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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; August - 2023

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: Analyse benefits and application of computer aided maintenance, and pollution control.

CO5: Analyse accident records, accident investigations, 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
I : PART - A		10			
1 a.	Enlist the different types of maintenance system.	2	L1	CO1	PO1
b.	Briefly explain repair cycle in maintenance system.	2	L2	CO2	PO1
c.	Define kitting.	2	L1	CO3	PO1
d.	Enlist the technique of vibration control.	2	L1	CO4	PO1
e.	Enlist the types of safety organizations.	2	L1	CO5	PO1
II : PART - B		90			
UNIT - I		18			
2 a.	What is preventive maintenance? When are these techniques adopted?	9	L2	CO1	PO1
b.	Elucidate the importance of maintenance system.	9	L2	CO1	PO1
c.	Explain the following:				
	i) Condition based maintenance	9	L2	CO1	PO1
	ii) Total Productive maintenance				
UNIT - II		18			
3 a.	Construct model to find most optional preventive maintenance frequency?	9	L3	CO2	PO2
b.	Explicate:				
	i) Repair complexity	9	L2	CO2	PO1
	ii) Replacement				
c.	Enlist the generalized procedure for complete overhaul of metal cutting equipment.	9	L2	CO2	PO1

UNIT - III**18**

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|---|---|----|-----|-----|
| 4 a. Explain planning procedure for maintenance function. | 9 | L2 | CO3 | PO1 |
| b. Elucidate ABC analysis. | 9 | L2 | CO3 | PO1 |
| c. Explicate the different planning techniques. | 9 | L3 | CO3 | PO1 |

UNIT - IV**18**

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|--|---|----|-----|-----|
| 5 a. With a neat sketch, explicate centrifugal scrubber. | 9 | L2 | CO4 | PO1 |
| b. Elucidate the applications of computer to maintenance work. | 9 | L2 | CO4 | PO1 |
| c. Explicate 'Noise pollution' control. | 9 | L2 | CO4 | PO1 |

UNIT - V**18**

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|--|---|----|-----|-----|
| 6 a. Elucidate the economic impact of accident. | 9 | L2 | CO5 | PO1 |
| b. Explicate the salient features of good plant housekeeping. | 9 | L2 | CO5 | PO1 |
| c. Write a note on analysis of accident safety standards for mechanical equipment and electrical system. | 9 | L2 | CO5 | PO1 |

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