



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

(An Autonomous Institution affiliated to VTU, Belagavi)

Fifth Semester, B.E. - Automobile Engineering

Semester End Examination; Feb. - 2021

Production of Automotive Components

Time: 3 hrs

Max. Marks: 100

Course Outcomes

The Students will be able to:

CO1: Explain about the materials in automotive applications.

CO2: Understand about the manufacturing of engine parts.

CO3: Understand about the Manufacturing of automotive chassis.

CO4: Enumerate about the Heat treatment of automotive components.

CO5: Comprehend about the Painting technology of automobiles.

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

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

Q. No.	Questions	Marks	BLs	COs	POs
I : PART - A		10			
I a.	List out the criteria for selecting materials used in automotive industries.	2	L1	CO1	PO1
b.	What are the surface treatments after completion of machining process of IC engine piston rings?	2	L1	CO2	PO2
c.	What are the materials used in gear manufacturing process?	2	L1	CO3	PO2
d.	List out the various types of hybrid heat treatments.	2	L1	CO4	PO2
e.	What are the purposes of pretreatment process in painting technology of automobiles?	2	L1	CO5	PO1
II : PART - B		90			
UNIT - I		18			
1 a.	Enumerate the major components of automobiles and explain its functions.	9	L2	CO1	PO2
b.	Describe the renewable materials by considering requirements for automobile sectors.	9	L2	CO1	PO2
c.	Describe the role of aluminum in automotive industries with respect to weight reduction.	9	L3	CO1	PO2
UNIT - II		18			
2 a.	Narrate the production of automotive pistons and discuss the pollution control aspects in an industrial sheds.	9	L3	CO2	PO2
b.	Describe green sand molding process to produce cylinder blocks with suitable sketch.	9	L2	CO2	PO2
c.	Narrate the types of engine mounting pads and explain the process of manufacture.	9	L2	CO2	PO2

UNIT - III**18**

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|------|---|---|----|-----|-----|
| 3 a. | Give a step-by-step procedure to produce body of an automobile. | 9 | L2 | CO3 | PO2 |
| b. | Illustrate the manufacturing of gear blanks with process of flowchart. | 9 | L3 | CO3 | PO2 |
| c. | Elucidate the process of manufacturing tyres with suitable flowcharts and sketches. | 9 | L3 | CO3 | PO2 |

UNIT - IV**18**

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| 4 a. | List out the types of heat treatment. Describe the process technology in heat treatment. | 9 | L2 | CO4 | PO2 |
| b. | Describe the types of forging processes with suitable sketches. | 9 | L2 | CO4 | PO2 |
| c. | Illustrate the furnaces for heat treatment of fasteners and automobile parts. | 9 | L2 | CO4 | PO2 |

UNIT - V**18**

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| 5 a. | Give an importance of priming. Explain different priming systems. | 9 | L2 | CO5 | PO2 |
| b. | Along with brief background introduction, describe the important properties to be embraced in surfacers. | 9 | L3 | CO5 | PO2 |
| c. | Elucidate the paint processes and products in automotive painting technology. | 9 | L2 | CO5 | PO2 |

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