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**Sixth Semester B.E. Degree Examination, June/July 2017**  
**Automotive Chassis and Suspension**

Time: 3 hrs.

Max. Marks: 100

**Note: Answer FIVE full questions, selecting  
at least TWO questions from each part.**

**PART – A**

- 1 a. Discuss in detail classification of automobile. (06 Marks)  
b. With neat sketch explain transmission system of front engine rear wheel drive vehicle. (08 Marks)  
c. Derive expressions for wheel reactions in three wheeled vehicle resting on level road. (06 Marks)
- 2 a. With neat sketches discuss various loads acting on chassis frame. (12 Marks)  
b. Draw and explain various tests to be carried out on chassis frame. (08 Marks)
- 3 a. Discuss construction of front axle with a neat sketch. (08 Marks)  
b. Briefly explain following :  
i) Caster angle      ii) Camber angles      iii) King pin inclination. (06 Marks)  
c. With neat sketch explain :  
i) Worm and sector steering gear      ii) Rock and pinion steering gear. (06 Marks)
- 4 a. What is the need of differential in automobile? Explain construction and working of differential with neat sketch. (12 Marks)  
b. Explain semi floating and full floating arrangement of rear axle. Also mention loads acting on axle in each arrangement. (08 Marks)

**PART – B**

- 5 a. Write any four advantages of disc brakes over drum brakes. (04 Marks)  
b. Explain with a neat sketch working of hydraulic brake system. Also mention its advantages. (12 Marks)  
c. What are the requirements of brake fluid? (04 Marks)
- 6 a. Discuss working of air brakes. Also mention its advantages. (10 Marks)  
b. Explain with neat sketch working of vacuum brakes. (10 Marks)
- 7 a. Explain with neat sketch construction of leaf spring. (06 Marks)  
b. Write any four advantages of independent suspension system over rigid axle suspension system. (04 Marks)  
c. Discuss construction and working of telescopic shock absorber. (10 Marks)
- 8 a. Explain any two types of wheels used in automobiles. (06 Marks)  
b. Write advantages of radial ply tyres over cross ply tyres. (04 Marks)  
c. Discuss various factors affecting the tyre life. (10 Marks)

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Important Note: 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank space.  
2. Any scribble or communication (typed or handwritten) appearing on the question answer sheet, e.g. '10' or '20', will be treated as inappropriate.