Roll No. | | | | | | | | | | | | Total No. of Pages : 2

Total No. of Questions : 09

B.Tech.(AE) (Sem.–6)

AUTOMOTIVE AERODYNAMICS

Subject Code : AE-316

Paper ID : [A0724]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

SECTION-A

l. Write briefly :

a) What is aerodynamics?

b) What is a drag force?

c) Define bluff body.

d) What do you understand by shape optimization?

e) Explain the principle of wind tunnel.

f) What is the function of transducers in wind tunnel?

g) How does drag coefficient affect body shapes?

h) What are the effects of aerodynamic lift coefficient?

i) What is meant by boat tailing?

j) What do you understand by gap configuration?

SECTION-B

2. Discuss the effects of aerodynamic pitching moment on the vehicle characteristics.
3. Discuss different types of drag forces.
4. How front end modifications help in the performance of a car? Discuss.
5. Write a brief note on resistance to vehicle motion.
6. How drag is reduced in commercial vehicle? Explain.

SECTION-C

7. Explain a wind tunnel with neat sketch.
8. Discuss the effects of forces and moments on the vehicle and how it is calculated.
9. Write a note on dirt accumulation on the vehicle.