



B.E. DEGREE EXAMINATIONS, MAY 2011
II SEMESTER B.E. Mechanical Engineering (R 2008)

ME 9151 CONCEPTS OF ENGINEERING DESIGN
(Common with II Sem. B.E. Materials Science and Engineering)

Time: 3 Hours

Max. Marks:100

Answer ALL the Questions.

Write Legibly. Illegible handwriting will get zero mark.

PART – A

(10 x 2 = 20 Marks)

1. Distinguish static products and dynamic products.
2. Mention the five types of common design projects.
3. State the importance of the "definition" of a problem.
4. What are the channels through which information can be gathered from customers?
5. Brief the four factors which help to improve a person's creativity.
6. Mention the emotional blocks which interfere with the ability of concept generation.
7. Compare the correspondence between product performance and human factors characteristics.
8. State any four guidelines for design for assembly.
9. Name any six visual aids used for oral presentation.
10. State the advantages of e-mail.

PART – B

(5 x 16 = 80 Marks)

11. Explain in detail, the three categories on considerations for good design.
- 12.A) Distinguish and explain the following, with suitable examples:
 - i) Analysis and Synthesis
 - ii) Discovery and Invention
 - iii) Structured Problem and Real Life Problem
 - iv) Scientific Method and Design Method

(OR)

B) Explain the following, related to customer requirements with suitable examples for each:

 - i) Hierarchy of human needs
 - ii) Characteristics of customer requirements
 - iii) Levels of customer requirements.
- 13.A) i) Explain the six steps to enhance creative thinking. (8)
 ii) Explain the seven categories of inventions. (8)

(OR)

B) i) Explain in detail Brainstorming and SCAMPER. (10)
 ii) Sketch and explain a concept map to eliminate pollution in Chennai City. (6)
- 14.A) Explain the eleven things to be followed for user-friendly design.

(OR)

B) Explain ten important guidelines for design for manufacture.
- 15.A) i) State the differences between hearing and listening in communication. (2)
 ii) Explain the factors to be considered in preparing a visual presentation using computer for a slide projector. (14)

(OR)

B) Write short notes on the following: i) Theory of inventive problem solving
 ii) Environment responsible design iii) Basic module in design process.

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