MEC-E1004 Principles of Naval Architecture

2nd Mid-term Exam, 15.12.2017 10:00-13:00

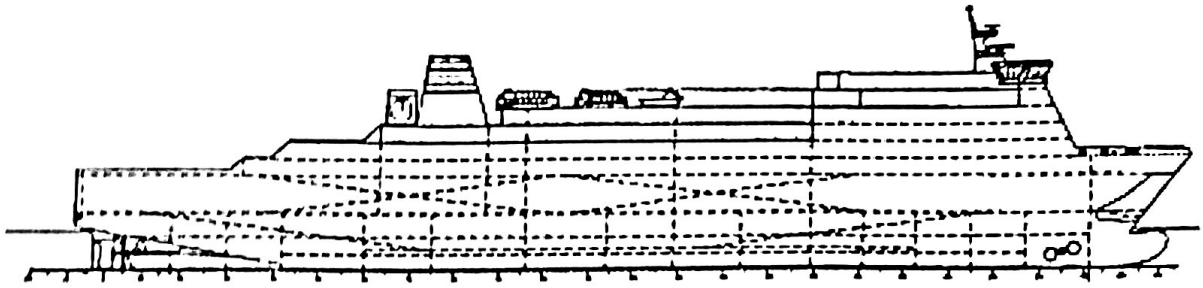
Answers in English. Remember the correct terminology, clear hand-writing and short answers.

1. General Arrangement

A. Describe the most important factors affecting the general arrangement of your project ship. **2p.**

B. Identify and justify 3 strengths and 3 weaknesses in the general arrangement of the ship below. **2p**

C. In case you need to implement LNG as the fuel for the ship, in which place would you position the tanks on the ship below? Discuss the factors affecting to the choice. **2p**

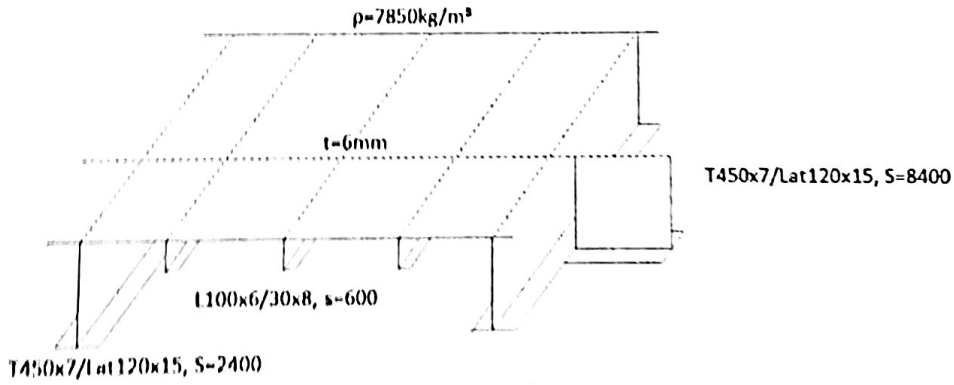


2. Hull Structure

A. Describe the load carrying mechanism of a ship. **2p**

B. Describe different phases of weight calculations, the aim of these, the accuracy and amount of work. **2p**

C. Calculate the weight of aluminùm deck with area 10000m^2 manufactured from panel presented below. **2p**



3. Ship machinery

A. List 3 of the most potential energy sources for your ship. Discuss them from viewpoint of SWOT-analysis (strength, weakness, opportunity and threat). **2p**

B. What machinery types require a reduction gear? Justify why? **2p**

C. Describe the influence of the ship type and operational area and route on the ship machinery selection. **2p**

4. Equipment

A. Explain the difference between water and weather tight doors. **2p**

B. Describe the forces and principles acting on the ship when anchored. **2p**

C. Explain why podded propulsion system can be more efficient in maneuvering than propeller-rudder combination. **2p**

5. Weight and Cost Calculations

A. What parts of the ship design do the weight calculations affect? **2p**

B. Explain the role and structure of weight categorization systems. **2p**

C. How does the lead time affect ship costs accumulation? **2p**