CBCS SCHEME

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18AU61

Sixth Semester B.E. 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. In brief explain classification of Automobiles, with examples. **(10 Marks)**

b. Which are the different cross-section used for chassis frame? Explain. **(10 Marks)**

OR

2 a. Explain with a neat sketch the layout of a 4-wheel drive Automobile. **(10 Marks)**

b. Derive expression for stability of vehicle on slope. **(10 Marks)**

Module-2

3 a. The front axle of a car has pivot centers 1.1 m apart. The length of each steering arm is 150 mm, while track rod is 1 m, length. Calculate the wheel base for perfect rolling of the car wheels when the inner wheels stub axle is 55° to rear center line. **(10 Marks)**

b. Explain the following with neat sketch:
i) Camber ii) Caster iii) King-pin inclination iv) Toe-in v) Toe-out. **(10 Marks)**

OR

4 a. Sketch and explain recirculating ball type steering gear. **(10 Marks)**

b. Sketch and explain power steering. **(10 Marks)**

Module-3

5 a. With a neat sketch, explain propeller shaft and universal joints. **(10 Marks)**

b. What is the need of differential in automobile? Discuss working principle of differential with a neat sketch. **(10 Marks)**

OR

6 a. Sketch and explain Hotch-Kiss drive. **(10 Marks)**

b. Explain the construction of full-floating rear axle with a neat sketch. **(10 Marks)**

Module-4

7 a. Sketch and explain drum brakes used in Automobile. Explain leading and trailing shoes. **(10 Marks)**

b. Sketch and explain sliding calliper type disc brake, write its advantageous. **(10 Marks)**

OR

8 a. Explain essential characteristics required for braking fluid. **(10 Marks)**

b. Sketch and explain vacuum servo brakes. **(10 Marks)**

Module-5

9 a. What is the function of shock absorber? Sketch and explain the construction and working of telescopic type of hydraulic shock absorber. **(10 Marks)**

b. Sketch and explain i) Coil spring ii) Torsion bars. **(10 Marks)**

OR

10 a. Explain with neat sketch, the construction of i) Disc wheel ii) Wire wheel. **(10 Marks)**

b. Sketch and explain the construction of conventional Tubed Type Tyre and Tubeless Type Tyre. **(10 Marks)**

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