PAPER ID-310779

Roll No: | | | | | | | | | | | | |

BTECH
(SEM VII) THEORY EXAMINATION 2024-25
MAINTENANCE ENGINEERING & MANAGEMENT

TIME: 3 HRS   **M.MARKS: 100**

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. **Attempt *all* questions in brief.**   **2 x 10 = 20**

Q no.	Question	CO	Level
a.	What is meant by maintenance planning	1	K2
b.	What are the objectives of maintenance	1	K2
c.	Define MTBF (Mean Time Between Failures).	2	K2
d.	Explain the role of maintenance economics in cost optimization.	2	K2
e.	What is meant by Give routine maintenance	3	K2
f.	Give the eight pillars of TPM	3	K2
g.	Define condition monitoring	4	K2
h.	What is the use of correction monitoring	4	K2
i.	What are called Age- Dependent Failures?	5	K4
j.	What are Unpredictable Failures?	5	K4

SECTION B

2. **Attempt any *three* of the following:**   **10 x 3 = 30**

a.	Describe the various structures of maintenance organizations and their roles in achieving maintenance objectives.	1	K2
b.	What do you understand by maintenance categories? Explain common types and explain the basis of their selection.	2	K2
c.	List and describe the key instruments commonly used in Condition Monitoring. How does each instrument contribute to detecting early signs of wear or failure?	3	K2
d.	Describe the common repair methods used for machine beds in the event of wear and damage. How do these methods ensure the continued precision and stability of the machine?	4	K2
e.	Explain various hydraulic and pneumatic equipment used in material handling purpose. How to maintain it.	5	K4

SECTION C

3. **Attempt any *one* part of the following:**   **10 x 1 = 10**

a.	How does maintenance planning contribute to the economic efficiency of a manufacturing facility?	1	K2
b.	Compare corrective maintenance, preventive maintenance, and predictive maintenance. Which is the most cost-effective in the long run? Why?	1	K2

4. **Attempt any *one* part of the following:**   **10 x 1 = 10**

a.	Distinguish between fixed time maintenance and connect based maintenance. Give the merits and demerits.	2	K2
b.	Discuss the role of failure mode and effects analysis (FMEA) in preventive maintenance planning.	2	K2

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5.	**Attempt any *one* part of the following:**		**10 x 1 = 10**
a.	What are the key cost factors involved in implementing a Condition Monitoring (CM) system in industrial machinery, and how do they compare to the costs of maintenance without CM?	3	K2
b.	How do temperature-sensitive tapes work in Condition Monitoring, and what types of failures or conditions do they help detect?	3	K2

6.	**Attempt any *one* part of the following:**		**10 x 1 = 10**
a.	Discuss the importance of failure analysis in machine tool maintenance. What steps are involved in conducting a failure analysis for a damaged machine element?	4	K2
b.	Explain the concept of logical fault location methods in the context of machine tool repairs. How do these methods help in identifying the root cause of failure?	4	K2

7.	**Attempt any *one* part of the following:**		**10 x 1 = 10**
a.	What are the common repair methods used for material handling equipment, and how do they ensure the efficiency and longevity of the equipment?	5	K4
b.	How can equipment downtime be minimized through effective repair methods and job order systems in material handling operations?	5	K4