NPTEL course offered by IIT Madras

Risk and Reliability of Offshore structures

Tutorial 7: Structural Reliability

Answer all questions **Total marks: 25**

1. Explain a few set of uncertainties that are inherent to Design of offshore structures

2. Highlight various safe guards that exist in the classical design procedure to overcome uncertainties in the design

3. A sample of study was conducted to estimate in situ strength of offshore structures. The sampling was done only on concrete platforms. Destructive testing was followed and core cuttings were made. Test standards suggest that the concrete core should be rejected if at least one out of four is not satisfactory. Estimate the probability that the core cut from the platform is accepted if 100 samples are available and gives poor results?

4. Discuss significance of various players in Reliability analysis

5. a) Why maximum correlation value is used in probability distribution?
   b) Let P(T1) = 0.5, P(T2) = 0.3, P(T3) = 0.2, P(E|T1) = 0.3, P(E|T2) = 0.5, P(E|T3) = 0.4, Find P(T2|E).