

**MERCHANT MARINE ACADEMY OF MACEDONIA  
SCHOOL OF ENGINEERS**

**Course: Maritime English**  
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**FINAL EXAM**

**1. Fill in the gaps using the words below. (20 p.)**

*dew-point    after-treatment    overflows    retrofitting    upside    adjacent*  
*salt    changing    low    alignment    neutralised    complies    exhaust*  
*sulphur    pressure    tolerance    handling    deposits    attributed    centrifuging*

- Experience has shown that many of the bunker \_\_\_\_\_ and spillages that do occur can be \_\_\_\_\_ to human error.
- When \_\_\_\_\_ over from one tank to another, care should be taken to ensure that an excessive back \_\_\_\_\_ is not put on the hose or loading lines.
- Sodium is normally present in the fuel as \_\_\_\_\_ water contamination and may, as such, be removed by \_\_\_\_\_.
- Vanadium, in combination with sodium, may lead to \_\_\_\_\_ valve corrosion and turbocharger \_\_\_\_\_.
- If the crankshaft deflection (\_\_\_\_\_ indicator) is approaching the \_\_\_\_\_ limits, the bearing shells of the two \_\_\_\_\_ main bearings must be dismantled and inspected.
- The formation of sulphuric acid can be \_\_\_\_\_ by maintaining the liner temperatures above the corresponding \_\_\_\_\_.
- Storing the LNG and \_\_\_\_\_ it on board are challenges, but the \_\_\_\_\_ is too good an opportunity to ignore. There's no \_\_\_\_\_ in natural gas, and if you apply the \_\_\_\_\_ pressure, Otto cycle engine, it also \_\_\_\_\_ with Tier III NOx limits without any \_\_\_\_\_.
- The gas supply system is a significant cost barrier to \_\_\_\_\_ any gas engine, as is the tank which is substantially bigger than the equivalent fuel oil tank.

**2. Complete the sentences using the correct derivative from the word given. (15 p.)**

- As heavy fuel oil is more ..... (**viscosity**) than marine diesel oil, it cannot be pressed through the ..... (**inject**) without proper treatment.
- The water ..... (**separate**) ability of the fuel is ensured by limiting the ..... (**dense**) for reasons of centrifuging.

- The sulphur content of a fuel has a ..... (**neglect**) effect on the combustion process.
- Fuels which are produced on the basis of different crude oils tend to be ..... (**stability**) when mixed.
- Marine fuel oils should be ..... (**thorough**) cleaned to remove solid and liquid ..... (**contaminate**).
- Catalyst particles from the ..... (**refine**) process as well as metals bound in the fuel are highly ..... (**abrade**).
- A mixture of ..... (**compatible**) fuels in the bottom tanks and the settling tanks may lead to ..... (**stratify**).
- Owners and operators are taking ..... (**decide**) now on how they will meet the financial and ..... (**comply**) challenges.
- ..... (**contain**) arrangements and available clean-up equipment should be taken into consideration by the companies when they produce the bunkering procedures.

**3. When assessing the quality of a fuel, you must take into consideration a large number of standard properties that will determine its grade. For the following explanations of the most important parameters of fuel oils you are asked to match the appropriate term to the correct definition. (20 p.)**

heating value   cetane number   viscosity   carbon residue   water and sediment  
flash point   density   pour point   ash content   sulphur

- Non-combustible solid material in the fuel which scratches the rubbing surfaces it comes in contact with: \_\_\_\_\_
- Perhaps the most important parameter of marine fuels. It is related to fuel quality: \_\_\_\_\_
- Content in water and solid particles. The higher it is, the more possible it is to cause erratic combustion and corrosion: \_\_\_\_\_
- Chemical element which can be very injurious to engine parts during combustion because it changes into acid: \_\_\_\_\_
- Unburned carbon during combustion which can deposit on engine parts: \_\_\_\_\_
- The amount of heat given off on complete combustion of one pound of fuel: \_\_\_\_\_
- The temperature at which the fuel vapours ignite when a flame is applied to it: \_\_\_\_\_
- The measure of the resistance of the fuel to movement. The higher it is, the more difficult it is for the fuel to flow: \_\_\_\_\_
- The lowest temperature at which the fuel oil is observed to flow: \_\_\_\_\_
- An indication of the ignition quality of marine distillate fuels: \_\_\_\_\_

**4. Choose the correct option. (10 p.)**

- The acronym CCAI stands for:
  - a. calculated calcium aromaticity indication

- b. cracked carbon aroma index
- c. calculated carbon aromaticity index

-- The \_\_\_ the CCAI, the later the ignition takes place.  
 a. higher                      b. lower                      c. clearer

-- The element which causes oxidation to the engine is \_\_\_\_.  
 a. carbon                      b. silicon                      c. sulphur

-- The acronym CFPP stands for :  
 a. cold filter plugging point  
 b. carbon filter plugging point  
 c. cold filtration pressure point

-- Crankshaft deflection readings should be taken at \_\_\_ different positions of the crankshaft by placing a \_\_\_ between the crankwebs.  
 a. three                      b. five                      c. four  
 a. dial gauge                      b. feeler                      c. file

-- Hard particles which are caught between the upper horizontal ring/groove surfaces will cause \_\_\_\_.  
 a. peeling                      b. punching                      c. pitting

-- As gas fuel enters the combustion space and mixes with the combustion air, there is a risk of uncontrolled combustion called \_\_\_\_.  
 a. blowing                      b. knocking                      c. hitting

-- LNG, as compared to HSFO, emits 99% less harmful \_\_\_ and provides a 20% reduction in greenhouse gases from the vessel stack.  
 a. parts                      b. particulates                      c. particles

-- For efficient removal of water by means of a conventional purifier, the correct choice of \_\_\_ disc is of paramount importance.  
 a. weight                      b. volume                      c. gravity

**5. Match the words to their definitions. (10 p.)**

*alternative      conflict      champion      residue      infrastructure*

*implement      expenditure      catalyst      distract      idle*

- support strongly .....
- the total amount of money smb spends .....
- systems which are necessary for the operation of a country/organisation .....
- .....
- run slowly so that power is not used for useful work .....
- a substance which, without itself changing, quickens chemical processes .....
- .....
- sth that may be chosen instead of one or more others .....

- what is left .....
- take attention away from sth .....
- serious disagreement and argument .....
- put into force .....

**6. Match the words to their opposites. (10 p.)**

*forbid regular imprecision soft insufficient*

*unlimited refuse loose slow simple*

- accuracy .....
- adequate .....
- rapid .....
- allow .....
- restricted .....
- complicated .....
- accept .....
- uneven .....
- rough .....
- tight .....

**7. Write the factors which influence cylinder wear for each category. (15 p.)**

**CORROSION**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

**ABRASION**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**GOOD LUCK!!!**