

Time: (3HRS)

[TOTAL MARKS: 80]

N.B:-

- 1) Question no 1 is compulsory
- 2) Attempt any three out of remaining six questions
- 3) Assume any suitable data wherever required but justify the same
- 4) Illustrate answers with neat sketches wherever required
- 5) Answers to questions should be grouped and written together.

- Q. 1 Attempt any **four** out of six, 20
- i) What is Master model?
 - ii) Explain Sheet Stamping process.
 - iii) Draw and Explain Coach Building.
 - iv) What are the design requirements of Child seat?
 - v) State different loads acting on a chassis.
 - vi) Explain thin walled structure.
- Q. 2 A) Explain layout of design and preliminary design of Passenger Car. 10
 B) Explain with neat diagram vertical asymmetric loading showing all calculations for condition of maximum height. 10
- Q. 3 A) What is Ergonomics? Write design considerations of driver's seat and explain different types of driver seats labeling all parameters and values based on its type. 10
 B) Explain in brief properties of vehicle body materials. 10
- Q. 4 A) Draw and Explain different types of Truck layout. 10
 B) Explain methods for improving visibility and space in cars. 10
- Q. 5 A) Explain the recent trends in body design with respect to safety consideration. 10
 B) Explain various power plant locations on chassis frame with Advantages and disadvantages 10

- Q. 6 A) Explain various body optimization techniques for minimum drag. 10
 B) Calculate centre of gravity for the given load distribution as shown in figure below: 10

