

NAME _____

ROLL NO _____

2007 ANNA UNIVERSITY
B.E/B.TECH DEGREE EXAMINATION
AUTOMOTIVE CHASSIS
(AUTOMOBILE ENGINEERING)

MAY-2007

TIME-3HOUR
MARKS-100

ANSWER ALL QUESTIONS

PART - A [10X2=20]

1. Mention the different loads acting on vehicle frame.
2. What are the different types of stub axle?
3. Name the different types of steering gear boxes.
4. What do you mean by non-slip differential?
5. What are the loads acting on rear axle?
6. List out the functions of a propeller shaft.
7. Why do the automotive vehicles need a suspension system?
8. List out the factors affecting the stopping distance of a vehicle.
9. What do you mean by 'brake fade'?
10. Write two examples for constant velocity universal joints.

PART - B [5X16=80]

11. (i) Derive an expression for the condition of true rolling motion of wheels during steering.
(a) (ii) Explain with neat sketch the construction and working principle of power steering.
12. (a) What are the different tests available for the vehicle frame? Explain in detail with neat sketches.
Or
(b) (i) Describe the construction and working principles of 'Hotchkiss' and 'Torque tube' drives.
(c) (ii) What are the effects of driving thrust and torque reaction?
13. (a) (i) Explain with neat sketch the construction and working principle of a differential unit.
(d) (ii) What are the different types of final drive? Explain their significance.
Or
(e) (b) Describe the construction and working principles of three types of rear axle.
14. (a) (i) Compare the merits and demerits of Independent suspension system with conventional suspension system.
(f) (ii) List out the various types of front independent suspension system. Explain any two systems in detail.
Or
(g) (b) (i) Explain with a neat sketch the construction and working principle of a shock absorber.
(h) (ii) Write short notes on 'rubber suspension' and 'pneumatic suspension' systems.
15. (a) (i) Derive an expression to find the torque developed by 'leading' and 'trailing' shoes in a drum brake.

(i) (ii) Compare Disc and drum type of brakes.

Or

(j) (b) (i) What are the advantages and disadvantages of hydraulic braking system?

(k) (ii) Draw the layout of air braking system and explain the working principle of the air braking system.

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