**MERCHANT MARINE ACADEMY OF MACEDONIA**

**SCHOOL OF ENGINEERS**

**Course: Maritime English**

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**Instructors:** **A. Birbili, M. Tsompanoglou Exam paper grade:**

**FINAL EXAM**

**1. Put an appropriate word from the list in the gaps that follow. There is one (1) extra word. (15 p.)**

*centrifuging cylinder removable loads temperature irregularities crude permanent*

*micro-seizure emissions ovality exhaust welding washing monitoring expansion*

-- COW stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ oil \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-- Scuffing is a form of localised \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between the particles of piston rings and the liner surface.

-- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the liner and piston rings coming into contact during operation are the cause of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-- One way of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the condition of the cylinder liner is checking its \_\_\_\_\_\_\_\_\_\_\_\_.

-- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the most effective way of removing water and dirty particles from fuels.

-- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ insulation is not replaceable. Its initial cost is less than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ insulation.

-- An \_\_\_\_\_\_\_\_\_\_\_\_\_\_ valve regulates the refrigerant in order to maintain the correct \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-- With severe cold corrosion that is not addressed by correct \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ oil, a liner can be damaged beyond useful life in less than 1,000 hours.

-- The latest generation slow-speed engines combine lower \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and better fuel economy by running at part or very low \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**2. Complete the sentences with the correct form of the words in parentheses. (20 p.)**

-- Fibrous insulation materials are suitable for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(vibrate)** environments.

-- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(abrade)** wear is sometimes caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(catalyst)** fines.

-- Combustion \_\_\_\_\_\_\_\_\_\_\_\_ **(efficient),** among other factors, influences the wear rate of the cylinder liner.

-- The drier removes any \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(moist)** from the refrigerant.

-- Heat \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(lose)** may be reduced a lot with proper insulation.

-- The recommendation for a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(moderate)** corroded engine is a 70 BN cylinder oil.

-- CalSil is a good \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(insulate)** compared to glass fiber.

-- The rapid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(grow)** of piracy attacks in Somali waters is connected to political \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(stable)** in the area.

-- Is inert gas system \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(operation)?**

**--** The valve to starting air \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(distribute)** is closed.

-- \_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(sulphur)** acid is formed due to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(absorb)** of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(condense)** present in the combustion process.

**--** Insulation is critical for personnel \_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(protect),** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(reduce)** of ambient heat or fire \_\_\_\_\_\_\_\_\_\_\_\_\_ **(prevent).**

-- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(form)** of piston rings and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **(align)** may cause cylinder oil film deficiencies.

**3. Choose the correct answer**. **(15 p.)**

-- Whether using a centrifuge or a simple filter, oil cleaning and filtration will be the most effective when the oil is at a:

a. high temperature and a low viscosity

b. low temperature and a high viscosity

c. low temperature and a low viscosity

d. high temperature and a high viscosity

-- Diesel engine lube oil diluted with diesel fuel oil is indicated by:

a. decreased viscosity b. decreased pour point c. increased flash point

d. increased viscosity

-- Which of the following operations will have a direct impact on the rate of wear in a cylinder liner?

a. temperature of the scavenging air b. compression ratio of the piston

c. quality of fuel injected d. amount of scavenge air in the cylinder

-- Heavy residual fuel oils are heated prior to centrifuging to:

a. increase specific gravity b. separate fuel from lube oil

c. reduce fuel weight d. reduce fuel viscosity

-- “Loop”, “uniflow”, “cross flow” are terms used to describe various types of:

a. scavenging b. turbochargers c. control air circuits d. supercharging

-- A decrease in the flash point of the diesel engine lube oil indicates that the lube oil is:

a. contaminated with carbon b. diluted with water

c. diluted with fuel oil d. contaminated with sludge

-- A piston is said to be at top dead centre when it is:

a. closing the fuel ports b. farthest from the cylinder head

c. nearest to the cylinder head d. opening the exhaust ports

-- A scored diesel engine cylinder liner will cause:

a. rapid wear of piston rings b. combustion gases in the cooling water

c. high firing pressure d. abnormally high cooling water temperature

-- Which of the listed substances can be satisfactorily removed from diesel oil by centrifuging?

a. gasoline b. fuel oil c. lube oil d. sludge

-- Combustion knock will most likely occur as a result of using a fuel with:

a. low ignition quality b. high volatility c. low ignition delay

d. a high cetane number

-- A disadvantage of a 2-stroke/cycle diesel engine is:

a. higher working temperatures of the piston and cylinder b. the use of scavenge air

c. more power strokes per revolution d. more complicated valve gear

-- A diesel engine which is rated for normal operation at a crankshaft speed of 800 rpm is commonly classed as:

a. constant-speed b. slow-speed c. high-speed d. medium-speed

-- The ignition quality of a diesel oil is indicated by the:

a. octane number b. CCAI c. kinematic viscosity d. cetane number

-- Which of the following statements concerning cylinder liner wear is true?

