

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. Outline the importance of need identification and problem definition in a product development.
2. Explain the various factors affecting while selecting the materials for engineering purposes.
3. Explain the major design recommendations for casting.
4. Explain the concept of “Design for Machining”.
5. Write short notes on “Design for Wear Resistance”.
6. Explain design for adhesive bonding.
7. Why should reliability be considered as an essential attribute of a product?
8. Explain the concept of “Design for Optimization”.

PART B

Each question carries 6 marks

9. Explain in detail the discrete steps in engineering design process.

OR

10. What is the importance of selection of shapes in Embodiment of Design?

11. What is material index and how does it help in selection of materials for a given application.

OR

12. Explain the various modes of failures in engineering materials.

13. In designing a product for casting, what are the various factors to be considered? Can any alternate process than casting be thought of? If so, when can a change in process be considered?

OR

14. Explain the various casting processes and list the various types of allowances for the pattern design.

15. Explain in detail on “Design for Bulk Deformation Processes”.

OR

16. Explain the different methods for reducing punch forces in sheet metal forming processes.

17. Explain the various defects in welding and methods for rectification.

OR

18. Explain in detail on “Design recommendation for brazing and soldering for good quality joints”.

19. Explain the various hazard rate models.

OR

20. Discuss the various tools for achieving robust design in manufacturing.