



# P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Sixth Semester, B.E. - Mechanical Engineering

Semester End Examination; July / Aug. - 2022

**Maintenance Engineering**

Time: 3 hrs

Max. Marks: 100

## Course Outcomes

**The Students will be able to:**

CO1: Distinguish maintenance system types, scope, objective, functions and importance.

CO2: Recognize Causes of machine failure, performance evaluation and overhauling.

CO3: Evaluate overhauling, maintenance planning, scheduling, estimation and maintenance control.

CO4: Analyze benefit and application of Computer aided maintenance, and pollution control.

CO5: Analyze accident records accident investigation Industrial and accident safety.

**Note:** I) PART - A is compulsory. Two marks for each question.

II) PART - B: Answer any **Two** sub questions (from a, b, c) for a Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks	BLs	COs	POs
<b>I : PART - A</b>		<b>10</b>			
I a.	What is preventive maintenance and predictive maintenance?	2	L1	CO1	PO1
b.	Explain repair cycle in maintenance system.	2	L1	CO2	PO1
c.	List short range planning maintenance scheduling.	2	L1	CO3	PO1
d.	List the techniques of vibration control.	2	L1	CO4	PO1
e.	List feature of Computer aided maintenance.	2	L1	CO5	PO1
<b>II : PART - B</b>		<b>90</b>			
<b>UNIT - I</b>		<b>18</b>			
1 a.	Define maintenance system. What are the objectives of maintenance system?	9	L2	CO1	PO1
b.	Briefly explain;				
	i) Breakdown maintenance system	9	L2	CO1	PO1
	ii) Condition based maintenance system				
c.	What are the functions of maintenance department?	9	L2	CO1	PO1
<b>UNIT - II</b>		<b>18</b>			
2 a.	Explain repair cycle stages under preventive maintenance.	9	L2	CO1	PO1
b.	Explain generalized procedure for complete overhaul in metal cutting equipment.	9	L2	CO1	PO1
c.	Explain how to find most optimal preventive maintenance frequency.	9	L2	CO1	PO2
<b>UNIT - III</b>		<b>18</b>			
3 a.	Explain planning procedure for maintenance functions.	9	L2	CO3	PO1
b.	Explain ABC analysis.	9	L2	CO3	PO1
c.	Explain Foreman's scheduling rack for maintenance job analysis.	9	L2	CO3	PO1

**UNIT - IV****18**

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|---|---|----|-----|-----|
| 4 a. Discuss the application of computer in maintenance work.         | 9 | L2 | CO4 | PO1 |
| b. With suitable sketch explain gravitational and Cyclone separators. | 9 | L2 | CO4 | PO1 |
| c. Write a note on industrial vibration and its control technique.    | 9 | L2 | CO4 | PO1 |

**UNIT - V****18**

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|---|---|----|-----|-----|
| 5 a. List and explain various types of Safety Organization.   | 9 | L2 | CO5 | PO1 |
| b. Write a note on analysis of accident safety standards for welding and electrical equipment system. | 9 | L2 | CO5 | PO1 |
| c. Explain salient features of good plant housekeeping.   | 9 | L2 | CO5 | PO1 |

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