MERCHANT MARINE ACADEMY OF MACEDONIA
SCHOOL OF ENGINEERS

Course: Maritime English
Academic year: 2014 – 2015 **Exam period: June 2015**
Semester: E **Date:**
Instructor: A. Birbili **Exam paper grade:**
Name:
Student number:

(Για όσους παρακολούθησαν το μάθημα το Χειμερινό Εξάμηνο 2014-2015)

FINAL EXAM

A. Fill in the gaps using the words below. There are two extra words. (15 p.)

advanced propeller maintain oil chocks conformity impurities thrust regulations bearings load deteriorate acids manoeuvrability speed improve line

-- As the _____ is used to lubricate the engine, its properties _____ over a period of time due to the addition of _____ which could include unburnt fuel, water, _____, suspended particles and so forth.
-- Once the _____ of the engine has been set, the role of the governor is to _____ that speed despite the variations in _____.
-- _____ are used to support the shafting in a straight _____ between the main engine and the _____.
-- A marine diesel engine has to be maintained in _____ with the various international rules and _____ as well as the advice of the manufacturer.
-- Azipods are the most _____ option when _____ is really valuable to the vessel since these systems can turn 360 degrees and _____ can be directed at any direction.

B. Fill in the gaps with a word of your own choice. (20 p.)

-- The presence of oil mist in the crankcase reduces the _____ point of the oil, allowing it to catch _____ in presence of a hot spot.
-- The _____ governor is responsive to the air flow in the intake manifold of the engine.
-- A propeller which turns clockwise when viewed from aft is considered _____.
-- The main shaft extends from the main reduction gear to the _____.
-- _____ is the formation and bursting of vapour bubbles near a moving propeller _____.
-- Rapid cooling may _____ a cylinder liner and head or may cause a _____ to seize within a cylinder.
-- If the amount of oil mist inside the crankcase increases, the oil mist detector raises a(n) _____.

C. Fill in the gaps using the words below. There are two extra words. (15 p.)

drain blades insulation flames coefficient liners fixed water sensor portions relief controllable corrosive regulating antifreeze additives hydraulic

-- In _____ -pitch propellers, the pitch can be adjusted by a _____ mechanism which allows the _____ to turn on their own axis.
-- The electronic governor uses magnetic speed _____ to monitor the rpm of the engine.
-- The lubricating oil used in _____ conditions such as lubrication of cylinder _____ is mixed with certain _____ to make it alkaline.
-- Because the heat transfer _____ from water is much greater than from air, _____ must limit heat loss to the water for the _____ of the hull that are below water level.
-- In freezing weather, you must carefully _____ all passages and pockets in the engine that contain fresh _____ and are subject to freezing, unless an _____ solution has been added to the water.
-- Pressure _____ valves should be provided with wire mesh to prevent the release of _____ in the engine room.

D. Complete the sentences with the appropriate form of the words in parentheses. (15 p.)

-- The main shaft is supported and held in _____ **(align)** by bearings.
-- When the temperature of steam reduces, _____ **(condense)** takes place.
-- _____ **(prevent)** measures should always be taken during bunkering.
-- The second engineer hasn't finished the report yet. He needs an _____ **(extend)**.
-- You should fill in this _____ **(apply)** form and send it to the company.
-- The situation in the Middle East is _____ **(explode)**.
-- International regulations try to reduce the _____ **(emit)** of ships' fuels.
-- The _____ **(sensitive)** of the oil mist detector should be checked on a regular basis.
-- If the _____ **(concentrate)** of oil mist in the measuring tube rises, the _____ **(intense)** of light reaching the photo-electric cell reduces.
-- The screw-type propeller is the _____ **(propel)** device used in almost all ships.
-- Depending on the _____ **(long)** of the shaft, there can be two or more shafts coupled by bolting _____ **(arrange)**.
-- The authorities used _____ **(disperse)** to break up the oil spill in the Gulf of Mexico some years ago.
-- The 4th of July in the US is called the _____ **(depend)** day.

