

- N.B: (1) Question no.1 is compulsory.
(2) Attempt any three out of remaining five questions.
(3) Figures to the right indicate full marks.
(4) Illustrate your answers with sketches wherever necessary.

- Q.1 Answer any four of the following:
- a Explain the importance of tyre marks in accident investigation. 05
 - b Explain the significance of head restraint position. 05
 - c Explain universal design. 05
 - d Explain the significance of accident data. 05
 - e Explain the injury tolerance limits of any one body part. 05
- Q.2 a Explain the application of basic principles of engineering mechanics in accident reconstruction analysis. 10
- b Explain the significance of occupant simulation and biomechanics. 10
- Q.3 a Explain the design requirements for frontal collision. 10
- b Explain in detail the functions of different components in antilock braking systems. 10
- Q.4 a Explain in detail any one active safety system for pedestrian protection. 10
- b Explain any five types of illustrative errors. 10
- Q.5 a Explain self-aligning head restraint for whiplash prevention in detail. 10
- b Explain key issues of vehicle safety in India. Support your answer with a case study. 10
- Q.6 a Explain how Euro-NCAP conducts pedestrian protection test? 10
- b Explain any one seat testing procedure in the context of rear impact. 10
