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Third Semester M.Tech. Degree Examination, December 2010

DFM Techniques and Product Design

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions.

- 1 a. Define manufacturability. What are the basic principles of design for economic manufacture? (10 Marks)
b. What are the dimensional and geometric tolerances? Distinguish between them, with an example. (10 Marks)
- 2 a. Mention any five design considerations in the manufacture of components by :
i) Moulding ii) Slotting (10 Marks)
b. Explain the design considerations for formed metal components. (10 Marks)
- 3 a. Explain the selective assembly, with a suitable example. (10 Marks)
b. Explain how fastening in assembly can be made easy. (10 Marks)
- 4 a. What do you understand by true position tolerancing? Explain how it is specified. (10 Marks)
b. What are datum systems? Explain their significance in tolerancing. (10 Marks)
- 5 a. Describe how a tolerancing chart is drawn for sequence of operation in turned components. (10 Marks)
b. For any known industrial part, prepare a tolerance working sheet. (10 Marks)
- 6 a. Explain Asimov's model for product design. (10 Marks)
b. Describe any four guidelines for redesigning of components for case of machining.(10 Marks)
- 7 a. What o you understand by design optimization? Describe any three techniques in this regard. (10 Marks)
b. Discuss human factor considerations in engineering design. (10 Marks)
- 8 Write short notes on: (20 Marks)
a. Design for heat treatment
b. Value engineering
c. Process capability
d. Visual size concept.

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