Registration No.: | | | | | | | | | | |

Total Number of Pages: 02 **Course: B.Tech**
Sub_Code: RME5D001

5th Semester Regular/Back Examination: 2024-25
SUBJECT: Automobile Engineering
BRANCH(S): MECH, MMEAM
Time: 3 Hours
Max Marks: 100
Q.Code: R296

Answer Question No.1 (Part-1) which is compulsory, any eight from Part-II and any two from Part-III.
The figures in the right-hand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

a) What are the important sub systems in an automobile?
b) What forces act on a car in motion?
c) Differentiate between chassis and body of an automobile.
d) How hydraulic brakes work?
e) What is overdrive and how is it achieved?
f) Differentiate between semi and fully automatic transmission.
g) What is the principle of correct steering?
h) Which steering mechanism is generally used in passenger cars?
i) How does the electrical charging system work?
j) Why are batteries used in car,how it is charged?

Part-II

Q2 **Only Focused-Short Answer Type Questions- (Answer Any Eight out of Twelve)** **(6 × 8)**

a) Show with a neat diagram the main parts of the braking system.
b) Write about some important points on motor vehicle act.
c) Differentiate between working of drum and disc brakes.
d) Explain the Hotchkiss drives.
e) Differentiate between a two wheel and a four-wheel drive neat diagram.
f) Explain working of torque converter.
g) Explain working of differential with a neat sketch.
h) Draw front wheel geometry of the steering system and explain Camber, castor, and kingpin inclination.
i) Explain different battery types used in EV.
j) Differentiate between series and parallel hybrid vehicles.
k) Explain working of fuel cells vehicles.
l) Write about important electronic and electrical components used in EV.

Part-III

Only Long Answer Type Questions (Answer Any Two out of Four)

Q3	Explain with a neat sketch the working of the electrical system of an electric vehicle (EV).	**(16)**
Q4	Draw the Layout of an all-wheel drive transmission system and explain the main function of the different components of the transmission system.	**(16)**
Q5	Explain with a neat diagram steering condition for true rolling and explain Ackerman steering geometry working, also find out minimum steering radius.	**(16)**
Q6	Compare, with neat diagrams working and selection consideration of suspension system of a car.	**(16)**