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Reg. No. :

Name :

**Seventh Semester B.Tech. Degree Examination, October 2014
(2008 Scheme)**

**Elective – III : 08.706.4 : PLANT ENGINEERING AND MAINTENANCE
(MPU)**

Time : 3 Hours

Max. Marks : 100

Instructions : i) Answer **all** questions from Part A. **Each** carries 4 marks.

ii) Answer **one full** question from **each** Module in Part B. **Each full** question carries 20 marks.

PART – A

1. Explain a test to determine the carbon residue.
2. Distinguish between scuffing and pitting.
3. Discuss the effect of temperature on wear.
4. What are the factors to be considered for the selection of lubricants ?
5. What are the factors affecting maintainability ?
6. Distinguish between MTBF and MTTR.
7. Explain the 'Present Worth Method' for equipment replacement studies.
8. How will you evaluate maintenance performance ?
9. What are the general conditions for which preventive maintenance is appropriate for a single machine ?
10. What do you mean by condition-based maintenance ? **(10x4=40 Marks)**

P.T.O.



PART – B

Module – I

11. a) Wear is all important for mechanical items. Explain. 10
b) Briefly discuss the mechanism of corrosive wear and how it is controlled? 10
12. a) Give an account on classification of lubricants. 15
b) Explain how the properties of a lubricant can be improved. 5

Module – II

13. a) How failure data is analysed? Describe the terms 'failure density' and 'failure rate'. 10
b) How will you find out reliability of systems connected in series and parallel combined? Explain with the help of sketches. 10
14. A company is offering two machines A and B. A has cost price of Rs. 85,000/-, its running cost is Rs. 4,000/- for each of the first 5 years and increases by Rs. 1,000/- every subsequent year. Machine B being the same capacity has machine A costs Rs. 12,500/- has running cost of Rs. 6,000/- for 6 years, increasing by Rs. 1,000/- every year thereafter. If money worth 10% per year which machine should be purchased? Scrap value of both machines is negligibly small. 20

Module – III

15. Distinguish between 'breakdown', 'preventive' and 'predictive' types of maintenance clearly stating the type of management decisions involved in each of them. 20
16. a) Enumerate the safety precautions to be observed by a worker working on following machines :
i) Surface grinding machine
ii) Punch press
iii) Electric arc welding machine. 9
- b) What are the different health provisions mentioned in the Factory Act? Explain, how they help in reducing the accidents? 11

(3×20=60 Marks)
