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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)

- What are the important sub systems in an automobile?
- What forces act on a car in motion?
- Differentiate between chassis and body of an automobile.
- How hydraulic brakes work?
- What is overdrive and how is it achieved?
- Differentiate between semi and fully automatic transmission.
- What is the principle of correct steering?
- Which steering mechanism is generally used in passenger cars?
- How does the electrical charging system work?
- 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 x 8)

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