



KINGS

COLLEGE OF ENGINEERING



DEPARTMENT OF MECHANICAL ENGINEERING

Question Bank

Sub code /Name: ME -1019/ MAINTENANCE ENGINEERING Year/sem: IV/VIII

UNIT- I

PRINCIPLES AND PRACTICES OF MAINTENANCE PLANNING

PART-A (2 Marks)

01. Define maintenance.
02. Define reliability.
03. State the benefits of reliability analysis in industries.
04. Define failure rate.
05. What is Mean Failure Rate?
06. Define Mean Time to Failure.
07. What is Mean Time Between Failures (MTBF)?
08. Define Mean Time to Repair (MTTR).
09. Define Maintenance Action Rate.
10. Define Failure Density.

PART-B (16 Marks)

1. What do you mean by maintenance job planning? Discuss various steps of maintenance job planning. (16)
2. What is long term plan? Discuss few long term planning? . (16)
3. What are the objectives of maintenance organization and what different types of organizations are in use in Indian industries? . (16)
4. What is equipment availability and what are the three basic approaches to define and quantity availability. . (16)
5. Explain MTBS, MTBF, MTTF, MTTR and failure rate? . (16)
6. Explain briefly different types and classes of maintenance cost. (16)

UNIT-II

**MAINTENANCE POLICIES – PREVENTIVE MAINTENANCE
PART-A (2 Marks)**

01. What is meant by Breakdown maintenance approach?
02. Classify various planned maintenance approach.
03. Define Corrective maintenance approach.
04. What is meant by preventive maintenance approach?
05. List out the objectives of Corrective maintenance.
06. What is meant by Predictive Maintenance?
07. List out some condition based monitoring techniques and briefly discuss on them.
08. What is meant by Reliability Centered Maintenance (RCM)?
09. What is Total Productive Maintenance (TPM) and discuss it's similarities with TQM?
10. What is, meant by Reliability Centered Maintenance (RCM)?
11. What does Safety, Health and Environment pillar of TPM aims at?

PART-B (16 Marks)

1. What do you understand by maintenance categories? Explain common types and explain the basis of their selection. .(16)
2. What are all the steps involved in preventive maintenance why preventive maintenance is better than reactive maintenance. (16)
3. Distinguish between fixed time maintenance and connect based maintenance. Give the merits and demerits. (16)
4. Briefly explain the procedure for TPM. .(16)
5. Explain the repair cycle of metallic materials. (16)
6. What are the functions of lubrication and gives the tips on lubrication. (16)

UNIT-III

CONDITION MONITORING

PART-A (2 Marks)

1. What is equipment health monitoring?
2. List down the factors for increasing the demand condition monitoring.
3. List down the key features of condition monitoring.
4. Write down the basic steps in condition monitoring.
5. What are three types of condition monitoring?
6. State the advantages and disadvantages of condition monitoring.
7. Mention the various costs involved in costing of condition monitoring mainly.
8. State the methods of measuring vibration.
9. Describe briefly piston thermometer.
10. Name the types of pyrometers.
11. Mention typical applications of bimetallic strip.
12. List down the features of RTD.
13. State the applications and limitations of thermistors.

PART-B (16 Marks)

1. What is condition monitoring and explain condition monitoring. What type of condition monitoring are normally used in industry. (16)
2. What is leakage monitoring? Explain some of the leakage mediums used for condition monitoring. (16)
3. What is wear debris analysis what are the three wear debris analysis techniques commonly used and compare their performance and uses? . (16)
4. Briefly explain the cost comparison with and without condition monitoring. (16)
5. What is thermal monitoring and what thermal monitoring are used in industries Explain principle and uses of thermograph .(16)
6. Briefly explain various methods and instruments for condition monitoring. (16)

UNIT-IV

REPAIR METHODS FOR BASIC MACHINE ELEMENT

PART-A (2 Marks)

01. What are called Age- Dependent Failures?
02. What are Unpredictable Failures? .t
03. What are Running-In-Failures?
04. Define Fault tree diagrams.
05. What are the benefits of Fault Tree Diagram?
06. Differentiate between Fault tree diagrams and Reliability Block Diagrams.
07. Write down the capabilities of Fault Tree Diagram.
08. Define Event Tree Analysis (ETA).
09. What is the aim of Event .Tree Analysis (ETA)?
10. Define Root Cause Analysis (RCA.)

PART-B (16 Marks)

1. Briefly explain the repair methods of machine beds. . (16)
2. Explain the repair method of worn-out bearing. . (16)
3. Explain the repair methods of slide ways and spindle. . (16)
4. Briefly explain the procedure for the repair cycle of gears and lead screw. .(16)
5. What is failure analysis? Explain their development. .(16)
6. Explain the logical fault location methods. . (16)

UNIT-V

REPARE METHODS FOR MATERIAL HANDLING EQUIPMENTS

PART-A (2 Marks)

1. State few examples of material handling equipments.
2. State the benefits of proper maintenance of material handling equipments.
3. State the major stages in preventive maintenance of material handling equipments.
4. State the various phases present in a good maintenance management system.
5. Define the term Computerized Maintenance Management System (CMMS).

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6. State the objectives of CMMS.
7. State the advantages of CMMS.
8. Define work order systems.
9. Mention the use of work order backlog.
10. What is work permit?
11. What is job card?
12. State the benefits of job card system.
13. State the role of equipment records in maintenance.

PART-B (16 Marks)

1. Explain repair methods of conveyors. . (16)
2. Explain the repair methods for crane and hydraulic lift. . (16)
3. Briefly explain the equipment record. . (16)
4. Explain job order system. (16)
5. Explain various hydraulic and pneumatic equipment used in material handling purpose.
How to maintain it. . (16)
6. Explain the maintenance procedure for various small equipment for material handling
purpose like chain block, chain, rope, trolley and R.G.B. (16)