

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
THIRD SEMESTER M. TECH DEGREE EXAMINATION

Mechanical Engineering
(Machine Design)

04ME7513 - DESIGN FOR PRODUCTION

Max. Marks: 60

Duration: 3 Hours

PART A

Answer All Questions, Each question carries 3 marks

1. Write short notes on “Product Life Cycle”.
2. Briefly write a short note on engineering materials.
3. Explain the recommendations for achieving good quality casting.
4. Write short notes on “Design for Bulk Deformation Processes”.
5. What is “Design for Adhesive Bonding”.
6. Explain design for joining of plastics.
7. If a device has a failure rate of 5×10^{-6} failures/h, what is the reliability for an operating period of 1000 h?
8. Explain the concept of robust design in manufacturing.

PART B

Each question carries 6 marks

9. Explain the role of embodiment design in product development.
OR
10. Outline the importance of concept generation and selection in decision-making exercises in a product development.
11. Explain in detail the factors affecting while selecting the materials for engineering purposes.
OR
12. What is material index and how does it help in selection of materials for a given application.
13. Explain the major design recommendations for casting.
OR
14. Explain the general defects that appear in a casted product and suggest its remedial measures.
15. What is “Design for Machining”? What are the steps for ensuring Design for Machining?
OR
16. Explain in detail the salient features used for “Design for Sheet Metal Forming Processes”.
17. Explain the design recommendations for economical and efficient welded fabrication.
OR
18. Explain in detail on “Design for wear and corrosion resistance”.
19. What is reliability? Explain in detail the different techniques employed in improving the reliability.
OR
20. Discuss the basic principle structure of FMEA.