

- 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:

- a) Compare Constant mesh and Synchromesh Gearbox with construction, working and applications. 05  
b) What are components of Drive line? Sketch and explain working of Universal joint and Constant Velocity joints. 05  
c) Explain different Final Drive Gears and Bearings. 05  
d) Write a note on Tire Information. Explain what you understand from P205/65 R15 92 H. 05

- Q.2 a) Explain Cross ply/Bias ply and Radial Ply in detail with neat diagram for each. 10  
b) Explain clearly how it is made sure in a gear box that at no time two gears are engaged simultaneously. Illustrate your answer by means of neat sketch of an interlocking device. 10

- Q.3 a) Explain with neat diagram working of clutch used in Royal Enfield Bullet. 10  
b) Explain Rear Axle drives in brief with neat diagrams. 10

- Q.4 a) Explain Castor, Camber, King pin Inclination, Scrub Radius and Included Angle related to Front end/Steering Geometry with neat diagram for each. 10  
b) Explain need of differential in automobiles. Also explain working of simple open differential with neat labelled diagram. 10

- Q.5 a) Sketch and explain working of Fluid Flywheel and Torque Converter 10  
b) Explain hydraulic brake system and air brake system with neat and labelled diagram. 10

- Q.6 Write short note on :  
a) Adaptive suspension. 05  
b) Endurance Brake system 05  
c) Types of Rear Axles 05  
d) Electrical power assisted steering 05

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