for new product ideas.
  - b). The process of creating, developing, and communicating ideas which are abstract, concrete, or visual.
- Step-2 : "IDEA Screening"
  - a). Good ideas are pinpointed while poor ones are dropped as soon as possible.
  - b). A process used to evaluate innovative product ideas, strategies and marketing trends. Idea Screening criteria are used to determine compatibility with overall business objectives and whether the idea would offer a viable return on investment.
- Step-3 : "Concept development and testing"
  - a). The surviving ideas should be next developed into product concept.
  - b). Product idea is for possible product that the company can see itself offering to the market.
  - c). It is a detailed version of the idea stated in meaningful consumer terms.

- c). It is the way that the consumers picture an actual or potential product.
- e). New products are tried with the group of target consumers.

- Step-4 : "Marketing Strategy development"

- a) Involves designing an initial marketing strategy for introducing the product into the market.

- Step-5 : "Business Analysis"

- a). Involves a review of sales, cost, and profit projections to find out whether they satisfy the company's objective.

- Step-6 : "Product Development"

- a). The research and development or engineering department develops the product concept into physical product.

- Step-7 : "Test marketing"

- a). Stage where the product itself and marketing program are tested in more realistic and marketing setting.

- Step-8 : 'Commercialization'

6). What is the difference between radical and incremental innovation?

Ans

Feature	Radical Innovation	Incremental Innovation
Definition	A groundbreaking change that creates entirely new products, markets or technologies.	Small, continuous improvements to existing products, services, or processes.
Level of change	High - disrupts industries and introduces new paradigms.	Low to moderate - enhances existing solutions without drastic changes.
Market impact	Can create new industries or make existing ones obsolete.	Strengthens a company's position in the current market.
Risk level	High - due to uncertainty and untested technology.	Low - builds on proven technologies and existing customer needs.
Example	Internet, Smartphones, electric cars, artificial intelligence.	Better camera in Smartphones, improved battery life, software updates.

7). What are the major challenges in international trade?

Ans

- International trade involves the exchange of goods and services across borders, but it comes with several challenges that business and governments must navigate.
- The major challenges in international trade are :

i). Trade Barriers : Tariffs, quotas, and import/export restrictions increase costs and limit market access.

ii). Exchange Rate Fluctuations : Change in currency value affect pricing, profitability, and competitiveness in global markets.

iii). Political and Economic Instability : Wars, political conflicts, and economic crises disrupt supply chains and trade agreement.

iv). Market Competition : Local competitions may have advantages in cost, consumer preferences, and government support.

v). Technological Barriers : Differences in technology adoption and digital infrastructure can hinder trade efficiency.

8). What is the role of an operations manager in a company?

Ans

- Depending on the organization, an operations manager can be responsible for a lot of different things. Unlike other executive positions, operations management is cross-department. A cmo specially works with the marketing department, CFO with finance, and so on. A coo, on the other hand, might need to work with just about every department. In most cases, their work involves process design.
- For a process example, the coo could create a structured employee onboarding procedure to make the whole onboarding more efficient.

i). Standard Management :-

- Helping create and optimize budgets, scheduling equipment, maintenance, ensuring that the employees are following Standard procedures etc.

ii). Process Improvement and Optimization :-

- Most businesses have a "don't fix what's not broken" policy towards their processes. More often than not, though, you could potentially get a lot more from your business if you constantly check on your processes. The coo is supposed to make sure that all your processes are as efficient as they can be.

Q). What is Strategic management of Technology (SMOT)?

Ans

- Strategic management of Technology (SMOT) means that the product, service or process technologies of an organization / enterprise are managed from a long range perspective, as these technologies have wide-ranging effects on all levels and functions in the organization.

10). What are the key elements of technical entrepreneurship ?

Ans

- Technology entrepreneurship is a vehicle that facilitates prosperity in individuals, firms, regions, and nations. The study of technology entrepreneurship therefore, serves an important function beyond satisfying intellectual curiosity.
- The key elements of technical entrepreneurship are :
  - i). Ultimate outcomes & Value
  - ii). Target of the ultimate outcomes
  - iii). Mechanism used to deliver the ultimate outcomes
  - iv). Interdependence of this mechanism with scientific and technological advances.

i). Ultimate Outcomes :-

- Value creation and capture are identified as two outcomes of technology entrepreneurship because the sources that create value and the sources that capture value may not be the same over the long run.

ii). Target of the ultimate outcomes :-

- The firm is identified as the target organization for which value is created and captured.

iii). Mechanism used to deliver the ultimate outcomes :-

- Investment in a project is the mechanism mobilized to create and capture value. A project is a stock of

resources committed to deliver the two ultimate outcome types for a period of time.

iv). Interdependence of mechanism with scientific advances :-

- The individuals involved in a project influence and are influenced by advances in relevant scientific and technology knowledge. The project exploits or explores scientific and technology knowledge. External and internal individuals and organizations co-produce the project's outputs.

ii). How can businesses manage technology while protecting the environment?

Ans

- Businesses can manage technology while protecting the environment by adopting strategies that balance innovation with sustainability. Here are several key approaches:

i). Energy Efficiency: Invest in energy-efficient technologies, such as LED lighting, energy-efficient servers, and power management software, to reduce the environmental impact of operations.

ii). Renewable Energy: Transition to renewable energy sources, like solar or wind power, for powering business operations and technology infrastructure. This reduces reliance on fossil fuels and helps decrease the carbon footprint.

iii). Sustainable Supply Chain: Select Suppliers that prioritize environmental responsibility, using eco-friendly materials, reducing waste, and ensuring their own operations are sustainable.

iv). Circular Economy: Promote a circular economy by encouraging product recycling, reuse, and refurbishing. This includes designing products with longer lifespans, providing take-back programs for old electronics, and recycling waste materials from tech products.

12). What are the differences between domestic and international trade?

Ans

No.	Aspect	Domestic Trade	International Trade
i).	Geography	Occurs within a single country	Involves the exchange of goods across national borders.
ii).	Regulations and policies	Governed by the laws and regulations of one country.	Subject to multiple countries laws, tariffs, and trade policies
iii).	Currency	Involves one currency	Involves multiple currencies and exchange rates.
iv).	Transportation and logistics	Shorter distances and lower costs	Longer distances, higher costs, and complex logistics.
v).	Cultural and Language barriers	Shared language and culture	Requires dealing with different languages and cultures.