

TED (15) – 6051

Reg. No.....

(REVISION — 2015)

Signature .....

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019**

**AUTOMOBILE CHASSIS**

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. What are the loads acting on the front axle ?
2. What is mean by 'unsprung' weight ?
3. Name two types of Leaf Springs.
4. Define camber angle.
5. What is fading of Brakes ?

(5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Discuss the various types of sections used in frame construction.
2. List 6 advantages of independent suspension system.
3. Explain vertical guide type independent suspension system.
4. Discuss the need of wheel alignment.
5. Write short notes on : (a) Toe in and Toe out (b) Slip angle
6. What are the main requirements of brake fluid ?
7. What is meant by engine exhaust brake ? Explain.

(5×6 = 30)

## PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

## UNIT — I

- III (a) With a neat sketch explain X-Member type car frame. 7  
 (b) Briefly explain about the different types of stub axles. 8

OR

- IV (a) What are the common defects of automobile frame ? 8  
 (b) Sketch and explain the constructional details of rigid front axle. 7

## UNIT — II

- V (a) With the aid of a sketch explain leaf spring and helper spring. 8  
 (b) Explain the working of Telescopic type shock absorber with a sketch. 7

OR

- VI (a) Write short notes on :  
 (i) Nipping and grading (ii) Hydrolastic suspension 8  
 (b) Explain the working of air suspension. 7

## UNIT — III

- VII (a) Explain Ackerman's steering mechanism with a sketch. 8  
 (b) Illustrate the working of collapsible type steering column. 7

OR

- VIII (a) Sketch and explain the working of rack and pinion type steering gearbox. 8  
 (b) What is correct steering angle ? Write the equation and describe the terms. 7

## UNIT — IV

- IX (a) Explain with sketch the working of a sliding caliper type disc brake. 8  
 (b) With a sketch explain the working of a wheel cylinder. 7

OR

- X (a) What do you understand from the term "Servo action" in brakes. With suitable sketches explain vacuum servo brake. 8  
 (b) Explain the working of brake valve used in air brake system with a sketch. 7