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Total Number of Pages : 02

Course: B.Tech
Sub Code: PME6J005

6th Semester Back Examination: 2022-23

SUBJECT: Automobile Engineering

BRANCH(S): MECH

Time : 3 Hour

Max Marks : 100

Q. Code : M552

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)

- Write any two functions of an automobile chassis.
- Name the resistances to vehicle motion.
- What are the functions of brake lining?
- Write any four components of an engine.
- What is the function of a gear box? Give any two types of gear box.
- What is fluid coupling?
- State the forces acting on a rear axle.
- What is the purpose of a capacitor in an ignition system?
- Write any two merits of an electric vehicle.
- Write any four pollutants emitted from compression ignition (CI) engines.

Part-II

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

- Why a clutch is required in an automotive vehicle? What are the types of clutch?
- Explain the functions of automobile brake system and its requirements.
- With a neat sketch explain the working of a hydraulic brake.
- Explain the construction and working of a torque tube drive.
- Explain the construction and working of a constant mesh gear box.
- Why is a differential necessary in automobiles? With the help of a neat sketch write the working of a differential unit.
- Explain with a neat sketch, the construction of a front axle. Write any two functions of a steering.
- Define: (i) Camber angle (ii) Caster angle and (iii) King-pin inclination
- With the help of a neat sketch, explain the working of a telescopic shock absorber.
- With the help of a neat sketch explain the working of battery coil ignition system.
- Write any three differences between electrical vehicle and fuel cell. Write the components of a fuel cell.
- With a neat sketch explain the construction of an electric vehicle.

Part-III

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

- Q3** a) With the help of a neat sketch, explain the multi plate clutch. (8)
b) With the help of a neat sketch the working of a torque converter. (8)
- Q4** a) Write short notes on (i) propeller shaft and (ii) slip joint. (10)
b) Explain the working of a differential used in automobile. (6)
- Q5** a) With the help of a neat sketch, explain the construction and working of a hydraulic braking system. (8)
b) Discuss on air bags used in passenger cars. (5)
c) Write any three differences between hybrid vehicle and electrical vehicle. (3)
- Q6** a) Classify the fuel cells. (3)
b) Write the applications of fuel cells. (3)
c) With the help of a neat sketch explain the construction and working of a proton exchange membrane fuel cell. (10)