

Merchant Marine Academy of Macedonia- School of Engineers		
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Student's name:		
Student's number:		
Exam paper grade:	Instructor's signature	

⚓ Write the name of the auxiliary machinery. You can choose from the following:  
(There are two extra words.) (12)

⚓ *fin stabilizers/ incinerators/ electric motors/ sewage treatment plants/ heaters/ generators/ davits/ capstans/ windlasses/ air compressors/ reverse osmosis plants/ evaporators /coolers/ purifiers*

They are used to burn garbage .....

They are used to lower lifeboats to the sea .....

They reduce the rolling of the ship.....

They are used to handle the anchor .....

They are used to handle the mooring lines .....

They are used for reducing the temperature of either oil or water.....

They are used to increase the temperature of fuel and improve its viscosity .....

They produce distilled water .....

They are used to pump the water under high pressure through a membrane and filter it .....

Human body waste is treated biologically there .....

They provide the main engine with starting air .....

They supply the ship with electrical power and lighting.....

**Fill in the gaps with the following words:(10)**

Oil	Transfer	Header	Circulating	Indicator
Lubricating	Chamber	Service	Check	Top- end

General ..... pump/ Cooling water .....pump/  
fuel oil .....pump/ water wall ..... / water level ...../  
feed .....valve/ ..... semi- shell/ combustion ...../  
..... oil system/ ..... scraping piston rings

**Fill in the synonym words:(5)**

Suction	Drip	Rotary unit	Capacity, cubic content	Casing
Predetermined	Convert	Lag	Stationary	Submerge

.....impeller      ..... place under water      ..... shell

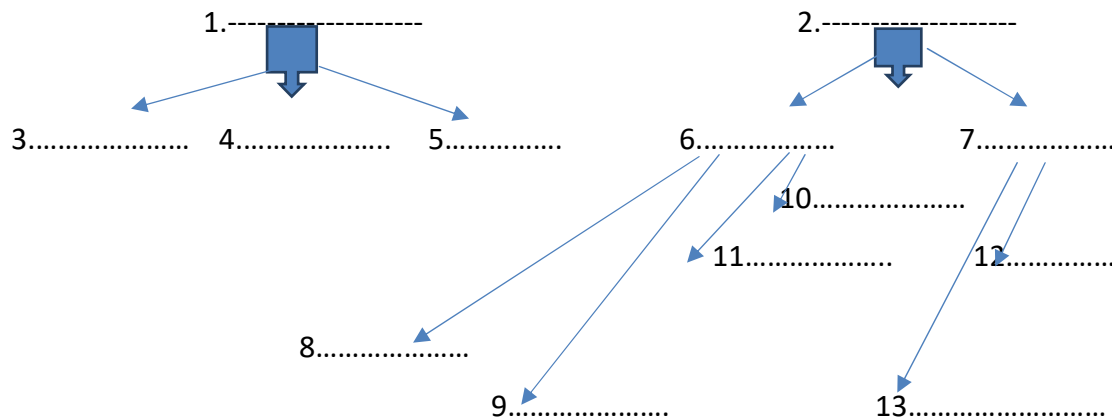
..... Decided in advance      ..... volume

..... change      .....fall in drops      .....fixed, not in motion

..... drawing in      .....delay

**Fill in the gaps with the appropriate type of pump using the following words: vane, regenerative, rotary, screw, lobe, reciprocating, displacement, centrifugal, volute, single-acting piston, gear wheeled, double-acting piston, diffuser(13)**

**PUMPS**



**Choose the correct answer:(5)**

With the multistage pumps we can have **low/ medium/ high** capacities.

The reaction turbine is **more efficient/ faster/ less advantageous** than the impulse turbine.

The **attemperator/ superheater/ deaerator** decreases the temperature.

**Water tubes/ Oil burners/ Generating tubes** supply the fuel and air to the furnace.

The **downcomer tube/ steam drum/ economizer** preheats the feeding water.

4- stroke diesel engines are **medium/ high/ slow** speed engines and are connected to the propeller with **reduction/ turning/ steering** gears.

In a 4-stroke diesel engine the piston is connected to the connecting rod with the **crank pin/ gudgeon pin/ connection pin**.

The connecting rod is connected to the crank shaft with the **crank pin/ connection pin/ crosshead pin**.

