MAY 2017

(REVISED COURSE) QP Code : 612102

(3 Hours) [Total Marks : 80]

N.B.: (1) Question no 1 is compulsory.
(2) Attempt any 3 out of remaining 5 questions.
(3) Figures to the right indicate full marks.
(4) Illustrate your answers with sketches wherever necessary.

1. (a) What are nomograms? How they are useful Vehicle Weight analysis? 10
(b) Explain Layout of Design and Preliminary design in detail 10

2. (a) Explain the following with load path: 10
(i) Vertical Symmetric (ii) Vertical Asymmetric (iii) Longitudinal Load
(b) What is aerodynamics? Explain various aerodynamic forces moments acting on the vehicle. 10

3. (a) Explain in detail following layout of structures with diagram for edge forces distribution in torsion and bending:
(i) Integral (ii) Open Integral (iii) Semi-Integral (iv) Flat or Punt type 10
(b) Explain Vehicle Body panel terminology. Also define and identify sill panel, cant panel, scuttle panel and rain gutter. 10

4. (a) Explain general principle the walled structures behaviour in torsion, 10
(b) Write short notes on:
(i) Master Model 5
(ii) Vehicle Weight Distribution . 5

5. (a) Explain various safety aspects incorporated in modern cars. 10
(b) Give account of various plastics rubbers going into automobile. 10

6. (a) What is Ergonomics? How is it used to design Drivers seat? Also explain different types of child seat. 10
(b) Explain various power plant locations with its merits and demerits. 10