

**Course: Automobile Engineering**  
**Program: B.Tech Mechanical Engineering**  
**Course Code: MHEG 363**

**Semester: VIII**  
**Time: 03 hrs.**  
**Max. Marks: 100**

**SECTION A**

**(6\*5 Marks = 30)**

1. Name different types of independent suspension system.
2. List and brief any four electrical accessories used in an automobile.
3. Determine the firing order/s for a 6-cylinder in-line SI engine.
4. List different drive arrangements in automobiles.
5. List different types of tyre carcasses.
6. Define the following term:
  - a. Castor
  - b. Camber

**SECTION B**

**(5\*10 Marks = 50)**

7. Discuss the importance and functions of ignition system, why is lead acid batteries suitable choice for an automobiles?
8. Explain the construction of Mc Pherson strut suspension and Swinging Half Axle suspension system.

**OR**

Discuss various loads taken up by the rear axle and explain different types of rear axles used in automobiles.

9. Explain the constructional features of DC Generator and Alternator.
10. Explain different types of loads a designer needs to consider while designing frame of a vehicle.
11. Explain double declutching, type of gearbox it is required and advancement adopted to eliminate this issue.

**SECTION B**

**(1\*20 Marks = 20)**

12. Explain all parts of master cylinder, in detail, and working principle of tandem master cylinder.

**OR**

Explain coil ignition. On what principle does a coil ignition system operates.