BACHELOR OF TECHNOLOGY IN MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

00319

Term-End Examination

December, 2011

BME-025 : CONDITION MONITORING AND MAINTENANCE ENGINEERING

Time : 3 hours   *Maximum Marks : 70*

Note :   *Answer **any seven** questions. All questions carry **equal** marks. Use of scientific calculators is **allowed.***

1. Discuss various states of plant that it can experience in its life. Which state you think is more disadvantageous or detrimental ? Illustrate with examples.   **10**

2. Describe various types of maintenances. Give suitable examples.   **10**

3. Find the sequence that minimizes the total elapsed time in hrs. to complete the following jobs on 3 machines. Prepare Gantt chart.   **10**

	A	B	C	D	E
Machine - 1	3	8	7	5	2
Machine - 2	3	4	2	1	5
Machine - 3	5	8	10	7	6

4. Write notes on :   **10**
   (a) A – B – C analysis
   (b) F – S – N analysis

5. What do you understand by FMECA ? What are **10** the steps in basic analysis procedure of FMECA ? Distinguish between design FMEA and process FMEA.

6. Describe various techniques of condition **10** monitoring. Give their applications. List out their merits and demerits.

7. A manual stamper currently valued at ₹ 1,000 is **10** expected to last 2 years and costs ₹ 4,000 per year to operate. An automatic stamper which can be purchased for ₹ 3,000 will last for 4 years and can be operated at an annual cost of ₹ 3,000. If money carries at the rate of interest 10% per annum determine which stamper should be purchased ?

8. Explain step by step procedure of Reliability **10** Centred Maintenance Modelling and Analysis.

9. A machine has four critical component parts. If **10** any of these components fails, the machine cannot operate. The four component reliabilities are 0.97, 0.99, 0.92, and 0.98.
   (a) Compute the system reliability of the machine.
   (b) If the machine could be redesigned to allow redundancy for the part that presently has a reliability of 0.92, what would be the new system reliability of the machine ?

10. Distinguish between TQM and TPM. What are **10** the barriers in implementing the TPM ?