

CS/B.Tech/Even/AUE/6th Sem/AUE-604A/2014

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2014

Vehicle Body Engineering

Time Alloted : 3 Hours

Full Marks : 70

The figure in the margin indicate full marks.
Candidates are required to give their answers in their
own words as far as practicable

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following:

10x1=10

- i) In case of Venturi Effect if the air pressure is dropped then the air velocity is
- a) Increased b) Decreased
c) Remain same d) Cannot say
- ii) In modern car which of the following is used for safety purpose
- a) Collapsible steering
b) Air bag
c) Shock absorbing frame
d) All of those
- iii) Which one of the following is a sedan car?
- a) Maruti 800 b) Hyundai i-10
c) Tata Indica d) Tata Manza

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[Turn over]

iv) Which one of the following is a hatchback car?

- a) Ambassador b) Chevrolet Beat
c) Mahindra Scorpio d) Tata Safari

v) Which one of the following is a SUV?

- a) Maruti Alto b) Tata safari
c) Mahindra Logan d) Maruti swift

vi) If ground clearance of a car is decrease then it will experience

- a) Negative Lift b) Positive Lift
c) Drag increase d) Drag decrease.

vii) Rear end spoiler is attached to the vehicle to

- a) Increase the negative lift.
b) Decrease the negative lift
c) Increase the positive lift.
d) Decrease the positive lift.

viii) The propellant of an automobile air bag contains

- a) Sodium azide & Potassium nitrate
b) Potassium Chlorate and nitric acid
c) Sodium Carbonate and Water
d) Lead Peroxide and Sulphuric acid

ix) In Passenger car usually side windows glasses are made of

- a) Toughened glass b) Laminated glass
c) Ordinary glass d) Plastic sheet

x) Aerodynamic force on vehicle depends on

- a) Road gradient
b) Frictional force between road and tyre
c) Vehicle speed
d) None of these

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GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following. 3x5=15

2. What is wind tunnel? State the function of it.
3. Describe different types of car body with a suitable sketch.
4. Describe different types Car door.
5. What is window regulator? Briefly discuss the function of window regulator with sketch.
6. What are the various types of body materials used in vehicle body? Briefly write their properties.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. 3x15=45

7. a) Explain different safety consideration.
b) What is Air bag? Explain the working principal of Air bag with a suitable sketch. Also write its advantages and disadvantages [7+8]
8. Describe different types of Bus body with a suitable sketch [15]
9. a) What is Aerodynamic Drag and Lift? Explain it with a suitable sketch.
b) The drag coefficient of a car at the design conditions of 1 atm at 25°C, and 90 km/h is to be determined experimentally in a large wind tunnel in a full-scale test. The height and width of the car are 1.40 m and 1.65 m, respectively. If the horizontal force acting on the car is measured to be 300 N, determine the total drag coefficient of this car. [8+7]

10. Write a short note on the following topics

- (a) Visibility
- (b) Wind shield
- (c) Rear end spoiler and Wings.

[5+5+5]

11. a) Explain different types of automotive corrosion?

- b) What is Electrocoat?
- c) Discuss different corrosion testing methods to measure different corrosion parameter.

[3+5+7]