MERCHANT MARINE ACADEMY OF MACEDONIA SCHOOL OF ENGINEERS

Course: Maritime EnglishExam period: June 2017Academic year: 2016 - 2017Exam period: June 2017Semester: B' (Retakes – Manila)Date:Name:Exam paper grade:Student number:Instructors: A. Birbili, E. Botonaki, M. Tsompanoglou

FINAL EXAM

<u>1.</u> Supply the missing words from the ones given below. There are two extra words. (15 p.)

wall header generating burners diesel incoming closed steam water

<u>high</u> <u>feed check valve</u> <u>drum</u> <u>economiser</u> <u>circulating</u> <u>superheated</u> <u>low</u>

injection bottom

-- The ______ feed water passes through an ______ first before it enters the lower part of the ______ drum.

-- The ______ tubes take the feed water in the water _____,

where water is heated by the combustion gases.

-- Water changes into steam in the ______ tubes.

-- Steam turbines need ______ steam.

-- The _____ controls the entry of the water in the boiler.

-- The safety valve is actuated when there is _____ pressure.

-- The water ______ supplies water to the water wall tubes.

-- The _____ may be placed either at the _____ of the boiler or at the top.

-- All valves are ______ when the piston is almost at the T.D.C. and the fuel is sprayed into the cylinder by the fuel ______ valve.

-- In ______ engines heat energy and mechanical energy are produced in the same apparatus.

2. Write the names of the four strokes of a 4-stroke diesel engine and describe the first stroke. (10 p.)

 Names of the four strokes: 1.
 2.

 3.
 4.

3. Complete the following text with the words given below. There are two extra words. (15 p.)

compression valve combustion B.D.C. cylinder manifold ports downwards T.D.C. gases pressurised scavenge holes pressure expelling upwards self-ignited

When the piston is at the ______ and before it starts its upward movement on its first stroke, the scavenge and exhaust ______ (or exhaust valve) are already open. ______ air has already entered the cylinder ______ the remaining gases through the exhaust ports (or ______). As the piston moves ______ on its first stroke, it covers the ______ ports first and then the exhaust ports. ______ starts. Pressure and temperature rise. When the piston is a little before the ______, the fuel is sprayed into the cylinder and is ______.

At the beginning of the second stroke, the fuel has already been burned. The ______ gases push the piston down. As the piston moves ______, it uncovers the exhaust ports first and the hot ______ escape through the exhaust manifold. ______ drops. So, when the piston uncovers the scavenge ports right after, air enters the ______ under pressure to push the remaining gases out during the scavenge phase.

4. Circle the correct choice. (12 p.)

-- Fire extinguishers / fire detectors warn us of a fire in a place.

-- Motors / Generators supply the ship with electrical power and lighting.

-- We use the windlass / capstan for handling the anchor.

-- 4-stroke diesel engines are connected to the propeller with **turning / reduction** gear.

-- Fuel oil is cleaned in a separator / evaporator.

-- When the viscosity of a fuel and/or lube oil is high, a **heater / cooler** can regulate it.

-- A service / bilge pump is used to remove water from the machinery space.

-- A lot of garbage can be burnt in the **incinerator / separator**.

-- Fin-stabilisers are used to improve the ship's manoeuvrability / stability.

-- In a(n) **impulse / reaction** turbine the steam is directed from the nozzles against the stationary blades and turns the rotor.

-- In order to lower the boats to the sea we use the **steering / launching** gear.

-- Pumps / cranes are used for loading and unloading liquid cargo.

-- 4-stroke diesel engines are **medium-speed** / **slow-speed** engines, operating between 100 / 200 and 900 / 1500 rpm.

5. Match the terms to their definitions. There is one extra term. (15 p.)						
water jacket economiser salinometer deaerating feed tank soot blower						
superheater condenser oil burners desuperheater furnace atomiser						
air compressor water-tube boiler water tubes steam drum fire-tube boiler						
 A device by means of which a liquid is reduced to very fine spray:						
The upper drum of a water-tube boiler where the separation of water and steam						
 occurs:						
Water pipes which connect the steam drum with the water drums:						
A vessel in which water gets rid of air and other gases:						
It removes the black carbon particles from the tubes of the boiler:						

-- A device which removes all or part of the superheat from steam by spraying water into it or by using a heat exchanger: ______

-- A device which cools exhaust steam back into water:

6. Underline the correct choice. (15 p.)

-- In a 4-stroke diesel engine the piston is connected to the connecting rod with the _____ pin.
a. crank b. gudgeon c. connection
-- In a 2-stroke diesel engine the piston rod is connected to the connecting rod with the _____ pin.
a. connection b. crank c. crosshead
-- The steam which is collected in the steam drum of the boiler is ____.

a. dry b. saturated c. superheated

-- Steam transmits ____ energy to the engine.

a. heat b. kinetic

-- When the temperature of the steam falls below permissible limits, _____ takes place.

a. evaporation b. condensation c. concentration

- -- In an impulse turbine the steam is directed from the nozzles against the ____.
- a. blades b. nozzles c. rotor

-- In a reaction turbine the steam from the boiler comes into a _____ first.

a. high pressure line b. L.P. turbine c. H.P. turbine

c. mechanical

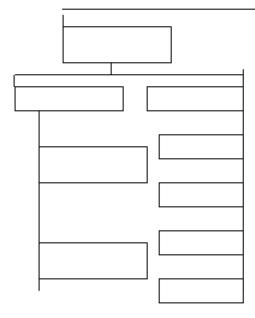
The L.P. turbine is larger due to the of the steam because of the in pressure.							
1	exhaust						
1	raise						
The reaction turbine is than the impulse turbine.							
a. faster b. less advantageous c. 1	more efficient						
The connecting rod is connected to the crankshaft with the pin.							
a. crank b. connection c. c	crosshead						
The camshaft opens the valves with the help of the rod.							
a. piston b. connecting c. p	push						
The crankshaft changes the motion of the piston into rotating motion with the							
help of the rod.							
a. reciprocating b. rotating c. o	oscillating						
a. push b. connecting c. p	piston						
The valve seats are housed on the cylinder							
a. liner b. block c. l	head						

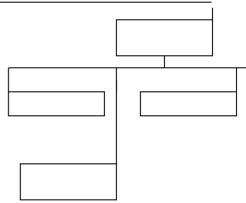
7. Complete the diagram on pumps using the terms below. (13 p.)

gear-wheeled	<u>p/p reciproc</u>	<u>rating</u> <u>vol</u>	<u>ute sin</u>	gle-acting ram p/p	<u>lobe p/p</u>	
<u>regenerative</u>	<u>displacement</u>	<u>vane p/p</u>	<u>rotary</u>	double-acting ran	<u>n p/p</u>	

<u>diffuser</u> <u>screw p/p</u> <u>centrifugal</u>







8. Match the words to their synonyms/definitions. (5 p.)

- 1. efficient-- fixed, not in motion2. evaporate-- not affected by fire3. submerge-- burning4. ignition-- capable of better output5. charge-- grow larger, spread out
 - ry -- place under water
- 6. stationary
 7. combustion
- 8. convert
- -- turn from liquid into vapour -- firing

-- fill up (with air)

- 9. fireproof 10. expand
 - -- change into something else

GOOD LUCK!!!