

CBCS SCHEME

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Sixth Semester B.E. Degree Examination, June/July 2023 Automotive Chassis and Suspension

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Discuss in detail classification of Automobile. (10 Marks)
b. Explain with neat sketch, layout of four wheel drive vehicle. Mention its advantages and disadvantages. (10 Marks)

OR

- 2 a. With neat sketches discuss various loads acting on chassis frame. (10 Marks)
b. Draw a layout of a typical chassis frame, show all the components mounted on it. (10 Marks)

Module-2

- 3 a. Discuss the construction of front axle with neat sketch. (10 Marks)
b. Explain the following :
i) Caster angle ii) Camber angle iii) King Pin Inclination iv) Scrub radius (10 Marks)

OR

- 4 a. With neat sketch explain:
i) Worm and Sector Steering gear (10 Marks)
ii) Rock and Pinion Steering gear (10 Marks)
b. Sketch and explain the factors of wheel alignment. (10 Marks)

Module-3

- 5 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. (08 Marks)

OR

- 6 a. Derive the expression for a velocity ratio in Hook's Joint. (10 Marks)
b. Sketch and explain rear axle driver. (10 Marks)

Module-4

- 7 a. What are the requirements of brake fluid? Also mention four advantages of disc brakes over drum brakes. (10 Marks)
b. With a neat sketch explain the working of hydraulic brake system. Also mention its advantages. (10 Marks)

OR

- 8 a. With a neat sketch, explain the working of disc brakes. Also mention its advantages. (10 Marks)
b. Discuss the working of air brakes. Also mention its advantages. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-5

- 9 a. Explain with neat sketches:
i) Hydraulic suspension
ii) Rubber suspension (10 Marks)
b. Explain with neat sketch construction of leaf spring? Also mention the four advantages of Independent Suspension. (10 Marks)

OR

- 10 a. Describe with sketches, the construction of
i) Disc Wheel (10 Marks)
ii) Wire Wheel (10 Marks)
b. Compare the merits and demerits of Tubeless tyres. (10 Marks)
