

Merchant marine academy of Macedonia- School of Engineers

Course: Maritime English

Academic year:2018-19

Exam period: June

Semester:

Date:

Instructors: A. Birbili, E. Xenitidou, M. Tsompanoglou

Student's name:

Student's number:

Exam paper grade:

Instructor's signature



Fill in the gaps with the following words: *dispersants/ depressants/ detergents/ disperse/ particles/ eliminate/ balancing/ piloting/ hydraulically/ stalling/ precise/ treatment/ antifoamant / circumferentially/ statutory / inhibitors*

THERE IS ONE EXTRA WORD

15 points

- in the lubricating oils are used to clean the dirty surfaces.
- The main function of the injectors is to inject and in a form of spray a certain amount in the combustion chamber. The normal burning of the fuel and the efficient running of the engine depend on theand timely operation of the fuel injectors. A faulty injection pump can be the culprit behind aengine. Most injectors are operatedIn 4- stroke diesel engines, there may be ainjector as well.
- The lubrication of the cylinder liner is done
- In order to have free flow of the lubricating oil at low temperatures we add pour point
- We useto keep impurities suspended in the lube oil.
- To prevent corrosion of metal surfaces we can add corrosion in the lube oil.
-is a chemical which prevents the formation of bubbles or froth.
- HFO cannot be pressed through injectors withoutIt needs heating to decrease viscosity and purifying towater and dirt
- The used fuel is mixed with a new charge in thetank.

Fill in the gaps with the following words to make synonyms. **THERE ARE 2 EXTRA WORDS:** *fortify/ adjust/ insulate/ grade/ inadmissible/ applicable/ purchaser/ emission/ friction / effective/ surplus/ sink/ atomizer* **10 points**

- | | |
|------------------------------------|---|
| strengthen | wrap up or protect against heat..... |
| the person who buys something..... | settle down..... |
| excess..... | rubbing between two metal surfaces..... |
| discharge of gases..... | brought into force..... |
| regulate..... | opening through which fuel is sprayed |

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**

- 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:
- 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:
- 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:
- 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:

Match the following words to form the correct collocations (phrases): *emergency/ drain/ VI / nozzle/ injector/ inlet/ needle/ pumping/ fractional/ sounding/ three- way / pressure/ gudgeon/ drip/ double* **15 points**

- | | | |
|----------------|----------------|-------------------|
|assembly |tank |distillation |
| improver |rate |holder |
| chamber | fuelpipe |stem |
| sampling |pin | hulled |
|pipe |button |valve |

Fill in the gaps with the appropriate derivative words. **10 points**

1.ADD in the lubricating oil improve its quality.
2. The TBN value of the lube oil eliminates itsCORROSION influence of the acid.
3. WearPREVENT limit the wear due to friction.
4. TheCENTRIFUGE separator separates water andIMPURE from the fuel.
5. Empty theCONTAIN of this box on the floor.
6.SULPHUR acid can cause damage.
7. This is an engine of highEFFICIENT.
8. This oil is tooVISCOSITY. We should make it thinner by heating.
9. ChemicalSTABLE is an important specification of lubricating oils.

Read the following passage on the properties of lube oils and underline the correct alternative.

20 points

- The crosshead and the guides are lubricated by **cylinder oil/ circulating lube oil/ turbine oil**.
- The properties of lubricating oils are *similar to / different from* those of fuel oils.
- Viscosity is the *least / most* important property of lube oils.
- The Society of **Automotive Engines/ Automotive Engineers** has **distributed/ classified / divided** oil viscosity from SAE 10 to SAE 250.
- SAE 10 to SAE 20 oils are very *thin / thick* and are suitable for **medium/ low /high** temperatures.
- SAE 30 to SAE 50 oils having a medium to high viscosity are *unsuitable / suitable* for diesel engines. The viscosity **indicator/ index/ ignition** or VI of the oil is of equal importance because it indicates how stable the oil is to variations of temperature.
- Chemical stability is an important specification of lube oil, too. The *acid / base* neutralising capacity of oil is represented by its TBN value, which indicates the oil's **residual/ acid / alkaline** reserve. The *higher / lower* the TBN is, the more acid neutralising capacity the oil has.
- 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** around the liner, and the piston **rings/ rod** spread it up and down the surface of the liner.

Fill in the gaps of the following passage about lubrication with the following words: *absorb/ seizing / task /*

tenacity/antifouling /sealing/ ensure/ wear/ released/ inadequate

10 points

The main of lubrication is to reduce friction between the moving parts of an engine. In this way we better performance of the engine and reduction of Lubrication also acts as a cooling means of the metals surfaces as it can..... a considerable amount of heat which is from friction. It also protects the surfaces from corrosion thanks to the good lubricants have on metals. Furthermore, it assists the piston rings in the combustion chamber.lubrication could lead to..... of bearings and sticking of the engine. Finally, it keeps the metal surfaces clean due to the property of the lubricating oil.

Fill in the gaps with the correct words. The first letter is given.

