


<b>Merchant Marine Academy of Macedonia- School of Engineers</b>		
<b>Course: Maritime English</b>	<b>Academic year: 2021-2022</b>	<b>Exam period: June</b>
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	<b>Exam paper grade:</b>	<b>Instructor's signature</b>

**Find the correct form of the word in capital letters - 10 points**

1. Empty the .....CONTAIN of this box on the floor.
2. Chemical .....STABLE is an important specification of lubricating oils.
3. Discharge of gases or smoke is .....EMIT.
4. ....ADD in the lubricating oil improve its quality.
5. Wear .....PREVENT limit the wear due to friction.
6. The.....CENTRIFUGE separator separates water and .....IMPURE from the fuel.
7. Fuels that are refined petroleum products are called .....DISTIL
8. HFO is a highly .....VISCOSITY liquid.
9. Something that is brought into force or is valid is also .....EFFECT.

**Fill in the gaps with the following words. There are two extra words - 10 points**

<i>atomizers</i>	<i>case</i>	<i>seat</i>	<i>stem</i>	<i>fitted</i>	<i>screwed</i>
<i>assembly</i>	<i>adjusted</i>	<i>contains</i>	<i>holder</i>	<i>chamber</i>	<i>consists</i>

A fuel injector ..... of three main parts. The injector ....., the needle with its ..... and return spring and the nozzle ..... Inside the cylindrical holder there is a centrally formed cylindrical ..... where the needle stem and its return spring are ..... The nozzle assembly is .....at the bottom of the injector holder. It has one or more ..... through which the fuel is sprayed in the combustion .....The pressure chamber is a hollow space inside the assembly which ends to a tapered .....where the injection needle ends too.

**Match the following words to form the correct collocations (phrases) - 10 points**

<i>emergency</i>	<i>VI</i>	<i>drain</i>	<i>pumping</i>	<i>fractional</i>	<i>inlet</i>	<i>double</i>	<i>sounding</i>	<i>three-way</i>	<i>retaining</i>
<i>stop</i>									

.....hulled .....pipe  
.....tank .....distillation pressure ..... valve  
..... improver .....rate fuel .....pipe  
.....valve

**Fill in the gaps with a word from the list. There are two extra words - 15 points**

	<i>fenders</i>	<i>bunkering</i>	<i>detergents</i>	<i>consumption</i>	<i>alongside</i>
<i>inhibitors</i>	<i>venting</i>	<i>compression</i>	<i>depressants</i>	<i>stalling</i>	<i>preventers</i>
<i>insufficient</i>	<i>injection</i>	<i>treatment</i>	<i>filters</i>	<i>antifoamants</i>	<i>dispersants</i>

- Fuel is an important criterion for the choice of the engine, since more than 50% of the total running cost of the ship is due to fuel \_\_\_\_\_
- Corrosion \_\_\_\_\_ help to prevent the corrosion of metal surfaces.
- The wear \_\_\_\_\_ limit the damage caused by friction.
- HFO cannot be pressed through the injectors without \_\_\_\_\_.
- A faulty injection pump can be the reason behind a \_\_\_\_\_ engine.
- Marine \_\_\_\_\_ is the supply of fuel oil for ships.
- A barge equipped with \_\_\_\_\_, hoses and pumps, brings the required product \_\_\_\_\_ the ship for off-loading.
- \_\_\_\_\_ keep the engine parts clean of deposits.
- The pour point \_\_\_\_\_ lower the freezing point of lube oil.
- In the \_\_\_\_\_ tank the used fuel from the engine is mixed with a new charge.
- Incorrect \_\_\_\_\_ timing can cause lack of power, or can cause the engine to produce white smoke as there is \_\_\_\_\_ temperature to properly burn the fuel.
- \_\_\_\_\_ are used to improve the quality of the lube oil so that it doesn't become soapy.
- \_\_\_\_\_ keep carbon and other deposits suspended in the oil.

**Choose the correct answer - 30 points**

- A measure of the fluidity of a fuel at a certain temperature.
  - a. kinematic viscosity                      b. pour point                                      c. cloud point
- The percentage (%) of this in the fuel can be translated into corresponding energy loss. It may cause corrosion in the fuel system.
  - a. water                                      b. sulphur                                      c. vanadium
- It indicates the ignition quality of diesel oil.
  - a. carbon residue                                      b. CCAI                                      c. cetane number
- It shows the ability of the fuel to protect some moving parts from friction.
  - a. sulphur                                      b. lubricity                                      c. density
- It shows the amount of heat given off on complete combustion of one pound of fuel.
  - a. specific gravity                                      b. temperature value                                      c. heating value
- A measure of the density or weight of the fuel.
  - a. density                                      b. specific gravity                                      c. kinematic viscosity
- The lowest temperature at which the fuel is observed to flow.
  - a. pour point                                      b. cloud point                                      c. flash point
- It is indicative of the ignition delay of residual fuels.
  - a. cetane number                                      b. CCAI                                      c. flash point
- It consists of hydrocarbon sludge and is contained in all fuels.
  - a. carbon residue                                      b. ash content                                      c. sediment
- It indicates the tendency of the fuel to form carbon deposits during combustion.
  - a. carbon residue                                      b. ash content                                      c. aluminium and silicon
- It represents the incombustible metals present in the fuel.
  - a. ash content                                      b. acid number                                      c. carbon residue
- The temperature at which the fuel vapours ignite when they are exposed to a flame. It must be known for safe transport and storage.
  - a. burning point                                      b. flash point                                      c. boiling point

