

HONG KONG POLYTECHNIC
CENTRE FOR MARITIME STUDIES

Course : Post experience Diploma in Ship Command
Subject : Ship Technology
Class : PeDSC Part B
Session : 1992-93
Date : 8 June 1993
Time allowed : 3 hours

Instructions to Candidates : Attempt Questions 1, 2 and 3 and any four of the remainder.

This paper has nine questions

Available from :
Invigilator

Reference Exam No. : 3/93

✓ A1. A vessel has a daily fuel consumption of 60 tonnes when the displacement is 12,000 tonnes and with the engine rotating at 90 rev/min. An additional 8,500 tonnes of cargo is loaded and a voyage of 3000 nautical miles is begun.

(a) What engine revolutions are required if the fuel consumed on passage is not to exceed 350 tonnes?

(b) How long will this voyage take?

The propeller pitch is 5.75 metres, allow 5% for slip.

(20 marks)

A2. (a) Explain the functions of transverse bulkheads in a general cargo ship and state clearly the minimum number of bulkheads required by SOLAS.

(b) Sketch a typical welded, non-corrugated, watertight bulkhead in a general cargo ship and show in cross section, a typical stiffener and its end connections.

(20 marks)

✓ A3. You plan to paint the inside of a hold on a bulkcarrier which has been carrying sulphur and fertiliser in bulk. You will use an airless spray gun. The vessel is in ballast across the Pacific to the Panama Canal to load grain in the United States Gulf.

Describe :

- (a) the surface preparation
- (b) the type of paint you would use
- (c) the safety precautions you would adopt.

(20 marks)

B4. Outline the procedure to be followed in the event of discovering a scavenge fire.
(10 marks)

B5. (a) Enumerate the major items of ship's structure that would be inspected during a survey for renewal of a Cargo Ship Safety Construction Certificate.

(b) State the validity of this certificate and how its validity is maintained.
(10 marks)

B6. Sketch a longitudinal section through the after peak tank and name the main structural members.

(10 marks)

B7. Draw the basic schematic circuit diagram of a synchro transmission system and briefly describe how the receiver can indicate the angular information of the transmitter.

(10 marks)

B8. (a) Sketch a block diagram of the bridge control system of a diesel main engine.

(b) Describe the sequence of operation when the engine is ordered from AHEAD to ASTERN.
(10 marks)

B9. Design a checklist covering the organisation of the Deck Department of a 70,000 dwt crude oil tanker in a drydock with regard to safety.

(10 marks)

- End -