



# UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, July 2020

Programme Name: B.Tech Mechanical

Semester : VIII

Course Name : Product Design & Development Time : 03 hrs

Course Code : MHEG372 Max. Marks : 100

Nos. of page(s) : 1

Instructions: All questions are compulsory.

## Section –A (Multiple Choice ) (5 Marks each)

1. The product life cycle presents two major challenges. First, a firm must be good at developing new products to replace aging ones. Second, a firm must be good at:
  - a. adapting its marketing strategies in the face of changing tastes, technologies, and competition as products pass through life-cycle stages.
  - b. image building to ensure that products sell well.
  - c. primary demand forecasting so product winners can be chosen rather than making poor investments with product losers.
  - d. acquisition of other companies since this is the only real way to ensure new product success--go with what has worked in the past.
2. A firm can obtain new products in two ways. First, it can develop them by using its own research and development department. Second, it can:
  - a. steal them.
  - b. get them through acquisition.
  - c. transfer them between divisions.
  - d. copy them.
3. Original products, product improvements, product modifications, and new brands that a firm develops through its own research and development efforts are called:
  - a. new products.
  - b. concept products.
  - c. altered products.
  - d. supplemental products.
4. After idea generation has occurred in the new-product development process, the next stage is most likely to be:
  - a) ideation.
  - b) idea screening.
  - c) concept development and testing.
  - d) test marketing.
5. If an organization wishes to create an innovation-oriented company culture, it should consider the \_\_\_\_\_ approach.
  - a. product planning approach
  - b. venture capital team

- c. idea manager
  - d. Delphi idea system
6. One reason that idea screening is a critical stage in the new-product development process is that:
- a. product-development costs rise greatly in later stages and the company only wants those products that can succeed.
  - b. competitors can quickly steal ideas so the company wants only those ideas that can be protected with patents.
  - c. international competition and markets demand that all ideas be culturally sensitive.
  - d. the Federal government carefully monitors each company's idea screening process to make sure no national security matters are at stake.

**Section – B (10 Marks each)**

- 7. Distinguish between sequential product development and simultaneous product development. Relate the advantages and disadvantages of each form.
- 8. Identify and briefly characterize the five stages of the product life cycle.
- 9. List and briefly discuss the sources of new-product ideas.
- 10. Why do so many new products fail? What can be done to increase the likelihood that the new product will be successful?

**OR**

List 10 reasons why reducing the number of parts in a product might reduce production costs. Also list some reasons why costs might increase.

- 11. What types of products might not benefit from Industrial Design involvement in the development process?

**Section – C (25 Marks)**

- 12. No matter what brand of computer you're using or what you're doing on it, you're almost certain to be using some type of Microsoft product or service. Is Microsoft known as an innovator? Explain. What is at the heart of Microsoft's innovation strategy? List and briefly discuss three of Microsoft's new innovations as described in the text.

**OR**

Today there are several 3D printing technologies able to create physical parts directly from 3D CAD files (e.g., stereolithography and selective laser sintering). How might a team use such rapid prototyping technologies during the concept development phase of the product development process? Might these technologies facilitate identifying customer needs, establishing specifications, generating product concepts, selecting product concepts, and/or testing product concepts?