

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

**STUDENT'S FULL NAME:**

**STUDENT NUMBER:**

**GROUP:**

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**Instructor's name: Dr M. Tsompanoglou**

**FINAL TEST in English**

- 1. Complete the following text with an appropriate word from the ones given:**  
*tightened, excess, springs, dismantling, overhauled, drained, slackened, clearances, dismantled, suction. (10 points)*

**Operating systems**

Crankcase is opened and ....., oil strainer and internals closed. Lubricating pump is ..... and ..... are checked. Cooling water spaces are drained, opened, cleaned and inspected. Air ..... filter is cleaned, suction and discharge valves for each stage are ..... Valves, cages, ..... and seats are checked and renewed as necessary. When ..... or boxing up valves, ensure that set bolts for locating valve cages are ..... back, while cover nuts are ..... . Inspect valve pockets for signs of ..... oil.

- 2. Complete the following text with an appropriate word. (10 points)**

In the diesel engine only air is initially introduced into the combustion ..... . The air is then ..... with a compression ratio typically between 15 and 22 resulting into a 40-bar ..... . This high ..... heats the air to 550 Celsius degrees. At about this moment, fuel is ..... directly into the compressed air into the combustion chamber.

- 3. Find the missing words. The first letter is given. (15 points)**

Worn main bearing and vibrating forces are the most common reasons for crankshaft d.....

Since 2008, all produced low speed engines with crosshead bearings are in-line c.....

At least 3 cylinders are required with 2-stroke engines and at least 6 with 4-stroke engines to provide t..... every 120 degrees.

Typical b..... size for low speed engines ranges from 35 to 98 cm.

Before starting any kind of overhauling, it is advisable to have the required tools, the instructions m..... and some s..... parts ready.

A slight distance between two surfaces is called: c.....

The sump tank should be cleaned of s.....

The diesel cycle has the highest thermal e..... of any regular internal or external c..... engine, due to its very high compression ratio.

**4. Complete the sentences with an appropriate preposition. (10 points)**

Slow down the rate of oil being pumped and top ..... tanks with extreme caution.

The speed of the turbocharger is variable depending ..... the engine load. At full power it may be rotating ..... speeds of 10000 rpm.

Keep clear ..... space ..... crane ..... load.

Loss of electrical power resulted ..... a fire in the diesel generator room.

To prevent water ..... accumulating in the lube oil system, the oil should be monitored either manually or automatically ..... means ..... an oil condition monitoring system.

**5. Complete the sentences with the correct form of the words in parentheses. (10 points)**

All parts of the compressor should be carefully inspected for signs of ....., damage, or ..... (wear, operate)

2-stroke engines can ..... over 2,000 short tons. (weight)

Piston rings should be checked for proper clearances in order to avoid excessive wear sticking and ..... (break)

Deckheads should be examined periodically for accumulation of ..... deposits and cleaned ..... (combustion, appropriate)

..... should be examined for signs of fatigue. (fasten)

If combustion is poor, there will be an ..... of ..... residues. (accumulate, viscosity)

Water in the lube oil system may lead to ..... wear of the overlayer. (corrode)

**6. Choose the proper maintenance work for each defect from the following: *scraping, matching, grinding, aligning, replacement, reconditioning, retightening, cleaning, readjustment.* (10 points)**

Incorrect clearances:

Carbon deposits:

Deflection:

Incorrect injection pressure:

Worn surfaces:

Scale:

Cracks, fractures:

Surfaces out of roundness:

Slackened tie bolts:

Scored/scratched surfaces:

**7. Fill in the following sentences with the names of the appropriate tools. (15 points)**

A r..... is used to shape and enlarge holes.

A f..... g..... is used to measure narrow gaps and clearances.

Tools which are worked by air under pressure are called p..... tools.

A machine for the removal of metal by feeding a workpiece through the periphery of a rotating circular cutter is called m..... m..... .

A hand tool that tightens and loosens nuts and bolts: w..... or s.....

A device that tightly presses things together: c.....

A screw with a flat-slot needs a f..... s..... .

A power tool used to bore holes: d.....

The mechanic used the open end of the c..... wrench.

The plumber used an adjustable p..... wrench.

**8. Transform into Passive. (10 points)**

You should use a chipping hammer to remove salt, dirt, and oil.

The second engineer has already replaced the piston rings.

The piston compresses the air in the cylinder.

The chief engineer disengaged the turning gear.

You must grind the fuel valve, because it is worn.

**9. Answer the following questions. (10 points)**

How does an air compressor work?

How many types of air compressors are there?

Why is the reciprocating compressor also called piston air compressor? How many kinds of such compressors are there depending on the number of compression stages?