

**MERCHANT MARINE ACADEMY OF MACEDONIA  
SCHOOL OF ENGINEERS**

**Course: Maritime English**  
**Academic year: 2015 - 2016**  
**Semester: B'**  
**Instructor: A. Birbili**  
**Student's name:**  
**Student number:**

**Exam period: February 2016**  
**Date:**  
**Exam paper grade:**

**FINAL EXAM**

**A. Supply the missing words from the ones given below. There are three extra words. (15 p.)**

*T.D.C. crankshaft rotor tie propulsion compression pump silencer  
scavenge pressure combustion connecting machinery impeller B.D.C.  
exhaust camshaft osmosis*

- Besides the main engines which are used for the \_\_\_\_\_ of the ship, there is also auxiliary \_\_\_\_\_ on board.
- Reverse \_\_\_\_\_ is another way of making fresh water on board.
- A \_\_\_\_\_ is a device which is used to transfer liquids from one point to another, under \_\_\_\_\_.
- At the end of the 2<sup>nd</sup> stroke of a 4-stroke D.E. the piston is at the \_\_\_\_\_.
- The \_\_\_\_\_ absorbs the noise of the vibration of the running components of the turbocharger.
- The two main parts of a turbocharger are the turbine \_\_\_\_\_ and the compressor \_\_\_\_\_.
- In a 2-stroke D.E. two phases, \_\_\_\_\_ and \_\_\_\_\_, happen at the same time.
- The \_\_\_\_\_ changes the reciprocating motion of the piston into rotating motion with the help of the \_\_\_\_\_ rod.
- The three upper rings of the piston are \_\_\_\_\_ rings.
- The cylinder block, the frame of the engine and the bedplate are all three connected together with the \_\_\_\_\_ rods.

**B. Write the names of the four strokes of a 4-stroke diesel engine and describe the suction stroke. (15 p.)**

**Names of the four strokes: 1. \_\_\_\_\_ 2. \_\_\_\_\_**  
**3. \_\_\_\_\_ 4. \_\_\_\_\_**

---

---

---

---

---

---

**C. Match the terms to their definitions. There is one extra term. (15 p.)**

superheater   condenser   cylinder head   capstan   furnace   atomiser

water jacket   economiser   salinometer   deaerating feed tank   soot blower

air compressor   water drum   main bearings   steam drum   gudgeon pin

- The upper drum of a water-tube boiler where the separation of water and steam occurs: \_\_\_\_\_
- A device by means of which a liquid is reduced to very fine spray: \_\_\_\_\_
- A heat exchanger that transfers heat from the gases of combustion to the boiler feedwater: \_\_\_\_\_
- The place in the boiler where the fuel is burnt: \_\_\_\_\_
- A gauge which checks the salinity of water: \_\_\_\_\_
- A great number of small tubes which heat the steam above the saturation temperature: \_\_\_\_\_
- It connects the piston to the connecting rod: \_\_\_\_\_
- They support the crankshaft within the engine bedplate: \_\_\_\_\_
- It supplies compressed air for starting the engine: \_\_\_\_\_
- A cover on top of each cylinder which makes a gas-tight seal: \_\_\_\_\_
- It maintains the desired temperature of the cylinder: \_\_\_\_\_
- A vessel in which water gets rid of air and other gases: \_\_\_\_\_
- It removes the black carbon particles from the tubes of the boiler: \_\_\_\_\_
- It handles the ropes for mooring the ship: \_\_\_\_\_
- A device which cools exhaust steam back into water: \_\_\_\_\_

**D. Circle the correct choice. (15 p.)**

- 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 lub oil is high, a **heater / cooler** can regulate it.
- 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.
- 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**.
- **Motors / Generators** supply the ship with electrical power and lighting.
- We use the **windlass / capstan** for handling the anchor.
- The 2-stroke D.E. does not have an **inlet / exhaust** valve; it has scavenge **valves / ports**.
- In the centrifugal pump there is a(n) **rotor / impeller** rotating at high speed inside the pump casing.
- The valve seats are housed on the cylinder **liner / head**.
- The walls and floor of the furnace have an **insulation / isolation** of fireproof bricks.

**E. Which of the auxiliary machinery is used for... (15 p.)**

- reducing rolling of the ship? \_\_\_\_\_
- driving another machine? \_\_\_\_\_
- handling the cargo? \_\_\_\_\_
- transferring liquids from one place to another? \_\_\_\_\_
- treating biologically human body waste? \_\_\_\_\_
- supplying water to the boiler? \_\_\_\_\_
- fire fighting? \_\_\_\_\_
- cooling oil or water? \_\_\_\_\_
- providing forced ventilation to holds? \_\_\_\_\_
- supplying the firemain with water? \_\_\_\_\_

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

- |                                   |   |
|-----------------------------------|---|
| 1. stroke                         | -- fixed, not in motion                               |
| 2. evaporate                      | -- not affected by fire                               |
| 3. submerge                       | -- burning  |
| 4. ignition                       | -- travel of the piston between the T.D.C. and B.D.C. |
| 5. simultaneously                 | -- hole on the cylinder liner                         |
| 6. stationary                     | -- place under water                                  |
| 7. combustion                     | -- at the same time                                   |
| 8. attemperator/<br>desuperheater | -- turn from liquid into vapour                       |
| 9. fireproof                      | -- firing   |
| 10. port                          | -- device which decreases the temperature             |

**G. Correct the mistakes in the following sentences. (10p.)**

- Steam changes into water in a compressor. \_\_\_\_\_
- The main part of a steam turbine is the piston. \_\_\_\_\_
- The cooling water circulating pump supplies the engine with fuel oil. \_\_\_\_\_
- The piston rotates inside the cylinder. \_\_\_\_\_
- Diesel engines are external combustion engines. \_\_\_\_\_
- The crankshaft operates the valves. \_\_\_\_\_
- Steam turbines need saturated steam. \_\_\_\_\_
- The safety valve is actuated when there is low pressure. \_\_\_\_\_
- The water tube boiler is less efficient than the Scotch boiler. \_\_\_\_\_
- In a 2-stroke diesel engine the cycle of operation is completed in two revolutions of the crankshaft.

**H. Write 5 sentences describing the differences between a 4-stroke and a 2-stroke D.E. (10 p.)**

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_

***GOOD LUCK!!!***