

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

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**FINAL EXAM IN MARITIME ENGLISH**

**A. Insert an appropriate word in the gaps. (10 p.)**

There are two main groups of pumps: the \_\_\_\_\_ pumps and the \_\_\_\_\_ pumps. The 1<sup>st</sup> group is subdivided into \_\_\_\_\_ pumps in which a piston moves up and down, and \_\_\_\_\_ pumps in which the moving part rotates. The rotating part can be gears, \_\_\_\_\_, \_\_\_\_\_, etc. The centrifugal pump on the other hand consists of an \_\_\_\_\_ which rotates at high speed inside the pump \_\_\_\_\_. The most common type of centrifugal pump is the \_\_\_\_\_ which has taken its name after the spiral case which surrounds the impeller. If the centrifugal pump has two or more impellers, it is \_\_\_\_\_.

**B. Fill in the blanks with the following words. (7.5 p.)**

*preheater      booster      service      end heater      filter*

*settling      separator      viscometer      buffer      three-way*

From the storage tank the HFO is pumped into the \_\_\_\_\_ tank, where water and dirt sink down. From there, it is pumped by the separator supply pumps and, passing through a \_\_\_\_\_, it is discharged into the HFO \_\_\_\_\_ where it is cleaned. The cleaned oil is discharged into the daily \_\_\_\_\_ tank. From there, the oil, after passing through the \_\_\_\_\_ tank, is pumped by \_\_\_\_\_ pumps into an \_\_\_\_\_, and a \_\_\_\_\_ to adjust its temperature. Finally, it is discharged through a fine \_\_\_\_\_ to the fuel pump. A \_\_\_\_\_ valve allows the engineers to operate the engine on diesel.

**C. How do the following parameters of fuels affect combustion or the engine parts? (7.5 p.)**

1. Cetane number: \_\_\_\_\_  
\_\_\_\_\_
2. Carbon: \_\_\_\_\_  
\_\_\_\_\_
3. Sulphur: \_\_\_\_\_  
\_\_\_\_\_
4. Water and sediment: \_\_\_\_\_  
\_\_\_\_\_
5. CCAI: \_\_\_\_\_  
\_\_\_\_\_

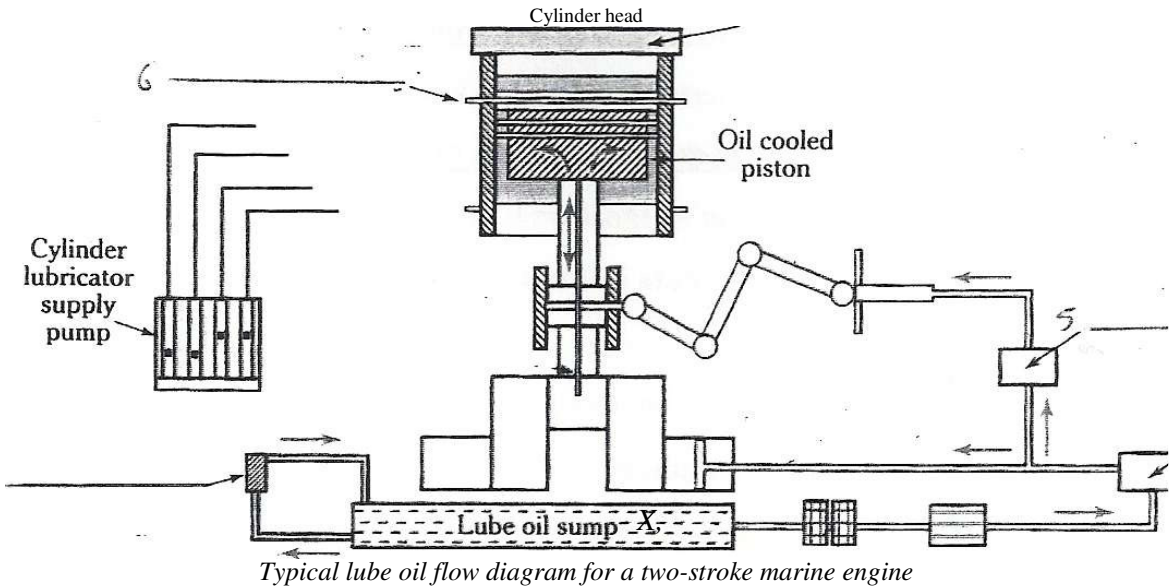
**D. Match the words to their explanation. (5 p.)**

