17409

11920

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 term ''Oversteer''.

(ii) State any two requirements for good steering system.

(iii) State any two requirements for good braking system.

(iv) Classify the brakes according to method of actuation.

(v) State any two function of suspension system.

(vi) List any two advantages of coil spring.

(vii) List any two passive safety devices in vehicle.

(viii) Define :

(1) Traction

(2) Tractive effort

Marks

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

(i) State function of steering gear and explain construction and working of recirculating ball type steering gear box with label sketch.

(ii) Draw and explain construction, working of vacuum servo brake.

(iii) List and draw various types of leaf spring and explain any one.

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

a) Define combined angle. Explain the effect of combined angle variation on wheel turning and state it's magnitude.

b) State any four advantages of electronic power steering over hydraulic power steering.

c) Compare Disc and Drum types of brakes (any four points).

d) Explain working of fluid check valve in braking system.

e) Explain the wishbone type of independent suspension system with neat sketch.

f) Explain construction and working of air bag system with suitable sketch.

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

a) Draw neat and label sketch of Rotary valve type power steering gear.

b) Explain construction and working of electronic power steering system with layout.

c) List various types of stub axle and draw any one.

d) Describe following properties of braking fluid

(i) Boiling Point

(ii) Effect on rubber

e) Explain the operation of hand brake and state it's use with suitable sketch.

f) Draw various types of vehicle body.

Marks

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

a) Explain different stages involved in painting new vehicle.

b) For car Air Conditioning system

(i) State any four tips for maintenance of car A.C. system

(ii) And state any four important precaution while using A.C. system.

c) State working principle of shock absorber and explain construction and working of shock absorber with diagram.

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

a) Give location of torsion bar and explain working of torsion bar with diagram.

b) State any four advantages of independent suspension over rigid axle suspension.

c) Explain function of ventilation system of a car.

d) State function of heating system and give it's classification.

e) Explain the effect of streamline shape of vehicle on performance of vehicle.

f) Draw layout of air brake system and state any two advantages of air brake system.

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

a) List active safety devices in vehicle and explain working of any two active safety devices in details.

b) Draw and explain construction and working of car air conditioning system with layout.

c) Describe the effect of various resistance to motion of vehicle.
