Code: 9D17106

M.Tech I Semester Supplementary Examinations August 2016

MAINTENANCE & RELIABILITY ENGINEERING

(Refrigeration & Air Conditioning)

(For students admitted in 2012, 2013, 2014 & 2015 only)

Time: 3 hours Max. Marks: 60

Answer any FIVE questions

All questions carry equal marks

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1 (a) Define probability. Explain various types of probabilities.
(b) Write a note on Poisson distribution.

2 (a) Explain in brief any two types of hazard models.
(b) Sketch and explain bath tub curve.

3 (a) Derive an expression for reliability of a system for series configuration & parallel configuration.
(b) A system has 10 identical components in series. If the system reliability is 0.95, find reliability of each component.

4 (a) Define the following term with mathematical equation.
(i) MTBF.
(ii) MTTF.
(iii) MTTR.
(iv) Maintainability.
(b) Differentiate between availability and maintainability with the help of Markov graph.

5 (a) Define failure. Explain in brief different modes of failures.
(b) Define: (i) Failure density (f_d).
(ii) Failure rate (z).
(iii) Mean failure rate (h).
(iv) Mean time to failure (MTTF).

6 (a) Differentiate between X-rays and gamma rays. Mention the applications of the same.
(b) Explain with neat sketch, production of X-ray.

7 (a) List out different types of maintenance and explain any two in brief.
(b) What is meant by condition monitoring? Explain in brief any two types of condition monitoring.

8 (a) Mention different reasons for wear monitoring. Explain any two methods of wear monitoring in brief.
(b) Explain in brief spectroscopic oil analysis.

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