- |                         |  |
|-------------------------|--|
| 1. grade                | a. process to improve quality                  |
| 2. distilled            | b. reduction of revolutions, eventual stopping |
| 3. residual             | c. type and quality                            |
| 4. emission             | d. insufficient, not enough                    |
| 5. sediment             | e. clinging, sticking property                 |
| 6. treatment            | f. refined                                     |
| 7. stalling (of engine) | g. make ineffective, with no result            |
| 8. neutralise           | h. remaining, left over                        |
| 9. inadequate           | i. discharge of gases                          |
| 10. tenacity            | j. deposit of coagulated particles             |

**E. Write down the additives which enhance the following properties of lubricants. (6 p.)**

1. Keep sludge and dirt suspended in the oil: .....
2. Prevent the corrosion of metal surfaces: .....
3. Reduce foam in the crankcase: .....
4. Lower the freezing point of oil: .....
5. Keep the engine parts clean: .....
6. Increase the VI of the oil: .....

**F. The following is a typical lub-oil diagram of a 2-stroke engine. Insert the missing terms and describe the flow of lub-oil to the parts of the engine. (20 p.)**



**G. Write five important procedures before bunkering and five during bunkering. Include the following terms in your sentences. (10 p.)**

*barge bunker hose fenders sampler scuppers drip trays valves  
ullages manifold loading rate countersign bunker samples plug*

Before bunkering

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

During bunkering

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

5. \_\_\_\_\_

**H. What do the following words mean? Underline the correct choice. (2.5 p.)**

1. to countersign: to **add/delete/deny** one's signature to a document
2. to crosscheck (of results): to **confirm/cross out/witness** the results by using an alternative way of checking
3. to verify: to prove that smth is **false/true/incomplete**
4. to retain (of pressure): to **maintain/reduce/adjust**
5. to sound (of a tank): to **measure/check/examine** the depth

**I. Insert an appropriate derivative of the words in the parentheses. (7.5 p.)**

1. High water \_\_\_\_\_ (**contain**) in the fuel causes \_\_\_\_\_ (**error**) combustion and \_\_\_\_\_ (**corrode**) to injectors.
2. Highly \_\_\_\_\_ (**viscosity**) fuels need special \_\_\_\_\_ (**treat**).
3. \_\_\_\_\_ (**distil**) fuels have cleaner \_\_\_\_\_ (**emit**) than \_\_\_\_\_ (**residue**) fuels.
4. The nozzle \_\_\_\_\_ (**assemble**) is screwed at the bottom of the \_\_\_\_\_ (**inject**) \_\_\_\_\_ (**hold**).
5. Chemical \_\_\_\_\_ (**stable**) is an important \_\_\_\_\_ (**specify**) of lubricating oils.
6. The HFO \_\_\_\_\_ (**purify**) separates water and \_\_\_\_\_ (**impure**) from the fuel.

**J. Underline the correct alternative. (14 p.)**

1. A screw pump is a **centrifugal/rotary** pump which is used to pump mostly **viscous/thin** fluids.
2. In a **displacement/centrifugal** pump, the increase of the volume of the pump chamber causes the **discharge/suction** of the liquid.
3. The acronym SOPEP means: a. **shipping oil prevention emergency plan**  
b. **shipboard oil pollution emergency plan**
4. Verification and countersigning of bunker receipt is a(n):  
a. **pre-bunkering procedure**                      b. **after bunkering procedure**
5. During bunkering we must **increase/decrease** the loading rate **before/after** topping off.

6. The **lower/lowest** the pour point of a fuel, the **less/more** viscous it is.
7. The acronym CCAI stands for: a. **calculated carbon aromaticity index**  
b. **cracked carbon aromaticity indication**
8. The transfer pumps are **high/low** pressure pumps while the fuel pumps are **high/low** pressure pumps.
9. The needle stem and its return spring are fitted in a **cylinder/cylindrical** case in the **nozzle assembly/injector holder**.
10. The **higher/lower** the TBN of a lubricant, the **more/less** alkaline reserve it has, and the **more/less** effective it is in neutralising acids.
11. The VI of a lubricant shows how **stable/variable** it is to variations of temperature.
12. The cylinder liner is lubricated **horizontally/circumferentially**.

**K. Answer one (1) of the following questions. (10 p.)**

1. What are the objectives of lubrication?
2. What does the fuel injector do? Why is it very important?

GOOD LUCK!!!