

PART - B (5 × 16 = 80 Marks)

11. (a) (i) What is the effect of weight of vehicle and passengers on the frame side members ? Explain. (8)
(ii) Write note on different types of material used for chassis frame. (8)
- OR**
- (b) (i) Explain the term "Rolling resistance" with the help of a neat sketch. (8)
(ii) Draw a neat labelled diagram of rear engine rear wheel drive type of vehicle layout. (8)
12. (a) (i) Explain electronic spark timing/control with a circuit diagram. (8)
(ii) Write short notes on the following : (8)
Ignition Coil and Alternator
- OR**
- (b) Discuss various methods to reduce the level of pollutants in the exhaust gases. (16)
13. (a) (i) Explain the need of universal joints in propeller shafts. (6)
(ii) How will you classify clutches ? Describe with neat sketch function and working of multi-plate clutch. (10)
- OR**
- (b) (i) Explain with neat sketch gear shifting mechanism. (8)
(ii) Explain the working of automatic gear box. (8)
14. (a) (i) With a neat sketch, explain the construction and operation of a shock absorber. (8)
(ii) Explain in detail about steering geometry with neat sketches. (8)
- OR**
- (b) (i) Distinguish between independent suspension and conventional suspension system. (6)
(ii) Explain air brake system in detail. Also state its advantages over hydraulic brake system. (10)
15. (a) (i) Explain in brief electrical car layout. (8)
(ii) Compare advantages and disadvantages of LPG, hydrogen and biodiesel as a fuel used in I.C. engine. (8)
- OR**
- (b) Explain the various properties of alternative fuels. (16)