10 points

- The correct choice of lubricating oil is essential and we should always consult the engine constructor's m.....
- The oil is discharged through a fine f.....to the main engine fuel pump suctions.
- The clean oil is pumped into the heavy oil s.....tanks which are in duplicate, as one is in use, while the other is being filled. From there the oil, after passing through the b.....tank, is pumped by a b.....pump or high pressure pump into a h..... and right after into a viscosity r.....
- The types of lubricating oils used in marine diesel engines are generally mineral oils, coming from r.....(base stock) of c..... oil after its distillation.
- HFO is much cheaper than diesel, but it produces s.....and dirtier exhaust gases. **GOOD LUCK !!!**

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Fill in the gaps with the following words: *dispersants/ depressants/ detergents/ disperse/ particles/ eliminate/ balancing/ piloting/ hydraulically/ stalling/ precise/ treatment/ antifoamant / circumferentially/ statutory / inhibitors*

THERE IS ONE EXTRA WORD

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- The lubrication of the cylinder liner is done
-is a chemical which prevents the formation of bubbles or froth.
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- The used fuel is mixed with a new charge in thetank.
- In order to have free flow of the lubricating oil at low temperatures we add pour point
- We useto keep impurities suspended in the lube oil.
- To prevent corrosion of metal surfaces we can add corrosion in the lube oil.
- in the lubricating oils are used to clean the dirty surfaces.
- The main function of the injectors is to inject and in a form of spray a certain amount in the combustion chamber. The normal burning of the fuel and the efficient running of the engine depend on theand timely operation of the fuel injectors. A faulty injection pump can be the culprit behind aengine. Most injectors are operatedIn 4- stroke diesel engines, there may be ainjector as well.

Fill in the gaps with the following words to make synonyms. **THERE ARE 2 EXTRA WORDS:** *fortify/ adjust/ atomizer/ insulate/ grade/ inadmissible/ applicable/ purchaser/ emission/ friction / effective/ surplus/ sink* **10 points**

- | | |
|---|---|
| settle down..... | discharge of gases..... |
| excess..... | rubbing between two metal surfaces..... |
| brought into force..... | regulate..... |
| opening through which fuel is sprayed | strengthen |
| wrap up or protect against heat..... | the person who buys something..... |

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**

- 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:
- A measure of the density or weight of the fuel. It also serves as a rough check on viscosity, carbon content and other qualities:
- Chemical element which can be very injurious to engine parts during combustion because it changes into acid:
- 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:
- 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:
- -An indication of the ignition quality of diesel oil:

Match the following words to form the correct collocations (phrases): *emergency/ drain/ VI / nozzle/ injector/ inlet/ needle/ pumping/ fractional/ sounding/ three- way / pressure/ gudgeon/ drip/ double* **15 points**

- | | | |
|----------------|----------------|-------------------|
| sampling |pin | hulled |
| pipe |button |valve |
| improver |rate |holder |
|assembly |tank |distillation |
| chamber | fuelpipe |stem |

Fill in the gaps with the appropriate derivative words. **10 points**

1. Empty theCONTAIN of this box on the floor.
2.SULPHUR acid can cause damage.
3. WearPREVENT limit the wear due to friction.
4.ADD in the lubricating oil improve its quality.
5. The TBN value of the lube oil eliminates itsCORROSION influence of the acid.
6. This is an engine of highEFFICIENT.
7. This oil is tooVISCOSITY. We should make it thinner by heating.
8. TheCENTRIFUGE separator separates water andIMPURE from the fuel.
9. ChemicalSTABLE is an important specification of lubricating oils.

Read the following passage on the properties of lube oils and underline the correct alternative.

20 points

- 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** around the liner, and the piston **rings/ rod** spread it up and down the surface of the liner.
- The element which causes oxidation to the engine is **ash/ sulphur/ silicon**.
- The crosshead and the guides are lubricated by **cylinder oil/ circulating lube oil/ turbine oil**.
- Chemical stability is an important specification of lube oil, too. The **acid / base** neutralising capacity of oil is represented by its TBN value, which indicates the oil's **residual/ acid / alkaline** reserve. The **higher / lower** the TBN is, the more acid neutralising capacity the oil has.
- The higher the viscosity of a fuel oil, the **more/ less** heating it needs to reduce it.
- The properties of lubricating oils are **similar to / different from** those of fuel oils.
- Viscosity is the **least / most** important property of lube oils.
- The acronym CCAI stands for **calculated calcium aroma indication/ cracked carbon atom index/ calculated carbon aromaticity index**.
- The Society of **Automotive Engines/ Automotive Engineers** has **distributed/ classified / divided** oil viscosity from SAE 10 to SAE 250.
- SAE 10 to SAE 20 oils are very **thin / thick** and are suitable for **medium/ low /high** temperatures.
- SAE 30 to SAE 50 oils having a medium to high viscosity are **unsuitable / suitable** for diesel engines. The viscosity **indicator/ index/ ignition** or VI of the oil is of equal importance because it indicates how stable the oil is to variations of temperature.
- The heating value of a fuel is commonly expressed in **r.p.m./ b.t.u./p.p.m.**

Fill in the gaps of the following passage about lubrication with the following words: *absorb/ seizing / task /*

tenacity/antifouling /sealing/ ensure/ wear/ released/ inadequate

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The main of lubrication is to reduce friction between the moving parts of an engine. In this way we better performance of the engine and reduction of Lubrication also acts as a cooling means of the metals surfaces as it can..... a considerable amount of heat which is from friction. It also protects the surfaces from corrosion thanks to the good lubricants have on metals. Furthermore, it assists the piston rings in the combustion chamber.lubrication could lead to..... of bearings and sticking of the engine. Finally, it keeps the metal surfaces clean due to the property of the lubricating oil.

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- The clean oil is pumped into the heavy oil s.....tanks which are in duplicate, as one is in use, while the other is being filled. From there the oil, after passing through the b.....tank, is pumped by a b.....pump or high pressure pump into a h..... and right after into a viscosity r.....
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