Total No. of Questions – [06]

Total No. of Printed Pages: [02]

PRN No.	

Paper Code	

MAY 2022 - ENDSEM EXAM

B. TECH. (MECHANICAL) (SEMESTER - II)

COURSE NAME: AUTOMOBILE ENGINEERING

COURSE CODE: MEUA40182D

(PATTERN 2018)

Time: [1 Hr]

[Max. Marks: 30]

Instructions to candidates:

1) **Answer Q.1 OR Q.2, Q.3 OR Q.4, Q.5 OR Q.6.**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data wherever required**

MARKING SCHEME

Q.1 a	Explain the Rolling Resistance neat explanation 4M	[4]
b	Illustrate the various thread patterns in tyres Each Thread Pattern 1M	[6]
	OR	
Q2 a	Interpret the Specification of tyres? 4 Specification 4 M	[4]
b	Relate tires sidewall information with neat sketch? Sketch 2M and Expn- 4M	[6]
Q.3 a	A car has 1100 kg mass. Its mass center C is 80cm behind the front wheel axis and it has 240cm wheel base find reaction forces under the wheel? 4M	[4]
b	Calculate the vertical force under front and rear wheels when car Parked on level road? 6M	[6]
	OR	
Q.4 a	Calculate the position of mass center for a horizontally parked car on a level road having reaction force under the front and rear wheel is 1900N	[4]

	and 1700N with a wheelbase 2.34m? 4M	
b	Calculate maximum acceleration and maximum tractive effort for front wheel drive? 6M	[6]
Q.5 a	Importance of ergonomics in Vehicle Designing? 4M	[4]
b	Illustrate how the 3 way Catalytic Converter Purify the Air with the help of Chemical Reaction? 6M	[6]
	OR	
Q.6 a	Different type of sustainable energy sources for driving Automobile? 4 POINTS 4M	[4]
b	Illustrate Bharat Stage Norms? all Norms 6M	[6]