

**Scheme G**  
**Sample Test Paper-I**

**Course Name : Diploma in Automobile Engineering**

**Course Code : AE**

**Semester : Fourth**

**Subject Title : Automobile System & Body Engineering**

**Marks : 25**

**17409**

**Time: 1 hour**

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**Instructions:**

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

**Q1. Attempt Any THREE**

**9 Marks**

- a. State the factors which affect steering.
- b. List types of steering gear boxes.
- c. State the main functions of brake.
- d. Mention the types of suspension springs.
- e. State the functions of a suspension system.

**Q2. Attempt any TWO**

**8 Marks**

- a. Explain the terms – 1) Camber 2) Castor 3) Toe-in & 4) King- Pin inclination.
- b. Explain Ackerman's steering gear principle.
- c. Explain construction and working of a mechanical brake system.

**Q3. Attempt any TWO**

**8 Marks**

- a. Explain with sketch working of a telescopic shock absorber.
- b. Explain the working of a master cylinder.
- c. Explain torsion bar mechanism with a neat sketch.

**Scheme G**  
**Sample Test Paper-II**

**Course Name : Diploma in Automobile Engineering**

**Course Code : AE**

**Semester : Fourth**

**Subject Title : Automobile System & Body Engineering**

**Marks : 25**

**17409**

**Time: 1 hour**

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**Instructions:**

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

**Q1. Attempt Any THREE**

**9 Marks**

- a. Define streamlining process and state its effect.
- b. List Main Parts of automobile air conditioning system.
- c. State various resistances to which a vehicle is subjected.

**Q2. Attempt Any TWO**

**8 Marks**

- a. Explain denting process of a vehicle.
- b. Explain the terms 1) Bouncing & 2) Rolling
- c. State Human comfort conditions

**Q3. Attempt Any TWO**

**8 Marks**

- a. Explain the process of anti-corrosive treatment.
- b. Explain layout and operation of HVAC.
- c. Explain traction and tractive effort.

**Scheme G**  
**Sample Question Paper**

**Course Name : Diploma in Automobile Engineering**

**Course Code : AE**

**Semester : Fourth**

**Subject Title : Automobile System & Body Engineering**

**Marks : 100**

**17409**

**Time: 3 hour**

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**Instructions:**

1. All questions are compulsory
2. Illustrate your answers with neat sketches wherever necessary
3. Figures to the right indicate full marks
4. Assume suitable data if necessary
5. Preferably, write the answers in sequential order

**Q.1 (A) Attempt any SIX**

**12 Marks**

- a. Define the term caster and camber.
- b. How dead axle is different from live axle?
- c. List any four desired properties of brake fluid.
- d. Mention the name of refrigerant used in car air conditioner.
- e. Define traction and tractive effort.
- f. List any four advantages of disk brake system.
- g. Name the components of steering system use in case of car.
- h. State the function of antiroll bar.

**Q.1 (B) Attempt any TWO**

**8 Marks**

- a. Explain the types of material used in body construction.
- b. Define the terms pitching, bouncing, swaying & yawing.
- c. Explain the working of emergency brake.

**Q.2 Attempt any FOUR**

**16 Marks**

- a. Why are stub axle fitted in front axle? Sketch reverse Elliot type stub axle.
- b. What is turning circle radius and its significance.

- c. Why Toe-in and king pin inclination used in steering geometry.
- d. State the concept and working of antilock braking system.
- e. Explain anticorrosive treatment for vehicle.
- f. What are the advantages of disk brake with drum brake. (Any Four)

**Q.3 Attempt any FOUR**

**16 Marks**

- a. Describe a tandem master cylinder used in hydraulic brake system.
- b. Name the materials used for brake liner and define co-efficient of friction.
- c. Explain the working of suspension system used in case of auto-rickshaw.
- d. Draw a neat well labeled diagram for car air conditioner system.
- e. Explain types of vehicle bodies.
- f. State various types of denting tools used for a vehicle.

**Q.4 Attempt any TWO**

**16 Marks**

- a. Explain the working of rack and pinion steering gear box and its application.
- b. With a neat sketch explain the working of hydraulic brake system.
- c. Describe working of telescopic type shock absorber.

**Q.5 Attempt any FOUR**

**16 Marks**

- a. With a neat sketch explain Ackerman steering mechanism.
- b. Describe repainting procedure for old vehicle.
- c. What are the main advantages of gas filled shock absorber over conventional type (Any Four)
- d. State human comfort conditions used in car Air conditioner.
- e. Describe the Macpherson strut assembly of independent suspension system.
- f. Explain the necessity of humidity control.

**Q.6 Attempt any TWO**

**16 Marks**

- a. Mention safety devices used in vehicle and explain any one of them stating its application.
- b. Draw a layout of HVAC and explain its operation.
- c. Describe stability of vehicle on turn and slope.