

Enrollment No.....



Faculty of Engineering
End Sem Examination May-2023
AU3CO14 Vehicle Body Engineering

Programme: B.Tech.

Branch/Specialisation: AU

Duration: 3 Hrs.**Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. The purpose of automobile body is to- **1**
 (a) Provide aesthetic look to vehicle
 (b) Absorb energy in case of collision
 (c) Keeps occupants safe from outside environment
 (d) All of these
- ii. Following separates the passenger compartment with the engine- **1**
 (a) Fenders (b) Cowl panel firewall
 (c) Pillars (d) Scuttle panel
- iii. Type of buses provides floor space for standing passengers- **1**
 (a) Type-I (b) Type-II (c) Type-III (d) Type-IV
- iv. The distance between the front seat squab and the front of the seat squab of the seat preceding it is known as- **1**
 (a) Seat width (b) Seat pitch
 (c) Seat height (d) Seat spacing
- v. The requirements of materials in automotive design are- **1**
 (a) Light weight (b) Safety
 (c) Recycling capability (d) All of these
- vi. The glass that is baked at very high temperatures, making it incredibly strong is- **1**
 (a) Laminated glass (b) Sheet glass
 (c) Toughened glass (d) Fibre glass
- vii. In a wind tunnel, the section with minimum area is called as- **1**
 (a) Exit (b) Nozzle (c) Inlet (d) Throat
- viii. For a moving car the area directly in front of the car is an area of- **1**
 (a) Lower air pressure (b) Perfect vacuum
 (c) Higher air pressure (d) Moderate air pressure

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- ix. Adhesive sealant is also known as- **1**
 (a) Solid gasket seal (b) Liquid gasket seal
 (c) Vacuum gasket seal (d) None of these
- x. Interior lining of door is known as- **1**
 (a) Door skins (b) Door trim
 (c) Drip moulding (d) Firewall
- Q.2 i. What is integral body construction? **2**
 ii. How visibility can be increased in a car? **3**
 iii. Describe the various types of car body with neat sketches and examples. **5**
- OR iv. Explain static load, load due to acceleration and load due to braking on a car body with suitable diagrams. **5**
- Q.3 i. Define double skin construction with suitable example. **2**
 ii. Describe the various types of bus body using neat sketches. **8**
- OR iii. Explain the types of light commercial vehicle body with neat sketches and mention the usage of each LCV body. **8**
- Q.4 i. Define composite materials and mention its types. **3**
 ii. What is laminated glass? Compare it with toughened glass and sheet glass. **7**
- OR iii. What are the major requirements of materials used in automobile? Describe the properties and usage of different materials used for an automobile body. **7**
- Q.5 i. Define lift, drag and total drag force with suitable examples. **4**
 ii. Describe construction of wind tunnel with a neat sketch and explain testing process. **6**
- OR iii. Explain various aerodynamic forces and moments acting on a vehicle body. **6**
- Q.6 Write short note on any two: **5**
 i. Major repairs of a car body **5**
 ii. Exterior and interior car trims. **5**
 iii. Glass and door service of a car **5**

Marking Scheme

AU3CO14 (T) Vehicle Body Engineering

Q.1	i)	The purpose of automobile body is to: (d) All of the above	1
	ii)	Following separates the passenger compartment with the engine: (b) Cowl Panel Firewall	1
	iii)	Type of buses provides floor space for standing passengers: (a) Type-I	1
	iv)	The distance between the front seat squab and the front of the seat squab of the seat preceding it is known as: (b) Seat Pitch	1
	v)	The requirements of materials in automotive design are: (d) All of the above	1
	vi)	The glass that is baked at very high temperatures, making it incredibly strong is: (c) Toughened Glass	1
	vii)	In a wind tunnel, the section with minimum area is called as: (d) Throat	1
	viii)	For moving car the area directly in front of the car is an area of: (c) Higher Air Pressure	1
	ix)	Adhesive sealant is also known as: (b) Liquid gasket seal	1
	x)	Interior lining of door is known as: (b) Door Trim	1
Q.2	i.	What is integral body construction? Brief explanation.....2 marks	2
	ii.	How visibility can be increased in a car? 6 techniques.....3 marks	3
	iii.	Describe the various types of car body with neat sketches and examples. 5 types with sketch.....5 marks	5
OR	iv.	Explain static load, load due to Acceleration and load due to braking on a car body with suitable diagrams. Static load1 mark Load due to acceleration.....2 marks Load due to braking.....2 marks	5

Q.3	i.	Define double skin construction with suitable example. Definition with example.....2 marks	2
	ii.	Describe the various types of bus body using neat sketches. Minimum 4 Types of body with sketches.....8 marks	8
	OR iii.	Explain the types of Light Commercial Vehicle Body with neat sketches and mention the usage of each LCV body. Minimum 4 Types of LCV body with sketches.....8 marks	8
Q.4	i.	Define composite materials and mention its types. Definition.....1 mark Types and brief explanation.....2 marks	3
	ii.	What is laminated glass? Compare it with toughened glass and sheet glass. Definition.....1 mark Minimum 3 differences with each type.....6 marks	7
	OR iii.	What are the major requirements of materials used in automobile? Describe the properties and usage of different materials used for an automobile body. Name of requirements.....1 mark Description of Minimum 3 types of materials.....6 marks	7
Q.5	i.	Define Lift, drag and total drag force with suitable examples. Lift force.....1 mark Drag force.....1 mark Total drag.....2 marks	4
	ii.	Describe construction of wind tunnel with a neat sketch and explain testing process. Neat sketch.....1 mark Description of wind tunnel.....3 marks. Testing process.....2 marks	6
	OR iii.	Explain various aerodynamic forces and moments acting on a vehicle body. Neat sketch.....2 marks Explanation.....4 marks	6
Q.6		Attempt any two: Write short note	
	i.	Major repairs of a car body Major problems and repairs.....5 marks	5
	ii.	Exterior and interior car trims. Exterior trim.....3	5

	marks	
	Interior trims.....	2
	marks	
iii.	Glass and door service of a car	5
	Glass service.....	3
	marks	
	Door service.....	2
	marks	
