

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**B.Tech. Summer 2018 - 19 Examination**

**Semester: 6****Subject Code: 03109381****Subject Name: Product Design and Rapid Prototyping****Date: 09/05/2019****Time: 10:30 am to 1:00 pm****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

**Q.1 Objective Type Questions (each one marks)****(15)**

1. Designs are periodically modified to,
  - a. Improve product performance
  - b. strive for zero-based rejection and waste
  - c. Make product easier and faster to manufacture
  - d. All of the mentioned
2. The expected qualities of a product are
  - a. It satisfies the need and expectations of the customer
  - b. It has a pleasing appearance and handle well
  - c. It has high reliability and function safely over its intended life
  - d. All of the mentioned
3. The life cycle of a product includes
  - a. Extraction of natural resources
  - b. Processing of raw materials
  - c. Manufacturing of products
  - d. All of the mentioned
4. Life cycle engineering is also called
  - a. Green design
  - b. Expensive design
  - c. Easy design
  - d. None of the mentioned
5. Sustainable manufacturing is required for
  - a. Conserving resources
  - b. Proper maintenance
  - c. Reuse
  - d. All of the mentioned
6. The mechanical properties of a good product material are
  - a. Strength
  - b. Toughness
  - c. Ductility
  - d. All of the mentioned
7. The physical properties of a good product material are
  - a. Density
  - b. Melting point
  - c. Specific heat
  - d. All of the mentioned
8. The chemical properties of a good product material are
  - a. Oxidation
  - b. Corrosion
  - c. Surface treatment
  - d. All of the mentioned
9. Properties of work piece materials are
  - a. Geometric features of the part
  - b. Production rate and quantity
  - c. Process selection consideration
  - d. All of the mentioned
10. Consideration of costing systems are
  - a. Life cycle costs
  - b. Machine usage

- c. Cost of purchasing machinery
  - d. All of the mentioned
11. An idea for a possible product that company will offer is classified as
    - a. Product idea
    - b. Product image
    - c. Customer management
    - d. None of above
  12. Major sources of ideas for product development comes from
    - a. Internal sources
    - b. External sources
    - c. Product lines extension
    - d. Both a and b
  13. In new product development process, after analysis of business next step to be taken is
    - a. Test marketing
    - b. One channel marketing
    - c. Penetration marketing
    - d. Individual marketing
  14. Product such as “VHS tapes” are example of
    - a. Product classes
    - b. Product forms
    - c. Branding
    - d. Product perception
  15. When new development product concept is tested, next immediate step is to
    - a. Develop market strategy
    - b. Develop a testing technique
    - c. Develop intermediaries
    - d. Develop logistic network

**Q.2 Answer the following questions. (Attempt any three)**

**(15)**

- A) Draw the product life cycle with all stages in detail and explain.
- B) What do you understand by GANTT chart? Explain
- C) What are the features of LOM process?
- D) Explain the application of RP in any industry with an example.

**Q.3 A) How the RP systems are classified? Give the example of each classification?**

**(07)**

- B) Write a product design specification(PDS) for the modern professor’s desk.

**(08)**

**OR**

- B) What are the various method for concept generation? Explain any one in detail.

**(08)**

**Q.4 A) Create a morphological chart for a mechanical pencil. Explain the process in detail.**

**(07)**

**OR**

- A) Explain TRIZ. Enlist 39 engineering parameters of TRIZ.

**(07)**

- B) What are the various methods for information gathering? Explain anyone in detail.

**(08)**