


Merchant Marine Academy of Macedonia- School of Engineers		
<b>Course: Maritime English</b>	<b>Academic year:2018-19</b>	<b>Exam period: September</b>
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**Complete the text using the following words: mineral, friction, metals, wear, heat, consult, distillation, performance, running, antifouling, sealing, coolant, corrosion, sticking, inadequate 15 points**

The main task of lubrication is to reduce \_\_\_\_\_ between the moving parts of an engine. In this way we ensure better \_\_\_\_\_ of the engine and reduction of \_\_\_\_\_ due to friction. Lubrication also acts as a \_\_\_\_\_, because it absorbs a considerable amount of \_\_\_\_\_ which is released from friction. Furthermore, it assists the piston rings in \_\_\_\_\_ the combustion chamber. Moreover, it protects the surfaces from \_\_\_\_\_, even when the engine is out of \_\_\_\_\_, thanks to the good tenacity lubricants have on \_\_\_\_\_. Finally, it keeps the metal surfaces clean due to the \_\_\_\_\_ property of lubricating oil. Correct lubrication of the engine is of great importance because \_\_\_\_\_ lubrication would lead to the seizing of bearings and \_\_\_\_\_ of the engine. The correct choice of lubricating oil is essential too, and we should always \_\_\_\_\_ the engine constructor's manual as to the recommended type of oil for the particular engine. The types of lubricating oils used in marine diesel engines are generally \_\_\_\_\_ oils, coming from the residues of crude oil after its \_\_\_\_\_.

**Read the following passage on the properties of lube oils and fill in the gaps with the appropriate word:**

**suitable / similar / higher / lower / variations / value / classified / divided / low / index / acid / stable**

**There are two extra words...**

**10points**

The properties of lubricating oils are ..... to those of fuel oils. The Society of Automotive Engineers SAE has ..... oil viscosity from SAE 10 to SAE 250.

SAE 10 to SAE 20 oils are very thin and are..... for..... temperatures.

The viscosity ..... of the oil is of equal importance because it indicates how..... the oil is to ..... of temperature. The..... neutralising capacity of oil is represented by its total base number (TBN)....., which indicates the oil's alkaline reserve.

The ..... the TBN is, the more acid neutralising capacity the oil has.

**Fill in the gaps with the correct form of the words in parentheses. 10 points**

- .....(**distil**) fuels have cleaner emissions than.....(**residue**) fuels.
- The HFO .....(**purify**) separates water and .....(**impure**) from the fuel.
- Chemical .....(**stable**) is an important .....(**specify**) of lubricating oils.
- .....(**add**) in the lubricating oil improve its quality.
- This oil is too .....(**viscosity**). We should make it thinner by heating.
- The .....(**remove**) of water and foreign particles in the lube oil is done in a centrifugal  
.....(**separate**).

**Match the questions to the answers. There is an extra answer. 10 points**

What is the function of the buffer tank?		1. Distillate fuels.
Which fuels are mainly used in marine diesel engines?		2. It allows the used oil from the engine to be mixed with a new charge.
What does the booster pump do?		3. MDO and HFO
What do marine fuels come from?		4. Residual fuels.
Where are the fuels stored?		5. Intermediate fuel oil.
How is the fuel cleaned?		6. It adjusts the temperature of the fuel.
How do we call any fuel whose grade lies between HFO and MDO?		7. It raises the pressure of fuel
How do we call the fuels that are refined petroleum products?		8. Crude oil.
What is the function of the settling tank?		9. By a centrifugal separator.
What does the viscosity regulator do?		10. It allows water and thick particles to sink down
		11. In the storage tanks.

**Match the following list of lub-oil additives to their functions: antioxidants, corrosion inhibitors, VI improvers, wear preventers, pour point depressants, detergents, dispersants, anti-foamants 8 points**

- Increase the VI of the oil. ....
- Limit the damage that is caused by friction .....
- Reduce foam in the crankcase .....
- Keep the engine parts clean of deposits .....
- Lower the freezing point of oil .....
- Prevent the oxidation of oil .....
- Prevent the corrosion of metal surfaces .....
- Keep sludge, carbon and other deposits suspended in the oil .....

**Underline the correct alternative.**

**10 points**

- The crosshead and the guides are lubricated by **cylinder oil / circulating lube oil / turbine oil.**
- The higher the viscosity of a fuel oil, the **more / less** heating it needs to reduce it.
- The element which causes oxidation to the engine is **ash / sulphur / silicon.**
- The acronym CCAI stands for **calculated calcium aroma indication / cracked carbon atom index/ calculated carbon aromaticity index.**
- The heating value of a fuel is commonly expressed in **r.p.m. / b.t.u. / p.p.m.**
- The cylinder oil is drawn from the **sump / storage / drain** tank to a **small / medium / big** service tank by separate pumps. From there, the oil is supplied to lubricators by gravity and is led through the drillings onto the liner surface where grooves **distribute / attribute / divide** it around the liner, and the piston **rings / rod** spread it up and down the surface of the liner.
- The lubrication of the cylinder liner is done **vertically / horizontally / circumferentially.**

**Match the terms to the appropriate explanation. There are two extra terms. ash content/ specific gravity/ cetane number / hydrogen sulphide / viscosity / water and sediment / heating value / density / carbon residue / flash point / pour point / sulphur**

**10 points**

- 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 measure of the resistance of the fuel to movement. The higher it is, the more difficult it is for the fuel to flow: .....
- The temperature at which the fuel vapours ignite when they are exposed to a flame: .....
- Non-combustible solid material in the fuel which scratches the rubbing surfaces it comes in contact with: .....
- A measure of the density or weight of the fuel. It also serves as a rough check on viscosity, carbon content and other qualities: .....
- Content in water and solid particles. The higher it is, the more possible it is to cause erratic combustion and corrosion:.....
- The lowest temperature at which the fuel oil is observed to flow: .....
- An indication of the ignition quality of diesel oil: .....

**Match the following words to their synonyms/definitions: buffer tank, centrifuge, fighting dirt, emission, stalling, residue, tenacity, surplus, seizing, faulty, insulate, purify                      **12points****

major damage of bearings due to insufficient lubrication:.....

sticking property: .....

reduction of revolutions, eventual stopping of the engine:.....

balancing/mixing tank: .....

disperse through outward movement: .....

what remains, what is left: .....

antifouling: .....

defective: .....

discharge of gases:.....

remove impurities, clean:.....

wrap up or protect against heat.....

excess.....

**Fill in the gaps with the following words: disperse/ particles/ eliminate/ piloting/ hydraulically/ precise/ transition/ treatment / assembly/ needle/ holder/ suspending/ fortified/ mixing/ atomizers                      **15 points****

-The main function of the injectors is to inject and ..... in a form of spray a certain amount of fuel in the combustion chamber. The normal burning of the fuel and the efficient running of the engine depend on the .....and timely operation of the fuel injectors. Most injectors are operated ..... In 4- stroke diesel engines, there may be a .....injector as well.

-HFO cannot be pressed through injectors without .....It needs heating to decrease viscosity and purifying to .....water and dirt .....

-The..... stem and its return spring of the fuel injector are fitted in the injector ..... The nozzle ..... has one or more .....through which the fuel is sprayed into the combustion chamber

-Sediment is formed when ..... solid particles in the fuel coagulate and sink down.

-Lube oils are ..... with chemicals.

-In some cases, a ..... tank is used for the gradual ..... from HFO to MDO.

**GOOD LUCK!!!**