Subject Code: KAU073

PAPER ID-410648

Roll No: | | | | | | | | | | | | | |

B.TECH
(SEM VII) THEORY EXAMINATION 2021-22
VEHICLE BODY ENGINEERING & SAFETY

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

Notes: 1. Attempt all sections. if require any missing data; then choose suitably**.**

SECTION A

1. Attempt *All*. 02X10=20

a.	State the various necessity for vehicle body engineering.
b.	Write the advantages of front engine front wheel drive over rear engine rear wheel drive.
c.	Sketch the layout of passenger bus
d.	What is the material used as energy absorber?
e.	State the importance of aerodynamic study.
f.	Name the different body trim items.
g.	Write the classification of buses.
h.	What are the domains of specialization in ergonomics?
i.	What are various noise measurement techniques?
j.	What is the importance of bumper used in different automobiles in terms of the safety of the passenger?

SECTION B

2. Attempt any *03 parts* of the following: 03X10=30

a.	What are semi-integral and integral methods of construction of a vehicle body? State their merits and demerits.
b.	What are different types of glasses used in body construction? Explain
c.	With a neat sketch discuss various forces and moments acting on a vehicle
d.	Explain how rubber is used as an isolator in vehicle
e.	Explain the various sources of noise in a vehicle.

SECTION C

3. Attempt any *01* part of the following: 01X10=10

(a)	What are the special features of different types of car bodies? Explain them in brief.
(b)	Explain the following terms in details along with neat sketch a) Angle of Approach b) Angle of Departure c) Ground Clearance

4. Attempt any *01* part of the following: 01X10=10

(a)	What are the different types of plastics used in body construction? Explain the specification and properties along with utility of each in detail.
(b)	Write short notes on following i) Paint ii) Adhesive Material iii) Anti Corrosion Material

5. Attempt any *01* part of the following: 01X10=10

(a)	Discuss various factors to be considered for a driver seating position. Draw a neat sketch with relative dimensions for three classes of vehicle.
(b)	Explain longitudinal and lateral stability of a vehicle with a neat sketch.

6. Attempt any *01* part of the following: 01X10=10

(a)	What is the different load acting on vehicle body structure? Explain in detail.
(b)	With a sketch explain how an air bag system provide safety to the driver

7. Attempt any *01* part of the following: 01X10=10

(a)	State the requirements of modern vehicle design and describe structural members of a double decker vehicle body.
(b)	What is aerodynamic drag? Explain it with suitable graph of drag force vs Vehicle speed.