BE/SemVII/CBSGS/AUTO/CBE/N-D-2016

Q.P. Code : 612100

(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 Explain in detail the following layout of structures with neat diagram for edge forces distribution in torsion and bending: 10
1) Integral
2) Open Integral
3) Semi-Integral
4) Flat or Punt type

b Draw various layouts of buses based on entry and exit locations. 10

2 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

3 a What are Alignment charts? How they are useful in Vehicle Body Weight analysis? 10

b Explain Layout of Design and Preliminary design in detail. 10

4 a Explain general principle of the thin walled structures and behaviour in torsion. 10

b Explain Overall criteria for vehicle comparison of same class. 10

5 a Explain various safety aspects incorporated in modern cars. 10

b Give account of various plastics and rubbers going into automobile. 10

6 a Explain the following with load path: 10
1) Vertical Symmetric
2) Vertical Asymmetric
3) Longitudinal Load

b What is aerodynamics? Explain various aerodynamic forces and moments acting on the vehicle. 10