

KPSC POLYTECHNIC DIPLOMA LECTURER'S RECRUITMENT EXAMINATION
IN AUTOMOBILE ENGG.

AUTOMOBILE

UNIT 1: THERMODYNAMICS

Fundamental concepts, Work and heat, First law of thermodynamics, Second law of thermodynamics, Testing for performance of IC Engines, Reciprocating Compressors, Gas turbines.

UNIT 2: DESIGN OF MACHINE ELEMENTS

Mechanical properties of Engineering materials, Theories of failure of machine elements, Design of simple machine elements, Design of shafts, threaded joints, riveted joints, welded joints, cams, cylinder and cylinder heads, springs, clutch, brakes, gears and gear drives, belt and rope drives.

UNIT 3: CHASSIS & SUSPENSION

Frames, Front axle & steering system, Brakes, Suspension.

UNIT 4: AUTOMOTIVE ENGINES

Cylinder head, cylinder block, crank case, manifolds & mufflers, Piston- piston ring – piston pin, Connecting rod, Crank shaft, Cam shaft, Valve & valve mechanism, carburetion, petrol injection, diesel injection systems, cooling system, lubrication system, supercharging and turbo charging.

UNIT 5: AUTOMOTIVE TRANSMISSION

Clutch- friction clutch, fluid coupling, Gearbox, torque converter, epicyclic transmission, hydrostatic drives, automatic & electric transmission, Propeller Shaft, Universal joint, Final drive, Differential, Rear axle, wheels & tyres.

UNIT 6: FUELS, COMBUSTION, POLLUTION & CONTROL

Fossil Fuels, Alternate Fuels, Combustion of fuels, Combustion in SI Engine, Combustion in CI Engine, Mechanism of pollutant formation in engines, Pollution control techniques, Laws & regulations in relation to pollution.

UNIT 7: AUTOMOTIVE ELECTRICAL, ELECTRONIC SYSTEM & AUTOTRONICS

Storage Batteries, Generators, Alternators, Starter motor & drives, Ignition system, Wiring & lighting systems, heating and air conditioning systems. Engine management system, Transducers & Sensors, Signal conditioning, ABS, active suspensions, traction control, Airbag.

UNIT 8: EARTH MOVING EQUIPMENTS, TRACTORS & BODY ENGINEERING

Dozers, Loaders, Shovels, Excavators, Scrappers, Motor graders, Rollers, Compactors, Tractors & Attachments, under carriage & suspension of earth moving equipments.

Vehicle body materials, Aerodynamics, Types of resistances to vehicle motion, Power required for propulsion Vehicle stability, Load distribution,.

UNIT 9: FLUID MECHANICS

Properties of fluid, Fluid statics, Fluid dynamics, Fluid flow measurements, Flow through pipes.

UNIT 10: MANUFACTURING TECHNOLOGY & MATERIAL SCIENCE

Casting process, Welding process, Lathe, Drilling machine, Grinding machine, Finishing process & other process, Mechanical behavior, Ferrous & Non Ferrous materials, Heat treatment & metals.