Roll No. | | | | | | | | | | | | |

Total No. of Pages: 02
Total No. of Questions: 09

B. Tech. (AE) (Sem.-6th)

AUTOMOTIVE AERODYNAMICS

Subject Code: BTAE-604
Paper ID: [A2383]

Time: 3 Hrs. **Max. Marks: 60**

INSTRUCTIONS TO CANDIDATE:

1. **Section-A is compulsory.**
2. **Section-B Attempt any four questions.**
3. **Section-C Attempt any two questions.**

SECTION-A (10x2=20)

Q. 1. Write Briefly:

(a) State specific gravity.

(b) Define drag coefficient.

(c) Describe two practical objective of aerodynamics.

(d) What is meant by wind-rush noise?

(e) List four aerodynamic variables & state their effect?

(f) What are the design factors to remove water & dirt accumulation on body?

(g) What are fast back and square back?

(h) Describe the effect of front end & A-pillar on the flow field.

(i) Define drag force.

(j) Name the road testing methods.

SECTION-B (4x5=20)

Q. 2. How does roof, windshield wiper effect the flow field in aerodynamics?

Q. 3. Discuss in detail drag reduction in commercial vehicles.

Q. 4. Explain briefly effects of gap configuration in relation to shape optimization of cars.

Q. 5. Describe strategies for aerodynamic development.

Q. 6. Write a note on dirt accumulation on the vehicle with regards to vehicle handling.

SECTION-C (2x10=20)

Q. 7. Discuss in detail full scale wind tunnels for Automotive Aerodynamics.

Q. 8. Write short notes on:

(a) Analysis of aerodynamic drag

(b) Shape optimization of cars

(c) Stress with scale models

Q. 9. Explain transducers, equipments and scale models in relation to Automotive Aerodynamic.

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