a. Liner wear is normally greatest in the middle of the cylinder

b. Liner wear is distributed equally between the upper and lower portions of the cylinder

c. Excessive but uniform liner wear will not cause wear between piston rings and grooves

d. Excessive liner wear causes wear between piston rings and grooves

-- Burning fuel with a high sulphur content in a diesel engine will:

a. cause clogging of the fuel system

b. increase thermal efficiency

c. increase the ability of the engine to start in cold weather

d. cause corrosion in the cylinder and exhaust systems at low loads

**4. Match the words from the list to their synonyms/definitions below. (15 p.)**

*fouled, downtime, splinter, contaminants, dilute, slow-steaming, volatility, composite,*

*sluggishness, fabricate, perishable, modifications, implement, last, maladjusted*

-- time during which a machine is out of order:

-- wrongly fitted:

-- slow motion, idleness:

-- have a duration:

-- break into small, sharp pieces:

-- made up of several parts or elements:

-- alterations:

-- manufacture:

-- apply:

-- dirty:

-- sensitive:

-- pollutants:

-- the property of changing readily from liquid to vapour/gas:

-- lower fuel consumption during low-load operation:

-- make a liquid thinner by adding water or other solvent:

**5. Choose the correct refrigeration system component. (8 p.)**

-- The **relief/solenoid/expansion** valve provides automatic opening and closing of the liquid lines.

-- The **condenser/compressor/receiver** is used to liquefy the refrigerant and to subcool it below the saturation temperature by circulating sea water, fresh water or air.

-- The **receiver/compressor/evaporator** raises the pressure of the vapourised refrigerant causing its temperature to rise so that it becomes higher than that of the refrigerant.

-- The **relief/solenoid/expansion** valve is controlled by a thermostat to regulate the flow of the refrigerant from the H.P. side of the system to the L.P. side.

-- The **evaporator/drier/condenser** ensures that the refrigeration system stays dry and clean by removing any moisture and/or contaminants from the refrigerant.

-- The **receiver/compressor/evaporator** cools down the air in the cargo hold or room by transferring latent heat to the refrigerant.

-- The **oily water separator/purifier/oil separator** removes oil traces from the refrigerant and ensures that the oil returns to the compressor oil pump.

-- The **refrigerant tank/receiver/sump tank** serves to collect the cooled refrigerant, and is also used to drain out the refrigerant from the system for maintenance purposes.

**6. Complete the text using the past participles below. (12 p.)**

*corrected, increased, replaced, placed, taken, maintained*

*gauged, inspected, specified, minimized, cleaned, overloaded,*

Cylinder liner wear can be \_\_\_\_\_\_\_\_\_\_\_, if proper jacket temperature is \_\_\_\_\_\_\_\_\_\_\_\_

The cylinder liner must be \_\_\_\_\_\_\_\_\_\_\_\_ regularly, as it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the manual. The liner must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ before the gauging. If the temperature of the micrometer exceeds that of the liner, or vice versa, then the readings have to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The liner wear is measured by a standard template, which consists of strategically positioned holes, in which the micrometer is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the readings are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The wear rate of the liner will be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, if the engine is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Generally, the liner has to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, when the wear is about 0.6-0.8 per cent of the bore diameter.

**7. Complete the sentences with an appropriate preposition. There is one (1) extra preposition. You can choose from the following: (15 p.)**

*in, by, between, at, on, to, with, before, under, up*

-- Excessive liner wear will cause increased blow-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-- Treat oil spill \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dispersants.

-- Even engines operating \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ low sulphur fuels may be prone \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ scuffing damage.

-- The spillage has been stopped and cleaned \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-- When the engine runs unevenly and will not pick \_\_\_\_\_\_\_\_\_\_\_\_ rpm, the fuel filter may be blocked.

-- Stand \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ oil clearance team and report.

-- Most types of cylinder liner wear take place \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the piston rings and the liner.

-- There is leak \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ manifold connection.

-- HFO has to be heated prior \_\_\_\_\_\_\_\_\_\_\_\_\_\_ centrifuging.

-- One of the main purposes of a ship's refrigeration system is to keep the cargo \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ good condition.

-- Permanent insulation is cut and fitted \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ site.

-- In compliance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Tier II NOx regulations and Energy Efficiency Design Index (EEDI) guidelines, engine cylinders must operate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ increased pressures and reduced operating temperatures. These regulations have led to an increase \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cold corrosion.

**GOOD LUCK!!!**