The valve seats are housed on the **cylinder liner/ cylinder head/ piston crown**.

**Fill in the gaps with the following words :(15)**

Desuperheater	Ram	Furnace	Discharge	Throttle
External	Deaerator	Condenser	Saturated	Impulse
Port	Malfunctions	Gland	Expansion	Raise

Steam engines are ..... combustion engines.

A single acting .....pump consists of a piston which moves inside a pump chamber which is fitted with a non-return .....valve and a non-return suction valve.

The ..... is a device for removing all or part of the superheat from steam by spraying water into it or by use of a heat exchanger.

The ..... is a device which cools exhaust steam back into water.

The ..... is an enclosed space provided for the combustion of fuel.

.....steam is filled with moisture.

..... is a vessel in which boiler feed water is heated under reduced pressure in order to remove dissolved air.

The L.P. turbine is larger due to the ..... of the steam.

A kind of turbine is the .....

The high pressure steam passes from the H.P. line into the H.P. turbine through a ..... valve.

The piston of a reciprocating steam engine slides into the packing .....

Marine boiler plants require adequate control systems to ..... steam, maintain design conditions for steady steaming and detect promptly any .....and failures.

..... is a hole in the cylinder liner.

**Complete the text with an appropriate word from the following: (10 ) There are two extra words.**

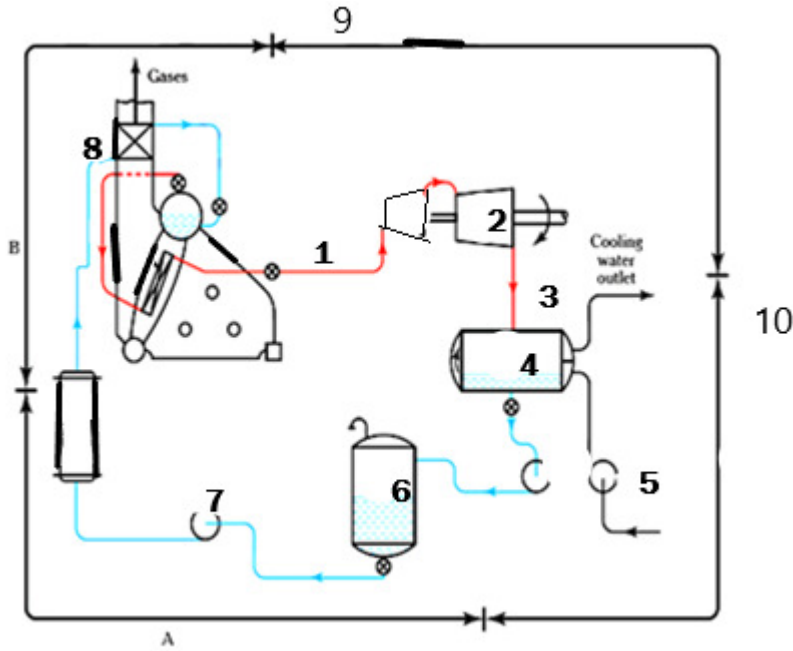
***diffuser, absorb, assembly, vanes, contribute, vibration, components, rotor, mountings, fittings, impeller, pressure***

A turbocharger consists of a single turbine wheel, the \_\_\_\_\_ of which is mounted on the same shaft as with the \_\_\_\_\_ of a centrifugal compressor. Besides the rotor, the turbine \_\_\_\_\_ has a stator too, that is, stationary \_\_\_\_\_ which direct the exhaust gases to the rotor. On the compressor's side there is a \_\_\_\_\_ and a spiral casing, both of which \_\_\_\_\_ to the further rising of the \_\_\_\_\_ of the compressed air. There is also a silencer to \_\_\_\_\_ the noise of the \_\_\_\_\_ of the running \_\_\_\_\_.



Look at the diagram and write what the numbers show: :(15)

- 1..... 6.....  
 2..... 7.....  
 3..... 8.....  
 4..... 9.....  
 5..... 10.....



**Complete the text with an appropriate word. (15)**

In the compression ....., the piston moves ..... and ..... the air. Both ..... and temperature rise. All valves are ..... and when the piston is almost at the ....., the fuel is sprayed into the ..... by the fuel ..... valve. It is self-....., because of the high ..... of the compressed air.

