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Automobile classification and specification : Automobile chassis: General layout, types of layout and its arrangement, Body construction type and Materials, Functional requirements of vehicle body, Body trim and fittings.

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Vehicle Loads: Forces acting on vehicle in motion, Transmission efficiency, Factors affecting it, Rolling resistance, Grade resistance, tractive force with uniform speed and with acceleration of vehicle, Traction characteristic. Dynamic factor, weight transfer due to various resistance acting on a vehicle in motion. Stability of a vehicle in motion around the curve

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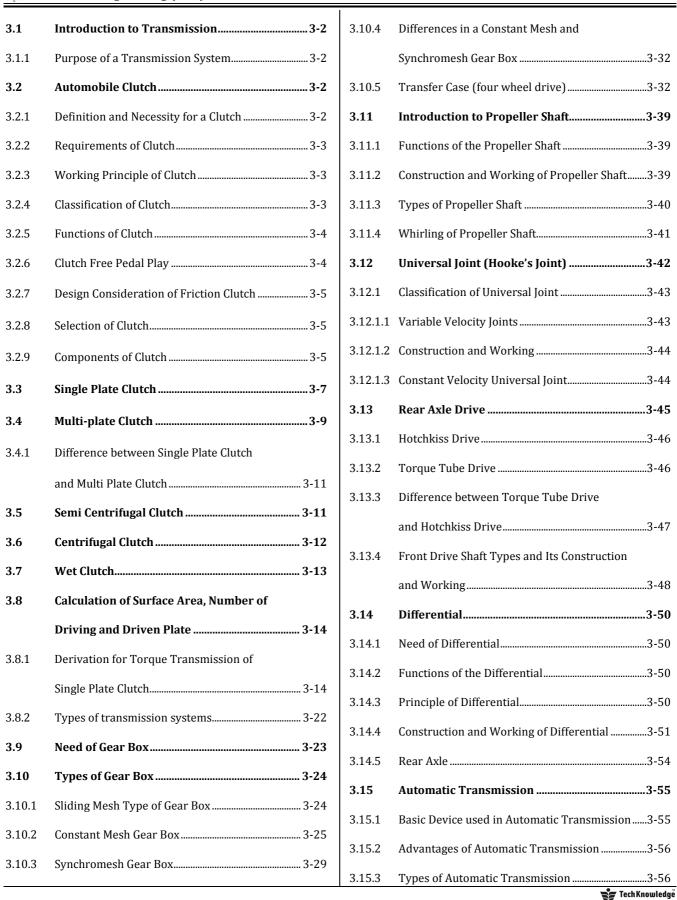
Clutch: Constructional features and working of single plate, multi plate, semi centrifugal and centrifugal clutch, Calculation of Surface Area and Number of Driving and Driven Plates.

Chapter 3: Power Transmission Systems

Transmission Gear Box: sliding mesh, constant mesh, synchromesh gear boxes and four wheel drive.

Propeller shaft and drive shaft: Propeller shaft, universal joints, Hotchkiss and Torque tube drives, Front drive shaft types and its construction and working, differential gear box, rear axle, Automatic Transmission and CVT. Faults and diagnosis of power transmission system.

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Chapter 4: Axle, Suspension and Steering

Axle: Classification, type of front axle, construction, components and their functions, types of rear axle and application.

Suspension : Principle, Types of suspension systems, Functional requirements of suspension systems, Types and Constructional features of Front Suspension and rear Suspension system, Spring types, Rubber and Air suspensions, Factors affecting design and selection; Analysis of Suspension system: Mobility, kinematic/graphical analysis, Roll centre analysis and force analysis

Steering System : Steering Layout, types of steering gears, staring linkages, steering mechanism, definitions, and significance of camber, caster king, pin inclination, toe in and toe out on turn. Measurement and adjustment of various steering system layouts, steering ratio, under steering and over steering, power assisted steering, steering geometry, wheel alignment, and diagnosis of fault.

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Components and configurations, Fundamentals of braking: braking distance, braking efficiency, weight transfer, wheel skidding, Brake proportioning and adhesion utilization,

Hydraulic brake system, Power assisted brakes, ABS and Electronic Braking system: Working principles, Features and advantages, Fault and diagnosis..

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Unit - V

Chapter 6: Wheel And Tyres

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Chapter 7: Electrical, Electronics and Safety Systems

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Engine control Unit, Monitoring and Instrumentation, Safety interlocks and alarms, Lamps, Lighting and other circuits, fuel gauge, temperature gauge, wiper, speedometer and odometer. Active and Passive Safety systems, Seat belt, Air bag, ACD, Electronic Stability Control (ESC), Tire Pressure Monitoring System (TPMS), Lane Departure Warning System (LDWS), Adaptive Cruise Control (ACC), Driver Monitoring System (DMS), Blind Spot Detection (BSD) and Night Vision System (NVS).

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