

MERCHANT MARINE ACADEMY OF MACEDONIA
SCHOOL OF ENGINEERS

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Name:

Student number:

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

FINAL TEST

Exercise 1. (13 p.) There are two extra words.

Complete the following sentences about diesel engines choosing from the words given below.

gudgeon pin, camshaft, connecting rod, piston rod, piston skirt, valve seats, ports, push rod, inlet, exhaust, rotating, internal, external, reciprocating, crankcase

-- The operates the valves with the help of the

-- The reciprocates in the stuffing box.

-- The crankshaft rotates in the

-- The lower part of the piston is the

-- In a 4-stroke Diesel Engine the piston is connected to the connecting rod with the

-- The are housed on the cylinder head.

-- In a 2-stroke Diesel Engine the piston rod is connected to the with the crosshead pin.

-- The conventional 2-stroke Diesel Engine does not have an valve. It has scavenge

-- The movement of the crankshaft is, while the movement of the piston is

-- Diesel Engines are-combustion engines.

Exercise 2. (15 p.)

Complete the following description of a 4-stroke diesel engine using an appropriate word. The 1st letter is given.

During the **s**..... stroke, the inlet valve is open and the piston is moving downwards.

Air is drawn into the cylinder, and when the piston reaches the **B**....., the inlet valve closes.

In the **c**.....stroke, the piston is moving upwards and pushes the air. Both **p**..... and **t**..... rise.

All valves are closed, and when the piston is almost at the **T**....., the fuel is sprayed into the cylinder by the fuel **i**..... valve. It is self-ignited because of high temperatures.

In the third stroke, which is the **c**..... stroke, the gases push the piston down. This is also called the **p**..... stroke.

Finally, in the **e**.....stroke, the piston is moving upwards and the combustion gases are driven out through the outlet valve.

Exercise 3. (12 p.)

Fill in the gaps with an appropriate term of boilers. There are two extra words.

oil burners, steam drum, attemperator, fire-tube, water-tube, water drum, atomizer, feed check valve, salinometer, drain valve, economizer, safety valve, furnace, soot

- The is a part of the oil burner that sprays the fuel.
- The blower removes the impure black carbon particles from the boiler tubes.
- The is the place where air and fuel mix and burn.
- The supply the fuel oil and air to the furnace.
- The is used to heat feed water before it goes into the steam boiler.
- The serves as a reservoir of water, and the holds some of the boiling water, but mainly serves as a storage space for steam.
- The reduces the temperature of the superheated steam.
- The releases any excess steam from the boiler.
- The controls the final entry of water into the boiler
- The measures the salinity of water.
- The Scotch boiler is a type of boiler.

Exercise 4. (15 p.)

Underline the correct choice of the following sentences.

- The steam which is collected in the steam drum of the boiler is **dry/superheated/saturated**
- A single acting ram pump is a displacement **reciprocating/rotary/ regenerative** pump.
- The oil gets rid of water and other harmful substances in a/an **condenser/ purifier/evaporator**
- The turbine **nozzles/stators/bearings** support the weight of the rotor.
- When the temperature of the steam falls below permissible limits, **evaporation/ condensation/ concentration** takes place.
- The upper rings of the piston are the **compression/oil scraping/ fire** rings.
- The upper part of the piston is the piston **crown/skirt/seat**.
- In the **condenser/ economizer/ deaerator**, the boiler feed water gets rid of oxygen and other gases.
- The **LP turbine/HP turbine/high pressure line** is larger due to the **extension/ expansion/ exhaust** of steam.
- The **steam drum/ main stop valve/ feed check valve** controls the passage of the steam to the turbine.
- There are two types of steam engines: the reciprocating steam engines, and the steam **turbines/ rotors/ vanes**.

-- In the reaction turbine the steam passes first through the **stationary/ reciprocating/ rotating** blades, where it **condenses / expands/ decreases**, and with increased speed enters the **stationary/ reciprocating/ rotating** blades and turns the rotor.

Exercise 5. (10 p.)

Match the following auxiliary machinery to their functions.

heater, fin stabilizers, incinerator, generator, pump, crane, windlass, evaporator, launching gear, steering gear

- It is used to increase the temperature of fuel and improve its viscosity:
- It is used to burn garbage:
- It is used to lift heavy objects, containers, e.t.c:
- It is used to lower lifeboats to the sea:
- It is used to transfer liquids from one place to another:
- They are used to reduce the rolling of the ship:
- It is used to handle the anchor:
- It is used to produce distilled water:
- It is used to manoeuvre the ship:
- It supplies the ship with electrical power and lighting:

Exercise 6. (10 p.)

Match the following words with their synonyms below.

malfunction, condenser, port, desuperheater, stationary, combustion, saturated, charge, circulate, impulse

- filled with moisture:
- be in motion, move around:
- fill up with air:
- action:
- an apparatus that changes steam into water by cooling it:
- apparatus which decreases the temperature:
- burning:
- a hole in the cylinder liner:
- irregular or abnormal operation:
- fixed, not in motion:

Exercise 7. (10 p.)

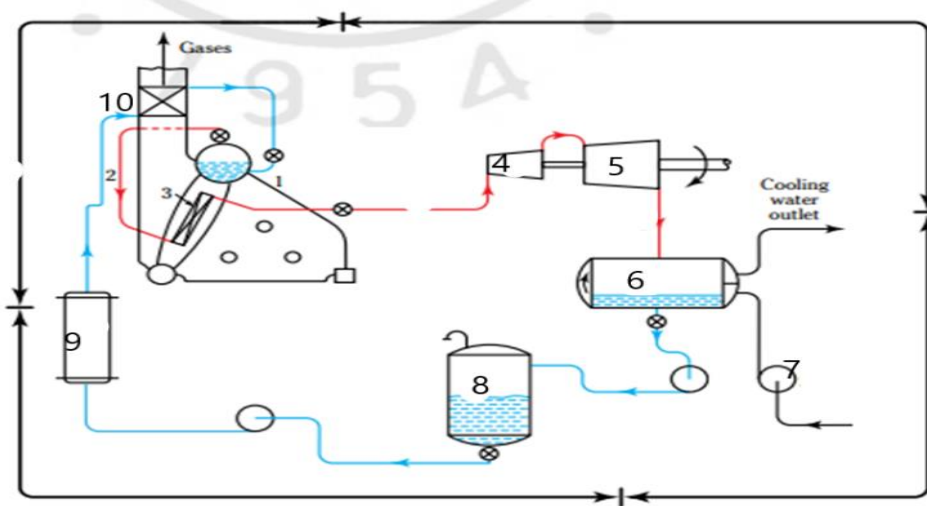
Complete the following text on pumps with the words given.

rotary, vanes, displacement, impeller, discharge, reciprocating, casing, multistage, screws, centrifugal

There are two main groups of pumps: the _____ pumps and the _____ pumps. The 1st group is subdivided into _____ pumps, in which a piston moves up and down, and _____ pumps in which the moving part rotates. The rotating parts can be gears, _____, lobes, _____, etc. The centrifugal pump, on the other hand, consists of an/a _____ which rotates at high speed inside the pump _____. With centrifugal _____ pumps we can have high capacities and high _____ pressure which is needed in cases such as boiler feeding.

Exercise 8. (15 p.)

Complete the following diagram with the correct terms.



1.....

6.....

2.....

7.....

3.....

8.....

4.....

9.....

5.....

10.....

