

Class: Ph.D. Course Work

Subject: Research Methodology (700001)

Assignment No. 2

Q. 1 What do you mean by asymptotic analysis? Explain with suitable example.

Q. 2 Explain the sensitivity theory and its applications.

Q. 3 Explain importance of plotting family of performance curves to study trends and tendencies.

Q. 4 Write short notes on:

- i) Response curve methods,
- ii) Uncertainty analysis,
- iii) Parameter estimation,
- iv) Principal component analysis in engineering research

Q. 5 What are different types of mathematical models in an engineering study? Analyze your own research problem from view point of model development.
(Any case study of your own choice in any field will be acceptable).

Q. 6 Write steady and unsteady state mathematical model for any research problem of your choice. Discuss the mathematical strategy / steps to solve it and usefulness of the results obtained from Simulations, in analyzing your research problem
(Any case study of your own choice in any field will be acceptable)

Q. 7 Explain the concept of a model & the utility of modeling in research? What type of model, can you think of, in the context of your research proposal?

Q. 8 Explain mathematical models as a conceptual model to predict the performance of a experimental system. Enlist the modeling elements, its meaning and their inter-relationship.