



USN

Sixth Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025

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. Sketch and explain the layout of automobile with reference to power plant. (10 Marks)
- b. Explain general consideration relating to chassis layout. (10 Marks)

OR

- 2 a. Explain types of frames used in automobile. (10 Marks)
b. Sketch and explain the ladder frame with its advantages. (10 Marks)

Module-2

- 3 a. Sketch and explain types of Stub axles. (10 Marks)
b. Explain Front dead axles of automobile with neat sketch. (10 Marks)

OR

- 4 a. Describe steering linkages for rigid axle suspension. (10 Marks)
b. Explain construction and working of recirculating ball type steering gear. (10 Marks)

Module-3

- 5 a. Derive the expression for velocity ratio of propeller shaft Hooke's joint. (10 Marks)
b. Explain final drive with sketch and mention its types based on tooth of wheel. (10 Marks)

OR

- 6 a. Explain functions and principle of differentiate with neat sketch. (10 Marks)
b. Explain fully floating and semi floating axle housing. (10 Marks)

Module-4

- 7 a. Derive the expression for reaction on wheels when brakes are applied at front wheels only. (10 Marks)
- b. Explain the construction and working of drum brake system. (10 Marks)

OR

- 8 a. Explain construction and working of Master cylinder used in hydraulic brake system (10 Marks)
- b. Differentiate between disc and drum braking system. (10 Marks)

Module-5

- 9 a. Explain construction and working of leaf spring suspension system. (10 Marks)
b. Describe construction details of telescopic shock absorbers. (10 Marks)

OR

- 10 a. Explain the advantages of alloy wheels over other wheels. (10 Marks)
b. Describe the construction of disc wheel system. (10 Marks)

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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.