22442

21222

3 Hours / 70 Marks Seat No. | | | | | | | | |

15 minutes extra for each 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **10**

a) Define

(i) Under steering

(ii) Over steering

b) Compare between the Live and Dead axle with suitable example. (Any two points)

c) List desirable properties of 'brake fluid'.

d) Compare between Disc Brake and Drum Brake. (Any two points)

e) State the necessity of suspension system.

f) List different materials used in body construction.

g) Define the following terms.

(i) traction

(ii) tractive efforts

h) Write functions of Body accessories.

Marks

2. Attempt any THREE of the following: **12**

a) Explain working of Ackerman steering gear mechanism with neat sketch.

b) Explain the operation of Antilock braking system with neat sketch.

c) Differentiate between leaf spring and coil spring. (Any four points)

d) Explain the necessity of seat belt with relevant justification.

3. Attempt any THREE of the following: **12**

a) Draw a sketch of worm and roller type steering gear box. Explain its working.

b) Explain the working of Electrical type power assisted steering with neat sketch.

c) Explain with sketch the constructional feature of Hydraulic braking system.

d) Describe with neat sketch the working of 'Air suspension system'.

4. Attempt any THREE of the following: **12**

a) Describe with sketch working of Rack and Pinion type steering gear box.

b) Describe the salient features of Hydraulic type power assisted steering with sketch.

c) Compare between Mechanical and Air braking system with justification. (Any four points)

d) Describe with neat sketch construction and working of disc brake. Give any two applications.

e) Describe with neat sketch working of telescopic shock absorber.

Marks

5. Attempt any TWO of the following: **12**

a) (i) Give the detail classification of suspension system.

(ii) Explain the linked suspension system.

b) List out safety devices used in modern car and write down their functions.

c) Explain the working of HVAC system with proper layout.

6. Attempt any TWO of the following: **12**

a) State the types and their functions of refrigerants. Name the popular refrigerants used in modern cars.

b) Explain the term 'stream lining' state its effect on vehicle with suitable example.

c) Describe with sketches the pitching, bouncing, and yaw moments of vehicle.
