17409

21718

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) **Attempt any SIX of the following:** **12**

(i) Define live axle and dead axle.

(ii) State friction materials used for brake shoes.

(iii) Write the applications of torsion bar.

(iv) State two functions of parking brake.

(v) Define tractive effort and yaw.

(vi) Write the materials used in body construction.

(vii) List the type of refrigerants used in car air conditioner.

(viii) Name the components of steering system used in case of car.

Marks

b) **Attempt any TWO of the following:** **8**

(i) Explain working of exhaust brake with neat sketch.

(ii) Explain construction and working of telescopic type shock absorber.

(iii) With neat sketch explain working of hydraulic brake system.

2. Attempt any FOUR of the following: **16**

a) Explain the Ackerman steering mechanism with neat sketch.

b) Draw a neat labelled sketch of wish bone type independent suspension system.

c) Explain painting procedure of new vehicle in brief.

d) Describe the human comfort conditions.

e) Describe construction and working of master cylinder.

f) Explain-correct steering angle and turning radius.

3. Attempt any FOUR of the following: **16**

a) Write any two advantages and disadvantages of central locking.

b) List four properties of Refrigerant.

c) Explain the concept of streamline shape of vehicle body.

d) State the advantages of gas filled shock absorber over conventional type.

e) Explain the necessity of humidity control.

f) Explain working of disc brake with neat labelled sketch.

4. Attempt any TWO of the following: **16**

a) Draw layout of HVAC and explain its operation.

b) Explain the working of rack and pinion type steering gear box and state its application.

c) Distinguish between independent suspension and rigid axle suspension system.

Marks

5. Attempt any FOUR of the following: **16**

a) State four advantages of power steering.

b) State different resistances faced by vehicle and explain any one.

c) Explain semi-elliptical leaf spring with neat sketch.

d) Explain desirable properties of braking fluid.

e) State different types of vehicle bodies with sketches.

f) How temperature and humidity is controlled in car air conditioning?

6. Attempt any TWO of the following: **16**

a) Draw neat labelled sketches of different types of stub axle arrangements.

b) Explain construction and working of antilock braking system.

c) Explain protective and anti corrosive treatment of vehicle body.