2.16 30216 MARINE ENGINEERING-2

UNIT-1 DIESEL ENGINES

1.1 Scope, description, types, marine uses.

1.2 Diesel Engine Systems Engine Cooling system, engine fuel oil system, engine lubricating oil system, basic engine air starting systems, scavenging and super-charging, methods of supercharging and turbochargers

1.3 Basic features of principal components of diesel engines, e.g. cylinder head, cylinder liner, pistons, cross-heads, connecting rods, camshafts with drives, crank shafts, tie rods, bed-plate, main bearing, top end and bottom end bearings and thrust bearing.

1.4 Safety features used in diesel engine- High cooling water temperature, low lub oil pressure, engine over speed and crankcase mist detector.

UNIT-2 VENTILATION, REFRIGERATION AND AIR CONDITIONING

2.1 Ventilation-Natural and forced,

2.2 Principle of vapour compression refrigeration cycle, basic features and functions of equipment involved i.e. compressor, condenser, expansion valve and evaporator.

2.3 Air-conditioning. Provision chambers. Brine refrigeration system, and cargo hold conditioning.

UNIT-3 DECK MACHINERY

3.1 Types of drives- electrical, electro-hydraulic, deck machinery positions and installation, working principle of anchor windlass, cargo and mooring winches, cargo handling crane, capstans, and hatch cover operating machinery.

UNIT-4 STEERING GEAR

4.1 Types of steering gear-mechanical, hand hydraulic, and power electro hydraulic actuators including rotary.

4.2 Construction and operation, control system and statutory requirements.

UNIT-5 ELECTRICAL MACHINERY

5.1 Onboard Basic concepts and applications of Electrical Machinery

5.2 Alternators, motors, main switch board, transformer and distribution system, emergency source of power, preferential tripping, protective devices, shore connection and inter lock.

Reference books:

1. Introduction to Marine Engineering BY D.A. Taylor
2. Marine Auxilary Machinery BY David D. smith