Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50741

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024.

Fifth/Sixth Semester

Mechanical Engineering

CME 343 – NEW PRODUCT DEVELOPMENT

(Common to: Industrial Engineering/ Industrial Engineering and Management/Mechanical and Automation Engineering)

(Regulations 2021)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How do revisions contribute to the improvement of NPD outcomes?
2. Why are BOMs (Bill of Materials) fundamental in NPD?
3. Define DFMEA.
4. What is the significance of understanding fabrication and welding processes in manufacturing?
5. What is the purpose of conducting feasibility studies and reporting in NPD?
6. Why is shop floor trials essential in NPD?
7. What methods are used to prove internal soundness in new products?
8. How is an agreement reached with customers for testing frequencies NPD?
9. Define the purpose of SOP (Standard Operating Procedure) and its importance in NPD.
10. Define Reverse Engineering (RE).

PART B — (5 × 13 = 65 marks)

11. (a) Elucidate the significance of component material grade selection in NPD.

Or

(b) Evaluate the application of Gantt charts in monitoring NPD projects and its benefits.

12. (a) Discuss the qualifications required for assessing parts' in mechanical, physical, and chemical properties, along with the process of preparing and submitting test reports.

Or

(b) Explain the basics of FEA (Finite Element Analysis) and its applications in analyzing mechanical components.

13. (a) Describe the process of RFQ (Request for Quotation) processing and its significance in the NPD (New Product Development) cycle.

Or

(b) Discuss the process of layout marking and cut section analysis in NPD projects.

14. (a) Elucidate the process of risk analysis in the context of new product development.

Or

(b) Explain how market surveys contribute to understanding customer needs and preferences in NPD.

15. (a) Evaluate the application of prototyping and RPT (Rapid Prototyping Technology) in NPD, highlighting their advantages.

Or

(b) Evaluate the advantages of CE in NPD, including its role in reducing development lead time, time to market, improving productivity, and lowering product cost.

PART C — ($1 \times 15 = 15$ marks)

16. (a) Create a hypothetical scenario illustrating the integration of various NPD essentials in developing a new product.

Or

(b) How does the implementation of MIS software impact the efficiency and effectiveness of the New Product Development (NPD) process within specific industry/organization of your choice.

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