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Sixth Semester B.E. Degree Examination, June/July 2016
Automotive Chassis and Suspension

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. With a neat sketch, explain the transmission system in four wheel drive. (08 Marks)
 b. Derive the weight distribution in case of three wheeled vehicle. (08 Marks)
 c. Write advantage and disadvantage of front wheel drive. (04 Marks)
- 2 a. With a neat sketch explain the box section type of car frame. (08 Marks)
 b. Write the materials and loads acting on the frames. (06 Marks)
 c. Write a note on :
 i) Sub frame
 ii) Frame stresses
 iii) Frame sections. (06 Marks)
- 3 a. Explain the terms : i) castor ii) camber iii) toe in iv) toe out. (08 Marks)
 b. With a neat sketch explain the working principle of worm and wheel steering gear. (08 Marks)
 The steering wheel diameter of a car using rack and pinion type of steering gear is 300 mm.
 c. Calculate the pitch circle diameter of the pinion to overcome a resistance of 1 kN, with an effort of 50 N applied at the steering wheel. (04 Marks)
- 4 a. With a neat sketch explain the working principle of differential. (08 Marks)
 b. Explain Hotchkies drive with neat sketch. (08 Marks)
 c. Write a note on whirling of propeller shaft. (04 Marks)

PART – B

- 5 a. Write the comparison of disc and drum brakes. (06 Marks)
 b. Write the different requirements of brake fluid. (06 Marks)
 c. With a neat sketch, explain the working of Disc brake with fixed caliper. (08 Marks)
- 6 a. With a neat sketch, explain the working principle of vacuum servo brake. (10 Marks)
 b. Sketch of explain the working principle of disc brake with servo action. (10 Marks)
- 7 a. Explain the working of telescopic type of shock absorber. (10 Marks)
 b. Write a short note on :
 i) Wishbone type suspension
 ii) Torsion bars. (10 Marks)
- 8 a. Briefly explain the wire wheel with neat sketch. (08 Marks)
 b. Write the desirable properties of tyre. (06 Marks)
 c. Write the comparison between radial and bias ply tyres. (06 Marks)

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