Printed Pages: 02 **Sub Code: KAU-073**

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B.TECH
(SEM VII) THEORY EXAMINATION, 2022-23
VEHICLE BODY ENGINEERING& SAFETY

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

a. What is the importance of vehicle body design?
b. What is meant by vehicle layout?
c. What aluminum is used for car bodies?
d. What is structural timber?
e. What are the basics of aerodynamics?
f. What are the different aerodynamic forces and moments?
g. What is interior ergonomics?
h. What is window winding mechanism?
i. What is difference between noise and vibration?
j. How is noise levels measured?

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

a. What are the Eight systems of a car? Explain with neat sketches.
b. What is meant by metal matrix composites? What are the applications of metal matrix composites? How are metal matrix composites made?
c. What are different types of drag on a car? Explain briefly.
d. What is ergonomics and why is it important? Explain briefly.
e. What are the sources of noise and explain the types?

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

a. How do you calculate approach and departure angles? Explain with neat sketches.
b. What do you mean by double skin construction in automobile? Explain with neat sketches.

4. Attempt any *one* part of the following: **10 x 1 = 10**

a. What is in Glass Reinforced Plastic? What are the advantages and disadvantages of Glass Reinforced Plastic?

b. What are thermo plastics simple definition? What are five types of thermoplastics? Explain briefly.

5. Attempt any *one* part of the following: 10 x 1 = 10

a. What is wind tunnel technology? What are the five parts of a wind tunnel? Explain with neat sketches.

b. How is the weight of a car distributed? Explain with neat sketches.

6. Attempt any *one* part of the following: 10 x 1 = 10

a. What are the different types of vehicle layouts? Which type of layout is most suitable for automobile manufacturing plant and why?

b. Which motion is shown by a car moving on a curvilinear path? Explain with neat sketches.

7. Attempt any *one* part of the following: 10 x 1 = 10

a. What is bearing vibration? What causes bearing vibration? Explain briefly.

b. What is force in mechanics of deformable bodies? Why is the analysis of deformable body quite complicated?