Important 13mark questions

Unit I

1. Derive an expression for Air standard efficiency and state the assumptions of an Otto cycle.
2. The mean effective pressure of an ideal Diesel cycle is 8 bar. If the initial pressure is 1.03 bar and the compression ratio is 12, determine the cutoff ratio and the air standard efficiency. Assume ratio of specific heat for air to be 1.4.

Unit II

1. Explain the construction and working Battery and Magneto Ignition System with neat sketch.
2. Explain the construction and working principle of Diesel reciprocating pump and Fuel injector with neat sketch.

Unit III

1. Derive the condition for maximum flow rate in steam nozzle.
2. Explain the pressure compounded impulse turbine showing pressure and velocity variations along the axis of the turbine.

Unit IV

1. Explain in detail the working of a multistage compressor with help of p-V diagram.
2. Derive an expression for equation of work in terms of clearance factor in a single stage compressor with n as the index of expansion and compression.

Unit V

1. Explain the working of vapour absorption refrigeration cycle with a neat schematic layout.
2. Differentiate between window A/c system and split A/c system and explain the working of split A/c system with neat diagrams.