

Candidate's Name :

**Ports and Maritime Organization**  
***Seafarers' Examination and Documents Directorate***  
**Exams Code : TEMK - 946**

**Subject : Engineering Knowledge Motor**

**Date: 1394.08.26**

**Rank : Third Engineer Officer (KW>750)**

**Time allowed: 3.0 Hrs**

**(Pass mark : 60)**

**Q.1) - With reference to air compressors explain why:**

- a) - Inter coolers are employed. (6M)
- b) - In addition to relief valves, fusible plugs are employed. (5M)
- c) - Oil carry over with delivery air is to be minimized and prevented. (5M)

**Q.2) - With reference to main engine cylinder lubrication:**

- a) - State what are the indications of correct quantity of oil being consumed. (6M)
- b) - What is the result of excessive oil used? (6M)
- c) - What are the consequences of insufficient oil used. (6M)

**Q.3) - a) - State the safety precaution which must be taken care of while starting auxiliary oil fired boiler. (8M)**

- b) - Explain how the gauge glasses are cleaned. (3M)
- c) - State why the boiler water must be chemically tested, and what action should be taken after observing the results. (5M)

**Q.4) - Sketch the main engine "tie rod arrangement" and state; (8M)**

- a) - How tightness of rods are ensured. (4M)
- b) - The factors which tend to loosen the rods. (4M)

**Q.5) - With reference to turbochargers:**

- a) - Explain the term surging, stating how it occurs, its effect on the turbocharger and how it can be avoided. (6M)
- b) - Describe the procedures for cleaning each of the following and explain the precautions which should be taken:
  - i) - Suction air filter. (4M)
  - ii) - Turbine blades and nozzle ring. (6M)

**Q.6) - With reference to main diesel engine, explain the consequences of;**

- a) - Late fuel injection. (9M)
- b) - Early fuel injection. (9M)

Candidate's Name :