

(3 Hours)

Max. Marks : 100

- N.B.
- 1) Question No.1 is compulsory
 - 2) Attempt ANY FOUR out of the remaining questions
 - 3) Draw neat sketches to illustrate your answers
 - 4) Figures to the right indicate full marks

1. a) With the help of neat sketch explain (i) King pin inclination (ii) Caster. (iii) Camber. (iv) Toe-in (v) Toe-out [10]
- b) Explain with neat sketch the layout and working of Air brakes [10]
2. a) With a neat sketch explain the construction, working, advantages and disadvantages of Single plate Dry Friction Clutch [10]
- b) Differentiate between Fluid flywheel and Torque convertor [10]
3. a) What is the purpose of Steering gear? Explain with sketch screw and nut type of steering gear. [10]
- b) What is the necessity of gear box? Explain the working of constant mesh gear box [10]
4. a) Explain with sketch working of McPherson strut type independent suspension, with its advantages and disadvantages. [10]
- b) Explain with a sketch working of electronic ignition system. [10]
5. a) Explain with sketch the importance of driver's seat. What are the basic parameters involved in design of driver's seat. [10]
- b) Discuss the overall criteria for vehicles comparison in the same category. [10]
6. a) Explain in detailed the position and working of Sensors
i) MAP ii) Lambda iii) SAW [10]
- b) Explain in detailed the working of ECM in a vehicle. [10]
7. Write short notes on the following (any four) [20]
 - i. Battery ratings.
 - ii. Brake shoe material
 - iii. Factors affecting tyre life.
 - iv. Comparison of semi integral and integral structure
 - v. Visibility and blind area