

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024

Subject Code:3160211

Date:28-11-2024

Subject Name:Automobile Chassis and Body Engineering

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) What is Automobile chassis? Give the name of main components of chassis.	03
	(b) Explain in brief which types of loads are acting on the vehicle frame.	04
	(c) What do you mean by drag force? Explain different types of drag force.	07
Q.2	(a) List out the main parts of the car body work.	03
	(b) Explain the crumple zone in vehicle.	04
	(c) Explain vehicle structure analysis using by simple structural surface method in simple van.	07
	OR	
	(c) Explain driver visibility & methods for improving visibility.	07
Q.3	(a) Write a short note on tipper body.	03
	(b) Difference between Mini bus and Midi bus.	04
	(c) Explain various types of tanker body construction with detail.	07
	OR	
Q.3	(a) Define crashworthiness of vehicle.	03
	(b) Write a short note on car pillars.	04
	(c) Explain the effect of different types of forces and moments acting on vehicle body.	07
Q.4	(a) List out minimum drag optimization techniques for aerodynamics.	03
	(b) Explain about resistance to vehicle motion.	04
	(c) Draw layout of power plant location and drive in vehicle with neat sketch.	07
	OR	
Q.4	(a) Classify types of commercial vehicle bodies.	03
	(b) Explain different types of metal section used in construction and regulation of bus body.	04
	(c) Explain the driver cabin design for compactness design of frames for bus and commercial vehicles	07
Q.5	(a) Define: airbag, seat belt and dashboard of vehicles.	03
	(b) Explain external and internal flow problems in vehicle aerodynamics.	04
	(c) Differentiate between active and passive safety.	07
	OR	
Q.5	(a) Give the requirements of pedestrian safety.	03
	(b) Explain the concept of H-point referencing.	04
	(c) Explain the chassis and body alignment test.	07

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023

Subject Code:3160211

Date:07-12-2023

Subject Name: Automobile Chassis and Body Engineering

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain Dashboard with figure in detail.	03
	(b) Explain different types of commercial vehicle body.	04
	(c) Explain types of car body with neat sketch.	07
Q.2	(a) Define: Chassis, Body, Frame	03
	(b) Explain vehicle body trims.	04
	(c) Explain driver seat design & dimension parameters.	07
	OR	
	(c) Explain Full frontal crash test with neat sketch.	07
Q.3	(a) State the sources of body noise.	03
	(b) Describe the uses of GRP in bus body.	04
	(c) Describe various types of materials used for body construction.	07
	OR	
Q.3	(a) Define crashworthiness of vehicle.	03
	(b) Explain different types of metal section used in the construction of bus body.	04
	(c) Explain the effects of different types of forces & moments acting on vehicle body.	07
Q.4	(a) Write the properties and use of FRP.	03
	(b) Classify various bus bodies with diagram.	04
	(c) Explain various body optimization techniques used for drag reduction for vehicle body.	07
	OR	
Q.4	(a) Explain working of seat belt.	03
	(b) Compare the conventional & integral type construction of busbody.	04
	(c) Explain driver visibility & methods for improving visibility.	07
Q.5	(a) Define ergonomics of vehicle.	03
	(b) What do you mean by crumple zones? What is their importance?	04
	(c) Differentiate between passive and active safety.	07
	OR	
Q.5	(a) Explain about resistance to vehicle motion.	03
	(b) Explain working of Airbags.	04
	(c) Explain load analysis of simple van using SSS method.	07

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3160211****Date:15-12-2022****Subject Name:Automobile Chassis and Body Engineering****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Differentiate between chassis, frame and automobile body.	03
	(b) Explain Unibody Structure design for vehicle.	04
	(c) Describe various types of materials used for body construction.	07
Q.2	(a) Explain types of body styling used for vehicle.	03
	(b) Explain Aerodynamic Drag and its types.	04
	(c) Explain different forces and moments with their effects on the vehicle.	07
	OR	
	(c) Write a short note on “wind tunnel testing of a scale model”.	07
Q.3	(a) Classify types of car bodies.	03
	(b) Explain the crumple zone in vehicle.	04
	(c) Explain the SSS method for a Simple Van.	07
	OR	
Q.3	(a) Explain Crashworthiness.	03
	(b) Explain classification of bus body.	04
	(c) Define Blind Spot. Describe various methods to reduce blind spot in sedan car.	07
Q.4	(a) Classify types of commercial vehicle bodies.	03
	(b) Explain various vehicle body trims.	04
	(c) Explain Pneumatic equipment for passenger door opening & closing.	07
	OR	
Q.4	(a) Describe dashboard of vehicle in detail.	03
	(b) Explain the vehicle roof and vehicle side panel assembly.	04
	(c) Explain construction and working of safety belt for occupants.	07
Q.5	(a) Give the requirements of pedestrian safety.	03
	(b) Describe working of Airbag system in vehicles.	04
	(c) Enlist the safety aspects in vehicle body design and explain active and passive safety.	07
	OR	
Q.5	(a) Explain the concept of H-point referencing.	03
	(b) Explain roll over crash tests.	04
	(c) Describe human ergonomics for driver’s seat design.	07