E. Match the words to their synonyms/definitions. There is one extra word. (15 p.)

condense dependable attempt momentum stationary defect build up

choke disperse ductwork impact durable chock range rupture limited

standing still; not moving _____
clog _____
accumulate _____
fault _____
able to last, long-lasting _____
effort _____
vary between limits _____
cause to break or burst _____
(of a gas) become liquid, esp by becoming cooler _____
restricted _____
the quantity of movement in a body _____
the total of all pipes or tubes _____
reliable _____
scatter or spread in different directions _____
having a powerful influence on sth/smb _____

F. Write the opposites of the following words. (5 p.)

-- ingress
-- efficient
-- manned
-- reasonable
-- equal
-- equality
-- obey
-- balance
-- formation
-- reduce

G. Read the following article and answer the questions that follow. (15 p.)

Some engine surfaces onboard a vessel can heat up to more than 600 degrees Celsius. That is, if you don't protect them. With the right equipment, however, the engine room is a safe place to work.

The sailor's profession used to be a hazardous one. Thousands of wrecks scattered all around the seabed of our oceans testify that in the old days, sailors who ventured out to sea did not always return. Luckily today seafarers can go to work and rely on returning home. But that doesn't mean you can overlook safety issues. These days, a fire in the engine room is the most serious safety risk.

"'What if there is a fire in the engine room?' is a question that pops into the mind of anyone who ever gets to work down there," says Jyrki Salo.

Salo worked as a marine engineer for over seven years. These days he's stationed on land in Wärtsilä Services' Turku office in Finland, where he's the Product Manager for large bore and 4-stroke solutions.

Every second counts.

Things get hot in an engine room: some parts can have temperatures exceeding 600 degrees Celsius. These parts must be properly covered.

The SOLAS (Safety of Life at Sea) convention, ratified by the IMO, aims to keep merchant ships safe. The treaty has several chapters, but in short it limits how hot the surfaces of certain engine components are allowed to be, in order to cut the risk of fire. It also defines what kind of spray or splash protection should be used near flammable liquid systems such as the fuel and lubricating oil system.

By installing SOLAS solutions on turbochargers, exhaust gas pipes and fuel and oil spray/splash protection, engine room surface temperatures can be kept below 220 degrees Celsius, in line with SOLAS regulations.

"A fire in the engine room typically originates in a failure in the fuel and lubricating oil system, which is then followed by impingement of oil onto a high temperature surface," explains Salo.

Wärtsilä's SOLAS solutions keep the fuel and the heat away from each other, as the hot surfaces are lined.

Why now?

The SOLAS convention has been in force for over ten years, and awareness of engine room safety is now at an all-time high. The trend has also materialised in the order book for Wärtsilä's SOLAS solutions. It's partly due to the fact that the average installation base is reaching the age when safety upgrades are being considered. But a big driver is the overall raised level of safety awareness (we all ride a bike with a helmet these days, right?). It has stirred up the shipping industry as well, with owners and operators getting on trend. News of near-misses and engine room fires spread like digital wildfire in these times of social media, too.

New ships are built to be SOLAS-compliant. A fire down in the engine room tends to have a paralyzing effect on the whole vessel. This is the reason why dual engine rooms are becoming increasingly common on modern ships – should a fire occur in one of the engine rooms, the other one is still operable.

(Retrieved: 11 June, 2015 from www.wartsila.com)

True or False?

- The sailor’s profession was not as safe in the past as it is now.
- Nowadays, the most serious safety risk is flooding in the engine room.
- The temperature of some unprotected engine components and engine room surfaces can be higher than 600 degrees Celsius.

- The convention which aims to keep merchant ships safe is the MARPOL.
- The whole shipping industry cannot realise the importance of engine room safety concerning fire.
- A fire in the engine room can dramatically affect the operation of the whole vessel.

Answer the questions

1. What does the great number of shipwrecks testify?
2. What are some of the requirements of the SOLAS convention?
3. How can engine room surface temperatures be kept below 220 degrees Celsius?
4. As per Jyrki Salo, how can a fire in the engine room start?
5. Why are modern ships built with dual engine rooms?

GOOD LUCK!