

Scheme – I
Sample Question Paper

Program Name : Diploma in Automobile Engineering
Program Code : AE
Semester : Fourth
Course Title : Automobile Systems and Body Engineering
Marks : 70

22442

Time: 3 Hours

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) Attempt any FIVE of the following.

10 Marks

- a) Define 'Camber' and 'Caster'.
- b) Give the types of stub axle with one application of each.
- c) State working principle of hydraulic brakes.
- d) State two properties of brake fluid.
- e) List types of suspension system used in four wheeler.
- f) Write functions of auto body.
- g) Define- Tractive effort and Drawbar pull.

Q.2) Attempt any THREE of the following.

12 Marks

- a) Sketch a layout of steering linkage for a vehicle with rigid axle and label the major parts.
- b) Compare Disc brake with Drum brake and justify their applications.
- c) Describe with sketch the working of McPherson strut type independent suspension.
- d) Explain body insulation and sealing with relevant justification.

Q.3) Attempt any THREE of the following.

12 Marks

- a) Describe with sketch construction of front wheel assembly.
- b) Give applications of Reverse elliot type and Lamoine type front axle and justify their use.

- c) State two brake lining friction materials with their essential characteristics.
- d) Suggest relevant suspension system for Light Motor vehicle with justification.

Q.4) Attempt any THREE of the following.

12 Marks

- a) Describe with sketch working of Rack and pinion type steering gear box.
- b) Compare Hydraulic assisted power steering with Electric assisted power steering with their applications.
- c) Give classification of automotive brakes.
- d) Explain application of antilock braking system with suitable illustration.
- e) Describe with sketch working of telescopic shock absorber.

Q.5) Attempt any TWO of the following.

12 Marks

- a) Compare Independent suspension with rigid axle suspension system and justify their applications.
- b) Describe the use of Reverse parking sensor and Keyless entry system.
- c) Describe working of car air conditioning system with labelled sketch.

Q.6) Attempt any TWO of the following.

12 Marks

- a) List types of refrigerant for HVAC system of a car and write their essential properties.
- b) Describe with sketch streamlining of auto body.
- c) Explain with sketches Pitching, Bouncing and Yaw movements in relation to vehicle body.

Scheme – I
Sample Test Paper - I

Program Name : Diploma in Automobile Engineering
Program Code : AE
Semester : Fourth
Course Title : Automobile Systems and Body Engineering
Marks : 20

22442

Time: 1 Hour

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 Attempt any FOUR.

08 Marks

- a) Define 'King Pin Inclination' and 'Toe-in'.
- b) List the major components of Air braking system.
- c) State function of Master cylinder and Wheel cylinder.
- d) State types of front axle and write their purpose.
- e) List the factors affecting steering geometry.
- f) Write two advantages of Disc brake over Drum brake.

Q.2 Attempt any THREE

12 Marks

- a) Explain the necessity of automotive brakes with justification.
- b) Describe working of Re-circulating ball type steering gear box with sketch.
- c) Describe with sketch working of Ackerman Steering gear mechanism.
- d) Describe working of exhaust brakes with sketch.
- e) Compare Mechanical Brake with Hydraulic brakes.
- f) Explain with sketch working of electric power steering.

Scheme – I
Sample Test Paper - II

Program Name : Diploma in Automobile Engineering
Program Code : AE
Semester : Fourth
Course Title : Automobile Systems and Body Engineering
Marks : 20

22442

Time: 1 Hour

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.
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Q.1 Attempt any FOUR.

08 Marks

- a) List the types of springs used in automotive suspension system.
- b) Write function of stabilizer bar.
- c) Give the materials commonly used for auto body manufacturing.
- d) State function of Compressor and Evaporator used in Car A/C.
- e) Define - Rolling resistance and Air resistance.
- f) List protective and anti-corrosive treatments for auto body.

Q.2 Attempt any THREE

12 Marks

- a) Describe with sketch Linked suspension system.
- b) Explain the working of air bags with suitable illustrations.
- c) Describe with sketch working of Gas filled shock absorber.
- d) Explain the necessity of seat belt with relevant justification.
- e) Describe the working cycle used in automotive air conditioning system.
- f) Describe human comfort conditions in relation car air conditioning system.