# 22442

**23124**

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

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

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

(3) Illustrate your answer 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. Attempt any FIVE of the following:** **10**

a) Define toe in and toe out.

b) Define Dead axle and Live axle.

c) State the functions of brakes.

d) Explain Brake fade and its effect.

e) State two advantages of central locking.

f) Write two effects of streamlined auto body.

g) Define Air resistance and Rolling resistance.

**Marks**

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

a) Explain Ackerman steering gear mechanism with label sketch.

b) Describe working of disc brake with neat sketch.

c) Differentiate between McPherson strut and wishbone type suspension system.

d) Explain the working of Air bag system with neat sketch.

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

a) List the different types of stub Axle and sketch any one type of it.

b) Draw a layout of steering linkage for a vehicle with independent suspension system.

c) State two brake lining friction materials with their essential characteristics.

d) Explain with neat sketch working of gas filled shock absorber.

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

a) Describe with sketch working of rack and pinion type steering gear box.

b) Explain working of hydraulic power steering system with neat sketch.

c) Give classification of Automotive brakes.

d) Explain application of antilog braking system with suitable illustration.

e) Describe with sketch working of Air Suspension System.

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

a) Describe with sketch working of Anti roll bar.

b) Describe with neat sketch working of collapsible steering.

c) Draw a layout of car air conditioning system. Label the major components and state their functions.

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

a) Explain with neat sketch temperature and humidity control in car air condition system.

b) Write the procedure of anticorrosive treatment for car.

c) Sketch pitching, bouncing and Yaw movements in relation to vehicle body and explain their effect on vehicle performance.