

UNIT I

Chapter 1 : Refrigeration Cycles 1-1 to 1-25

Refrigeration : Reversed Carnot Cycle, unit of refrigeration, Simple Vapour Compression Cycle (VCC), Refrigerating Effect, Compressor Power & COP. Simple Vapour Absorption Cycle (VAC), Comparison between VCC & VAC.

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UNIT III

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SI Engines : Theory of Carburetion and Types of Carburetor, Working of Simple Carburetor, Electronic Fuel Injection System, Combustion stages in SI engines, Abnormal Combustion, Theory of Detonation and Parameters affecting detonations, Rating of fuels in SI engines, Combustion Chambers used in SI Engine.

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UNIT IV

Chapter 6 : Testing of I.C. Engines 6-1 to 6-49

Engine Testing : Engine Testing Procedure, Measurement of indicated power, Brake power, fuel consumption, Air Consumption, Measurement of friction power by Willan's Line Method and Morse Test, calculation of mean effective pressure, Various efficiencies, Specific fuel consumption, Heat balance sheet of IC Engines and performance Characteristic curves.

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UNIT V

Chapter 8 : Engine Systems and Alternative Fuels 8-1 to 8-50

Cooling System : Air cooling, Liquid cooling,
Lubrication system : Objectives of lubrication system, properties of lubricant, Methods of lubrication system,
Ignition system : Battery coil ignition system, magneto ignition system, Electronics Ignition (CDI, TCI), Maximum Brake Torque (MBT) and spark advance. Supercharging and Turbo-charging.
Alternative Fuels : Bio-diesel, Ethanol, LPG, CNG and Hydrogen.

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UNIT VI

Chapter 9 : Positive Displacement Reciprocating and Rotary Compressors 9-1 to 9-46

Reciprocating Compressor : Applications of compressed air, single stage compressor (without clearance and with clearance volume), volumetric efficiency, isothermal efficiency, effect of clearance volume, free air delivery (FAD), actual indicator diagram for air compressor, Multistaging of compressor, optimum intermediate pressure, intercooler, aftercooler, capacity control of compressors.

Rotary compressors : Roots blower, Vane type, Screw compressor and Scroll compressor.

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