

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 4086

Roll No.

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B.Tech.

(SEM. V) ODD SEMESTER THEORY EXAMINATION

2010-11

RELIABILITY AND MAINTENANCE ENGINEERING

Time : 3 Hours

Total Marks : 100

Note : Attempt **all** questions.

1. Attempt any **two** of the following : **(10×2=20)**

- Compare Breakdown and Preventive maintenance.
- Describe in brief the "Economic Aspect of Maintenance".
How you can select an optimum maintenance programme ?
- What do you understand by Inspection and Card history system ? How are they helpful in maintenance planning ?

Attempt any **four** of the following : **(5×4=20)**

- Explain in detail Predictive Maintenance.
- Describe in brief the use of Computers in Maintenance management.
- Briefly discuss the criterion for selection of lubricants. List various types of lubricants.

- (d) What do you understand by Non Destructive Testing ?
Explain Ultrasonic testing.
- (e) What do you understand by 'Oil Analysis' ? What is the information obtained from it ? Explain.
- (f) Explain Radiographic Testing. How is it done ? What are its advantages ?

3. Attempt any **two** of the following : (10×2=20)

(a) Explain the causes and remedies of the following problems in bearings :

(i) Overheating

(ii) Noise

(iii) Vibration.

(b) Explain the following in reference to Belt Drives :

(i) Tension in belts

(ii) Selection of belts

(iii) Slip and Creep

(iv) Installation of belt drive.

(c) Write a detailed note on types and uses of couplings.

4. Attempt any **two** of the following : (10×2=20)

(a) What do you understand by fluid power systems ? What are their advantages and disadvantages over other power systems ?

- (b) Write a detail note on types of compressors and their applications. What are the general maintenance problems which occur in compressor operation ?
- (c) Write a detail note on Control Valves, their applications and Maintenance.

5. Attempt any **four** of the following : **(5×4=20)**

(a) Define the following :

- (i) Mean Failure rate
- (ii) System Reliability.

(b) Write a note on Pareto analysis.

(c) Explain the term 'Availability'. How effective maintenance can improve the reliability of an equipment ? Explain.

(d) Explain in brief Life Testing and its objectives.

(e) Explain the term Redundancy and its types in reference to reliability.

(f) What are the advantages of failure data analysis ? What are its disadvantages ?