



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

(An Autonomous Institution affiliated to VTU, Belagavi)

**Sixth Semester, B.E. - Automobile Engineering**

**Semester End Examination; August - 2023**

**Two and Three Wheeled Vehicles**

Time: 3 hrs

Max. Marks: 100

### Course Outcomes

The Students will be able to:

CO1: Know different types of a two wheeler and its engine fuel system, lubricating system, cooling system.

CO2: Know ignition and electric system, exhaust system and cranking mechanism of a two wheeler.

CO3: Know Motor cycle transmission and steering system.

CO4: Know Front forks, fork type and spring type suspension systems and braking system used in two wheelers.

CO5: Understand the frame and body of a two wheeler, basics on three wheelers.

**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
<b>I : PART - A</b>		<b>10</b>			
1 a.	List the arrangement of cylinders for a two wheeler.	2	L1	CO1	PO1
b.	What are the functions of the exhaust system on two wheeler engine?	2	L1	CO2	PO1
c.	What are the purposes of steering system in a vehicle?	2	L1	CO3	PO1
d.	What are the various requirements of the wheels in vehicle?	2	L1	CO4	PO1
e.	Explain the various loads on the frame of the vehicle.	2	L2	CO5	PO1
<b>II : PART - B</b>		<b>90</b>			
<b>UNIT - I</b>		<b>18</b>			
2 a.	What are the classification of the two wheelers and explain the advantages of two stroke engine over the four stroke engine.	9	L2	CO1	PO1
b.	Sketch and explain any one type of carburetor used in two-wheelers.	9	L3	CO1	PO1
c.	List and explain the properties and additives used for lubrications.	9	L2	CO1	PO1
<b>UNIT - II</b>		<b>18</b>			
3 a.	Sketch and explain the principle of construction of battery.	9	L2	CO2	PO2
b.	With neat sketch, explain the layout of exhaust system.	9	L2	CO2	PO2
c.	Explain the auto start mechanism with neat circuit.	9	L2	CO2	PO2
<b>UNIT - III</b>		<b>18</b>			
4 a.	Explain the three types of the primary reduction drive used in two wheelers.	9	L2	CO3	PO3
b.	Explain the principle of steering column construction.	9	L2	CO3	PO3
c.	Sketch and explain the principle of continuous variable transmission.	9	L3	CO3	PO3

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

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|--|---|----|-----|-----|
| 5 a. List and explain in brief the kinematic and dynamic requirement of suspension system. | 9 | L2 | CO4 | PO4 |
| b. Sketch and explain hand operated hydraulic brake used in two wheeler                    | 9 | L2 | CO4 | PO4 |
| c. Explain in detail the requirement of tyre.  | 9 | L1 | CO4 | PO4 |

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

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|---|---|----|-----|-----|
| 6 a. Explain the components of frame with neat sketch.            | 9 | L2 | CO5 | PO5 |
| b. Explain the ergonomic consideration of a two wheeler in brief. | 9 | L2 | CO5 | PO5 |
| c. Explain the layout of passenger rickshaw with neat layout.     | 9 | L3 | CO5 | PO5 |

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