Roll No. | | | | | | | | | | | | |  Total No. of Pages : 1

Total No. of Questions : 08

M.Tech (ME) (2017 Batch) (Sem.–1)

# ADVANCED DESIGN OF MECHANICAL SYSTEMS

Subject Code : MTME-103

Paper ID : [74717]

Time : 3 Hrs. Max. Marks : 100

**INSTRUCTIONS TO CANDIDATES :**

1. **Attempt any FIVE questions in all, out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

**Q1. Write short notes on :**

a) Design for energy efficiency.

b) Robust product design.

c) Impact of industrial design on economy.

d) Difference between global and regional environmental issues.

Q2. Discuss in detail the objectives and constraints of design approach used in product design.

Q3. Explain the effects of systematic material and process selection on product design.

Q4. What is the impact of computers on the industrial design processes? List the benefits of integrating engineering, design and manufacturing with each other.

Q5. a) What is the effect of part symmetry, thickness, size and weight on handling time?

b) What is the empirical equation used to estimate the manual insertion time for both conical and curved chamfers?

Q6. Describe the strength and mechanical factors which are used to develop general design principles for manufacturability.

Q7. a) How can we estimate the cost incurred due to manual assembly. Also explain how we can reduce the cost of assembly.

b) Discuss various handling and insertion processes used in the assembly process.

Q8. a) In what ways can DFE help to improve the quality of a product, in terms of its functionality, reliability, durability, and reparability?

b) Discuss DFE guidelines according to each life cycle stage of a product.