Instructions:

1. All questions are compulsory.
2. Answer each next main question on a new page.
3. Illustrate your answers with neat sketches wherever necessary.
4. Figures to the right indicate full marks.
5. Assume suitable data, if necessary.
6. Use of Non-programmable Electronic Pocket Calculator is permissible.
7. Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. A) Attempt any three of the following:
   a) State functions of transmission system in automobile.
   b) Write any four advantages of front engine and rear wheel drive vehicle.
   c) Enlist the requirements of steering system.
   d) Explain the term:
      i) King pin inclination
      ii) Camber angle

   B) Attempt any one of the following:
   a) Justify “Aerodynamic shape of an automobile improves performance of vehicle”.
   b) Explain the working of transfer case with neat sketch and give its application.

2. Attempt any four of the following:
   a) State various types of automobile bodies.
   b) Differentiate between coil spring and diaphragm clutch. (any four)
   c) With neat sketch, explain working of rack and pinion type steering gear.
   d) State the need of differential with neat sketch.
   e) Explain with neat sketch, full floating type rear drive.
3. Attempt any two of the following:
   a) Explain with neat sketch, working of synchromesh gearbox.
   b) State the requirements of steering geometry and explain toe in and toe out with neat sketch.
   c) Explain hydraulic braking system with neat sketch.

4. A) Attempt any three of the following:
   a) Enlist any four requirements of suspension system in automobile.
   b) Explain construction of air suspension with neat sketch.
   c) Write different colour codes of wires used in automobile wiring system.
   d) Explain the function of Bendix drive in starter system.

   B) Attempt any one of the following:
   a) Write any six important precautions to be taken while using AC systems in automobile.
   b) State and explain air conditioning parameters for human comfort.

5. Attempt any four of the following:
   a) Enlist any four advantages of CDI ignition system.
   b) List the various types of rims used in automobiles and draw neat sketch of any one.
   c) Describe the working of Mac Pherson suspensions with neat sketch.
   d) Differentiate between framed and frameless vehicle.
   e) With neat sketch give the nomenclature of car body.

6. Attempt any two of the following:
   a) Enlist the different tests of battery. Explain specific gravity test of battery.
   b) i) Sketch and explain working of fuel level gauge.
      ii) Draw circuit diagram of lighting system of two wheeler.
   c) State any eight probable causes of tyre wear and give its remedies.