

NPTEL course offered by IIT Madras
Risk and Reliability of Offshore structures
Tutorial 10: Risk assessment

Answer all questions

Total marks: 25

1. Why is risk assessment in offshore industry important?
2. Highlight the difference between risk and reliability
3. Why accuracy of estimating stress concentration factor is vital in tubular joints?
4. What are the vital informations that evolve from post-accident diagnosis of offshore platforms?
5. What do you understand by risk acceptance criteria?
6. The steel member in an offshore platform is subjected to loading. The member fails on exceeding the yield stress. The mean and standard deviations of the yield strength and the loadings are given as follows:
 $\mu_R = 350$, $\sigma_R = 35$ MPa and $\mu_S = 250$, $\sigma_S = 40$ MPa
The yield stress and the loadings are found to be following a normal distribution. Estimate the reliability index.
7. What is the expected outcome of risk assessment?
8. List the factors that governs the complexities that arises in coupling the mechanical model to reliability analysis.
9. What are the data necessary to foresee different failure scenario in a process industry?
10. Explain FMEA in brief