

Candidate's name:

Ports and Maritime Organization
Seafarers' Examination and Documents Directorate

Exams Code: SEMK - 948

Subject: Engineering knowledge (Motor)

Date: 1394.11.19

Rank: Second Engineer Officer (KW>3000)

Time allowed: 3.0 Hrs

(Pass mark: 60)

- Q.1) - a) - Explain why bore cooling is necessary for the upper section of a large main engine cylinder liner. (8M)**
- b) - Describe the effects of inadequate cylinder liner cooling. (4M)**
- c) - State what routine maintenance are required to ensure adequate cylinder liner cooling. (4M)**
- Q.2) - With reference to the bottom end bearing of a four stroke medium speed main engine which has been opened for inspection;**
- a) - List with reasons, the checks which should be made during inspection. (6M)**
- b) - List with reason, the checks which should be made while assembling the bearing. (6M)**
- c) - State the checks which must be made after assembly and before the engine is returned to full service. (4M)**
- Q.3) - With reference to crankcase explosion;**
- a) - Describe how a primary explosion occurs and how this may lead to a secondary explosion. (8M)**
- b) - Explain the action to be taken in the event of an oil mist detector alarm sounding. (8M)**
- Q.4) - a) - Describe the procedure for cleaning the gas side of the tube surface of auxiliary oil fired boiler. (6M)**
- b) - Explain how the effectiveness of a tube cleaning procedure is assessed. (2M)**
- c) - Describe the procedure for taking a boiler water sample, analyzing the sample and determining the water treatment required from the result of the boiler water analysis. (8M)**
- Q.5) - Sketch an air starting system for main engine and describe its reversing mechanism. (18M)**
- Q.6) - Describe how a main engine fuel pump (jerk type) would be set and checked for;**

- a) - Timing (6M)
- b) - Quantity (6M)
- c) - Explain with use of sketch principal of operation of variable injection timing (VIT). (6M)