

22442

24225

3 Hours / 70 Marks

Seat No.

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- 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
(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) List four types of stub axle.
 - b) State any two functions of the steering system.
 - c) List any four components of Drum brake.
 - d) State any two functions of the brake.
 - e) State any four types of springs used in vehicular suspension system.
 - f) State any two functions of vehicular body.
 - g) Define the terms –
 - i) Traction
 - ii) Tractive effort

P.T.O.

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

- a) Describe following steering geometry parameters on the basis of definition and diagram.
 - i) Caster angle
 - ii) Camber angle
- b) How following parameters affects the braking performance of the vehicle.
 - i) Brake fade
 - ii) Coefficient of friction.
- c) Describe air suspension system on the basis of –
 - i) Labelled Diagram
 - ii) Construction
 - iii) Working
- d) Illustrate the need of safety devices used in vehicles with suitable example.

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

- a) Describe recirculating ball type steering gear box on the basis of –
 - i) Diagram
 - ii) Construction
 - iii) Working
- b) How improper steering geometry affects the overall performance of the vehicle ?
- c) Describe any four properties of brake fluid.
- d) Represent following type of suspension systems with ray diagram.
 - i) Dependent suspension system.
 - ii) Independent suspension system.
 - iii) Semi-dependent suspension system.
 - iv) Interdependent suspension system.

4. Attempt any THREE of the following : 12

- a) Describe hydraulic type power assisted steering system on the basis of –
 - i) Diagram
 - ii) Construction Details.
 - iii) Working
- b) Describe any four factors on which selection of steering gear box depends.
- c) Describe the disc brake system on the basis of following.
 - i) Diagram
 - ii) Construction
 - iii) Working
- d) “Hydraulic braking system is more efficient as compares to mechanical braking system” justify your answer.
- e) Draw labelled diagram of following suspension system arrangement.
 - i) Fully elliptic
 - ii) three quarter elliptics

5. Attempt any TWO of the following : 12

- a) How suspension system enhance the comfort of occupants and life of the vehicle ? Justify your answer.
- b) Describe stepwise procedure used to paint the new vehicle.
- c) Describe car air conditions system with the help of neat labelled diagram.

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

- a) Describe vapour compression cycle with necessary diagrams.
 - b) Describe any two car body accessories on the basis of –
 - i) Diagram
 - ii) Functions
 - c) How following factors affects on air resistance of the vehicle.
 - i) Shape of the vehicle
 - ii) Speed of Air
 - iii) Speed of the vehicle
 - iv) Frontal area exposed
 - v) Loading fashion
 - vi) Size of the vehicle.
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