

[Total No. of Questions - 8] [Total No. of Printed Pages - 2]  
(2064)

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**M. Tech 2nd Semester Examination**  
**Diagnostic Maintenance & Monitoring**  
**PEE-13**

**Time : 3 Hours**

**Max. Marks : 100**

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Attempt any 5 (five) questions. Draw neat and comprehensive sketches wherever necessary to clearly illustrate your answer. Assume missing data suitably if any and specify the same.

1. (i) Define maintenance. What are the objectives of maintenance?  
(ii) Explain preventive maintenance with examples. When does preventive maintenance serve its purpose? Explain.  
(3+4)+(7+6)=20
2. (i) State and explain the philosophies of maintenance. Describe the relationship of maintenance with other functional area. Write the name of various other functional areas having relationship with maintenance and clearly highlight their relation with suitable examples.  
(ii) List out the benefits and limitations of preventive maintenance.  
(5+10)+5=20
3. (i) What do you mean by word 'Non-destructive Testing'? Write down its importance in maintenance.

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- (ii) Explain liquid penetration test. Write its industrial applications.
- (iii) Write the purpose and techniques of using boroscopes in Non-destructive Testing. (4+3)+(5+2)+6=20
4. (i) Explain briefly about the different steps of diagnostic maintenance apply to industrial machines maintenance. Explain briefly the role of diagnostic maintenance if it is applied to the thermal power plant maintenance.
- (ii) How diagnostic maintenance is applied to textile mills? Explain in detail. (6+6)+8=20
5. (i) What is maintenance planning? Explain different stages involved in maintenance planning. How is maintenance planning different from general planning and production planning? Explain briefly.
- (ii) Explain the procedure of documentation for large factory maintenance. (3+6+6)+5=20
6. (i) Explain the organization of maintenance control activities in large scale industry.
- (ii) What is replacement analysis? Explain the replacement policy in detail when money value does not change with time. (8+12=20)
7. (i) On what factors do maintenance performance depends for a good maintenance. Explain.
- (ii) What are the factors that govern the economics of maintenance? Explain how each factor influences on the maintenance economy in detail. (8+12=20)
8. Write short notes on the followings:
- (a) Wear analysis through thermography
- (b) Diagnostic maintenance in Railway
- (c) Maintenance, management and strategies for improving maintenance productivity. (6+6+8=20)