

CBCS SCHEME

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15AU61

Sixth Semester B.E. Degree Examination, June/July 2018 Automotive Chassis and Suspension

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Explain with a neat sketch the layout of a 4 wheel drive automobile. (08 Marks)
b. Derive the weight distribution in case of three wheeled vehicle. (08 Marks)

OR

- 2 a. What are the various loads acting on chassis frame? (06 Marks)
b. With a neat sketch, explain different cross sections used for the construction of chassis frame. (06 Marks)
c. Briefly explain the defects in frames. (04 Marks)

Module-2

- 3 a. Explain the following terms:
(i) Camber (ii) Cartor (iii) King pin inclination (iv) Toe in (08 Marks)
b. With a neat sketch, explain worm and wheel steering gear. (08 Marks)

OR

- 4 a. Sketch and explain the construction and working of a power steering system. (10 Marks)
b. The front axle of a car has pivot centers 1.1m apart. The length of each steering arm is 150 mm, while the track rod is of 1.0 m length. Calculate the wheel base for perfect rolling of the car wheels when the inner wheel stub axle is at 55° to the red centre line. (06 Marks)

Module-3

- 5 a. Two shafts A and B, whose axes are intersecting but inclined to each other at 15° are connected by means of a Hook's joint. A flywheel of weight 180 kN and radius of gyration 80 mm is fitted to shaft B. If the shaft A rotates at uniform speed of 2000 rpm. What is the maximum torque in B. (06 Marks)
b. With a neat sketch explain the working of differential. (10 Marks)

OR

- 6 a. Briefly explain the Hotchkiss drive with a neat sketch. (08 Marks)
b. With a neat sketch explain the semi floating axle. (08 Marks)

Module-4

- 7 a. Sketch and explain the working of disc brake. (08 Marks)
b. Sketch and explain the working of vacuum servo brakes. (08 Marks)

OR

- 8 a. With a neat sketch explain the working of master cylinder. (10 Marks)
b. Briefly explain the essential characteristics of a good braking fluid. (06 Marks)

Module-5

- 9 a. Sketch and explain the working of telescopic type shock absorber. (08 Marks)
b. Sketch and explain any one type of front wheel independent suspension. (08 Marks)

OR

- 10 a. Write the desirable properties of tyre. (06 Marks)
b. Write the comparison of radial and bias ply type carcass tyre. (06 Marks)
c. What are the inset and outset wheel? (04 Marks)

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