

Candidate's name:

**Ports and Maritime Organization**  
*Seafarers' Examination and Documents Directorate*

Exams Code: SEMK - 946

**Subject: Engineering knowledge (Motor)**

**Date: 1394.08.25**

**Rank: Second Engineer Officer (KW>3000)**

**Time allowed: 3.0 Hrs**

**(Pass mark: 60)**

- Q.1)** - a) - Describe a system employing an oil fired auxiliary boiler and an exhaust gas economizer, explaining how steam pressure is maintained at the correct level when the exhaust gas economizer is working. (8M)
- b) - State how the exhaust gas economizer is kept clean. (2M)
- c) - State the precautions which must be observed when cleaning the economizer. (6M)
- Q.2)** - a) - Explain the procedure for removing a turbocharger rotor from turbocharger. (12M)
- b) - Describe how the main engine may be operated in the event of the turbocharger being inoperative. (6M)
- Q.3)** - With reference to direct drive, reversible main diesel engine explain how the risk of fires and explosions may be minimized in the cylinder start air lines. (16M)
- Q.4)** - a) - Explain why approximate power balance between cylinders is necessary. (4M)
- b) - State why exact power balance between cylinders are no possible with an operating engine. (4M)
- c) - Describe how cylinder power and performance can be assessed for a main engine. (4M)
- d) - Describe how individual cylinder power can be adjusted. (4M)
- Q.5)** - With reference to main diesel engine components;
- a) - Explain basic construction of bed plate. (4M)
- b) - State possible causes of cracking in bed plate, and identify the position of possible cracks. (3M)
- c) - State with reasons for use of tie bolts. (3M)
- d) - Explain the difficulties that may be experienced, when trying to replace a defective tie rod. (6M)
- Q.6)** - With reference to main diesel engine;
- a) - State the procedure of preparing a complete unit for survey. (14M)
- b) - Explain with reasons the points and locations which need attention. (4M)

