

Time : 3 Hours

Total Marks: -80

N.B: (1) Question no 1 is compulsory.

(2) Attempt any three out of remaining five questions.

(3) Draw neat and labelled diagrams wherever necessary.

- Q.1 Answer the following questions:
- Explain clearly how it is made sure in a gearbox that at a time no two gears are engaged simultaneously. Illustrate your answer with neat sketch. 05
 - Describe the necessity of gearbox at all in automobile when the engine speed can be varied by means of accelerator pedal? 05
 - What are components of Drive lines? Sketch and explain the working of Universal Joint and Constant Velocity Joints. 05
 - Explain Worm and wheel type of steering gear box with neat diagram. 05
- Q.2
- Describe the construction and working of Synchromesh gear box. Show how power flows at various speeds. 10
 - Explain fluid flywheel/coupling & Torque converter with respect to working construction and application along with neat diagram. 10
- Q.3
- Sketch and explain working of Final Drive gears and bearings. 10
 - Explain Rear Axle drives in brief with neat diagrams. 10
- Q.4
- Explain minimum 5 terms related to Front end/Steering Geometry with neat diagram for each. 10
 - Explain need of differential in automobiles. Also explain working of simple open differential with neat labelled diagram. 10
- Q.5
- Sketch and explain working of Transfer case and Transaxle. 10
 - Explain hydraulic brake system and Endurance brake system with neat and labelled diagram. 10
- Q.6 Write short note on :
- Mc pherson strut type suspension. 05
 - Radial and Cross ply type tire construction 05
 - Types of Rear Axle casings. 05
 - Over drive and Tandem axle drives. 05