Total No. of Questions :10] *[Total No. of Printed Pages :3*

Roll No .....

ME/AU - 801(C)

B.E. VIII Semester

Examination, June 2014

Reliability and Maintenance

(Elective - III)

Time : Three Hours

Maximum Marks : 70

Note: Total number of questions 10. Attempt any one question (including all parts) from each unit.

UNIT - I

1. a) Draw and explain the failure rate curve for an industrial product.

   b) A component has a normal distribution of failure times with μ=20000 cycles and σ=2000 cycles. Find the reliability of the component and the hazard function at 19000 cycles.

OR

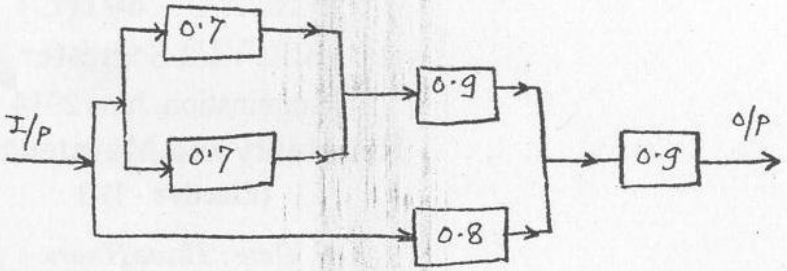
2. a) Explain the importance of reliability with suitable example.

   b) Explain the difference between hazard rate function and reliability function in reliability.

UNIT - II

3. a) What do you understand by RAM (Reliability, Availability and Maintainability)? Explain in brief.

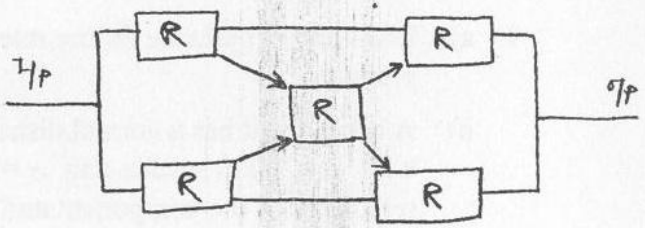
b) Calculate the reliability of the system shown in Figure 1. in which elements reliability is also indicates.



OR

4. a) Derive the Reliability function using MARKOV model.

b) Calculate the Reliability of the system shown in figure 2. in which elements reliability is identical.



UNIT - III

5. a) What are the importance of maintenance write the objectives of maintenance?

b) Briefly explain the different types of maintenance plan.

OR

6. a) Explain in brief different types of maintenance organization.

b) What do you mean by Design-out maintenance? Explain with suitable example.

UNIT - IV

7. a) What is condition monitoring? What types of condition monitoring are normally used in industries?

b) What is wear debris analysis? Compare various techniques commonly used in wear debris analysis.

OR

8. a) What is vibration analysis and what are its principles? How is it used for equipment health monitoring?

b) Write the advantages of condition based maintenance.

UNIT - V

9. a) What is R.C.M (Reliability Centered Maintenance)? Explain its working with a flow diagram.

b) Explain the pillars of T.P.M. (Total Productive Maintenance) on which it works.

OR

10. a) Explain in brief :

i) FMEA

ii) FMECA

b) Explain the basic system and features of working of TPM in any industry.

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