- The temperature below which wax is formed on the surface of diesel oil. It indicates the tendency to block fuel filters and fuel injectors at cold operating temperatures.
- a. cloud point                      b. pour point                      c. melting point
- Chemical element which changes into acid during combustion and can severely damage the engine parts it comes in contact with.
- a. vanadium                      b. sodium                      c. sulphur
- It is important for the onboard purification of the fuel. It is also used to convert volume to weight.
- a. density                      b. kinematic viscosity                      c. specific gravity
- A highly toxic, flammable gas which can be fatal in extreme cases.
- a. sulphur                      b. nitrogen dioxide                      c. hydrogen sulphide
- The word --- shows the quality of fuel and indicates how well a fuel will burn in the cylinders.
- a. class                      b. grade                      c. index
- A --- indicator is used for the monitoring of filter contamination.
- a. pressure                      b. density                      c. differential pressure
- The acronym CCAI stands for:
- a. Calculated Carbon Aroma Indication  
b. Cracked Carbon Atom Index  
c. Calculated Carbon Aromaticity Index
- They are indicators of used lubricating oils in residual fuels.
- a. nickel and iron                      b. vanadium and silicon                      c. calcium, zinc and phosphorus
- From the service tank the oil is supplied to lubricators by gravity and is led through drillings onto the liner surface where grooves --- it circumferentially.
- a. separate                      b. attribute                      c. distribute
- Any fuel whose grade lies between HFO and MDO is called --- fuel oil.
- a. medium                      b. intermediate                      c. residual
- Which of the following words is **not** a synonym to the others?
- a. deposit                      b. residue                      c. froth                      d. sediment
- Sticking property, adhesion is ---.
- a. fouling                      b. tenacity                      c. seizing
- The main function of the fuel injectors is to inject and --- in a form of spray a certain amount of fuel in the combustion chamber.
- a. disperse                      b. settle down                      c. stall
- Fuel injectors are --- .into single atomizer and multi atomizer injectors.
- a. determined                      b. distinguished                      c. consisted
- Which of the following words is **not** a synonym to the others?
- a. refine                      b. purify                      c. distil                      d. prepare
- To improve is to ---.
- a. adjust                      b. enhance                      c. neutralise
- Lubrication assists the piston rings in --- the combustion chamber.
- a. stalling                      b. seizing                      c. sealing
- The --- neutralizing capacity of oil is represented by its total base number value.
- a. acid                      b. base                      c. alkaline

**Fill in the gaps with an appropriate word. The first letter is given - 15 points**

- The procedure of taking sample of the fuel delivered by continuously drawing it throughout the bunkering operation is called **d**\_\_\_\_\_ sampling.
- Marine fuels come from **c**\_\_\_\_\_ oil.
- Water and thick particles sink down in the **s**\_\_\_\_\_ tank.
- The **p**\_\_\_\_\_ separates water and impurities from the fuel by means of centrifugal force.

- The viscosity regulator adjusts the **t**\_\_\_\_\_ of the fuel in order to provide the correct viscosity for combustion.
- HFO is much cheaper than diesel, but it produces **s**\_\_\_\_\_ and dirtier **e**\_\_\_\_\_ gases.
- The correct choice of lubricating oil is essential and we should always consult the engine constructor's **m**\_\_\_\_\_.
- The **b**\_\_\_\_\_ tank is used to collect the recirculated fuel oil.
- The booster pump increases the **p**\_\_\_\_\_ of the fuel just before it is delivered to the engine.

**Match the words to their definitions. There is one extra word - 10 points**

<i>bunker</i>	<i>hose</i>	<i>centrifuge</i>	<i>precise</i>	<i>adjust</i>	<i>accumulate</i>
<i>manifold</i>	<i>insulate</i>	<i>surplus</i>	<i>eliminate</i>	<i>residue</i>	

- regulate.....
- sediment.....
- build up, gather.....
- accurate, exact.....
- get rid of, expel.....
- wrap up, protect against heat or cold.....
- disperse through outward movement.....
- the fuel delivery connection.....
- more than the amount that is needed, excess .....
- flexible tube designed to carry marine fuel.....

