

COLLEGE OF ENGINEERING PUNE
DEPARTMENT OF MECHANICAL ENGINEERING
ENDSEM EXAMINATION 2014-15
BTech-Integrated product Design

Subject : _____

ME(OE)14002

Max. Marks: (60)

Date: --

Time: 3 Hrs. 2 to 5 p.m.

28 NOV 2014

Instructions: Attempt any 4 questions. All the sub-questions to a main question should be written at one place.

Que. 1

1. Write a note on concurrent engineering using following points: definition, advantages disadvantages. (5)
2. Differentiate between soft product and hard product on the basis of stages in life cycle. Also give an example of each. (5)
3. How do you compute assembly time? Which principle of assembly reduces handling time? (3)
4. What is chance intrusion? (2)

Que. 2

1. Figure 1 shows three different distributions of load and strength. Explain
 - a. How reliability and factor of safety change in the given distributions. (3)
 - b. Reliability does not depend upon factor of safety. Why? (3)
2. A refrigerator has following components with reliability written in bracket. On-Off switch (88%), stabilizer(98%), electric motor (92%), compressor(95%) condenser(95%) capillary tube ((92%) evaporator (93%). There are two electric motors out of which one runs at a time, to ensure continuous operation of the refrigerator. Calculate the reliability of the total system. (4)
3. Explain failure pattern of mechanical components. (5)

Que.3

1. Write down at least four situations in which reverse engineering is used.(4)
2. What are the steps involved in CARE? (3)
3. Differentiate between contact type and non contact type scanning methods in following respect: accuracy, speed, type of geometry and size of the object, ability to sense texture and colour, Ability to sense transparent objects. (5)
4. Explain any one principle of non contact type scanning method with the help of figure.(3)

Que 4

5. What is prototyping? Differentiate between hard prototyping and soft prototyping.(6)
6. Write about Fused Deposition modelling with the help of following points. principle, figure, materials used, advantages, disadvantages. (5)
7. Rapid prototyping enables a company to experiment with physical complexity in a short period of time. Express your views on this statement by commenting on its validity. Also justify your opinion. (4)

Que. 5

1. Why do we need to design for emotions? (3)
2. A new mobile company designed a smart phone. It has many features other than the ones which an existing smart phone has. It is not aesthetically good and technology used is

such that it is much cheaper than the other existing models. What would you call it useful, usable or desirable? Why? (3)

- 3. What is the difference between maintenance and maintainability of an equipment. (5)
- 4. Explain two important maintenance principles. (4)

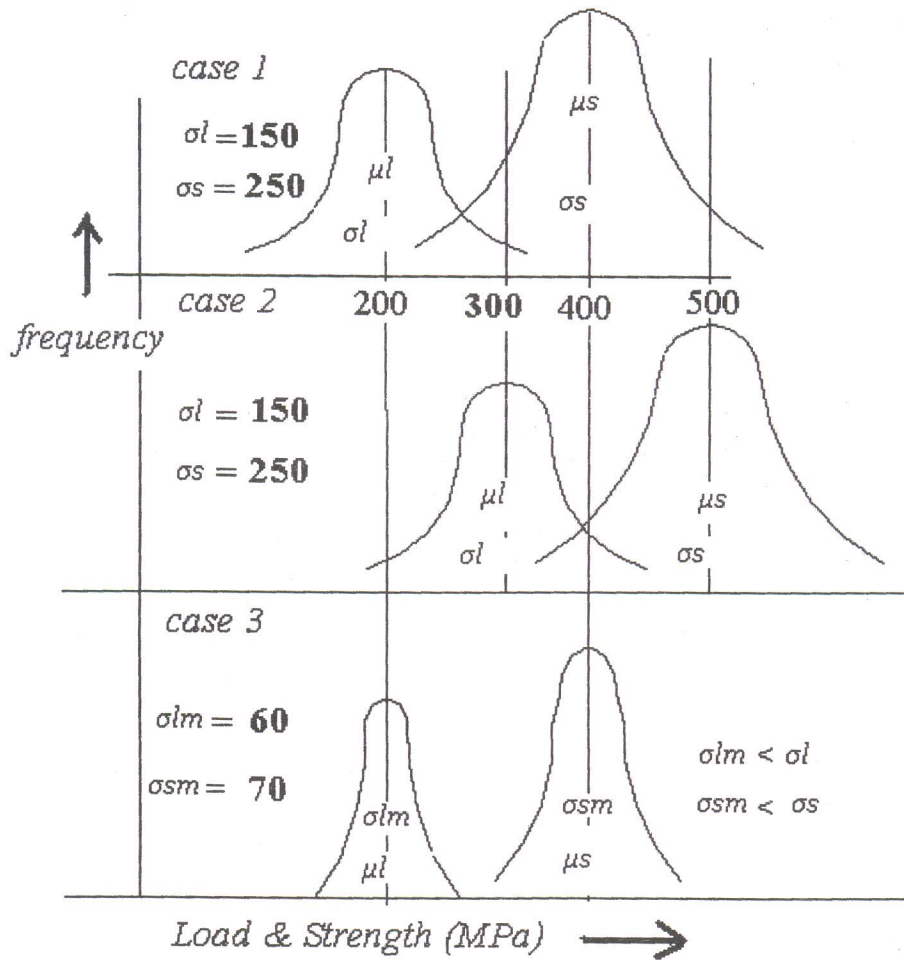


Figure 1.

