

TIME: 2.5 HRS.

TOTAL MARKS: 75

All Questions are Compulsory

- Q.1 a) As regards fuel, define cloud point, calorific value, water in oil. 5 Marks
 b) Draw ship's bunker line diagram indicating flow direction, and explain precautions to be taken during bunkering. 10 Marks

OR

- a) What is supercharging of a diesel engine? Describe in brief the process of supercharging. 5 Marks
 b) Sketch and describe impulse and reaction turbine. 10 Marks

- Q.2 a) Define Indicated power, Shaft power, Friction loss, Thrust power, Mechanical efficiency. 5 Marks
 b) If mechanical efficiency of an engine is 97%, transmission loss 3% and the propeller efficiency 95%, determine the thrust power. The total indicated power of the engine is 11276.4 kW 10 Marks

OR

- a) What do you understand by the term Propeller efficiency and Hull efficiency of a ship? Do these efficiencies have any effect on fuel consumption? 5 Marks
 b) Sketch and describe clearly F.O. supply system of a large diesel engine. 10 Marks

- Q.3 a) Why steam driven cargo pumps are being replaced by hydraulic FRAMO pumps for discharging operations on liquid cargo in tankers? 5 Marks
 b) A vessel uses 300tons of fuel oil on a voyage of 3000 nautical miles travelling at a speed of 12 knots when her displacement is 10000 tons. Estimate the fuel required for a voyage of 1500 nautical miles at a speed of 15 knots and displacement of 14000 tons. 10 Marks

OR

- a) What are the MARPOL 73/78 regulations in place for discharge of oily water from machinery spaces? 5 Marks
 b) Sketch and describe waste oil incinerator for marine purpose. 10 Marks

- Q.4 a) What is difference between fixed pitch propeller and controllable pitch. 5 Marks
 b) A propeller of 5.5 m diameter has a pitch ratio of 0.8. When turning at 120 rev / min, the wake fraction is found to be 0.32 and the real slip 35%. Calculate the ship speed, speed of advance and apparent slip. 10 Marks

OR
