**B SEMESTER part 1 Choose the correct answer**

1. It reciprocates inside the cylinder and compresses the air.

A. Piston B. connecting rod C. crosshead

1. It reduces fiction. A. cylinder liner B. Crankshaft C. Block
2. The crankshaft rotates in it. A. crank pin B. crankcase C. crank bed
3. The air is drawn into the cylinder through this valve. A. Exhaust Valve B. inlet valve C. outlet valve
4. The lub oil is there. A. block B. storage tank C. sump tank
5. A cylinder \_\_\_\_\_\_\_\_\_\_ is fitted inside the cylinder to reduce friction.
6. Block B. head C. liner
7. The \_\_\_\_\_\_\_\_\_\_ rod gives rotating motion to the crankshaft.

Piston B. connecting C. push

1. The \_\_\_\_\_\_\_\_\_\_ pin connects the piston to the connecting rod.
2. Gudgeon B. crosshead C. crank
3. The crosshead slides on the \_\_\_\_\_\_\_\_\_\_.

A. Slippers B. guides C. slides

1. The piston rod reciprocates in the \_\_\_\_\_\_\_\_\_\_\_\_.
2. Scavenge box B. crosshead C. stuffing box
3. The \_\_\_\_\_\_\_\_\_\_ opens the valves.

A. Crankshaft B. camshaft C. tailshaft

1. The \_\_\_\_\_\_\_\_\_\_ pin connects the piston rod to the connecting rod.

A. Crosshead B. piston C. crank

1. The inlet, exhaust and fuel injection valves are fitted in the cylinder \_\_\_\_\_\_\_\_\_\_.
2. Block B. liner C. head
3. Diesel engines are \_\_\_\_\_\_\_\_\_\_ combustion engines.

A. External B. internal C. spark

1. The \_\_\_\_\_\_\_\_\_\_ rotates and gives motion to the propeller.

A. Crankshaft B. camshaft C. connecting rod

1. The \_\_\_\_\_\_\_\_\_\_ supports the whole engine.
2. Sump tank B. bedplate C. frame
3. The \_\_\_\_\_\_\_\_\_\_ cools the cylinder externally.

A. Cylinder liner B. water jacket C. scavenge box

1. The camshaft actuates the valves with the help of the \_\_\_\_\_\_\_\_\_\_\_ rod.
2. Push B. Piston C. Connecting
3. The gases escape through the \_\_\_\_\_\_\_\_\_\_ valve.

A. Inlet B. exhaust C. fuel injection

1. The ……………...opens the valves with the help of the …………………...

A. crankshaft ---piston rod B. crankshaft--push rod

C. camshaft---piston rod D. camshaft---push rod

1. The cylinder block , the frame of the engine and the bedplate are all three connected together with the ................................
2. tie rods B. connecting rods C. piston rods D. frame rods
3. In the ................. parts store you find things to replace the ones that do not function any more. A. Workshop B. storage C. auxiliary D. spare
4. In a 4 stroke Diesel engine the piston is connected to the connecting rod with the ......... A. crank pin B. gudgeon pin C. connection pin D. crosshead pin
5. In a 2 stroke DE the piston rod is connected to the connecting rod with the ................. A. crank pin B. gudgeon pin C. connection pin D. crosshead pin
6. The connecting rod is connected to the crankshaft with the….

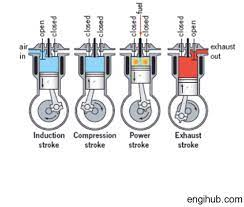
A. crank pin B. gudgeon pin C. connection pin D. crosshead pin

1. The piston rod reciprocates into and out of the ...............
2. stuffing box B. scavenge box C. gear box D. mud box
3. The 2- stroke DE does not have an ………………. valve. It has scavenge ……………………..
4. inlet----valves B. inlet----ports C. exhaust----valves D. exhaust---ports
5. The crankshaft changes the …………………..motion into ………………... with the help of the ……………………..rod.

A. reciprocating--rotating----connecting B. rotating ----reciprocating ------piston C. reciprocating ----rotating ----piston D. rotating--- reciprocating--- connecting

1. A ...................is a hole on the cylinder liner. A. Stem B. spindle C. stroke D. port
2. Controllable .............Propeller A. pitch B. thrust C. gear
3. Scavenge ................ A. rod B. pin C. box
4. Bottom .............bearing. A. level B. edge C. end
5. Low ..............turbine A. level B. check C. pressure

**4- STROKE DE**

1. 4 stroke Diesel Engines are ..........................speed Diesel Engines. A. Slow B. medium C. high
2. In a 2 stroke DE the cycle of operation is completed in two strokes of the piston and ...............revolution(s) of the crankshaft. A. One B. two C. three
3. In 2 stroke Diesel Engines we have compression and .................... A. power B. exhaust C. suction
4. The conventional 2 stroke Diesel Engine does not have an ...........................valve. A. injection B. exhaust C. inlet D. outlet
5. The first stroke of the 4 stroke DE is the ...............stroke.

A.suction B. combustion C. compression D. exhaust

1. In the induction stroke the piston is moving ...................... A. upwards B. downwards
2. In the second stroke the fuel is sprayed into the cylinder by the fuel ............valve.

A. exhaust B. compression C. ignition D. injection

1. The ..............stroke is the only stroke in which we get power for the propulsion of the ship………………….A. combustion B. exhaust C. compression D. induction
2. The ................stroke is the final stroke. A. suction B. combustion C. compression D. exhaust
3. The two stroke Diesel Engine has .................. A. scavenge ports B. piston rod C. inlet valve
4. The 4-stroke Diesel Engine does not have a stuffing box. A. True B. false
5. Suction is ............... A. drawing in B. squeezing C. firing D. compressing
6. In the final stroke of a 4-stroke Diesel Engine the exhaust gases are driven out. A. True B. false
7. The two stroke Diesel Engine has .................. A. inlet valve B. piston rod C. scavenge ports
8. The 4-stroke Diesel Engine does not have a crosshead. A. True B. false
9. In the suction stroke when the piston reaches the ...., the cylinder is full of air and the inlet valve closes. A. BDC B. TDC
10. The ...........or power stroke is the stroke which provides power for the propulsion of the ship. A. Induction B. compression C. exhaust D. combustion
11. When the piston moves ........................., it reaches the TDC. A. Downwards B. upwards
12. The 2-stroke diesel engine does not have reduction gears. A. True B. false

**BOILER**

1. Apparatus which decreases temperature.

A. Atomizer B. Superheater C. attemperator D. economizer

1. The steam which is collected in the steam drum of the boiler is ……...…...... A. dry B. saturated C. superheated
2. Steam transmits …………………….energy to the engine. A. Kinetic B. heat C. mechanical
3. When the temperature or the steam falls below permissible limits, ……...takes place. A. Evaporation B. condensation C.concentration
4. The economizer is used to heat the ………………...before it goes into the steam boiler.

A. Water B. steam C. fuel

1. A delay is a / an……………….. A. decrease B. lag C. emission
2. Remaining the same and occurring continuously is ………………….

A. constant B. predetermined C. initial

1. The incoming feed water of the boiler passes through a/ an ………….., which preheats it first before it enters the lower part of the steam drum.

A. Attemperator B. economizer C. superheater D. diffuser

1. In the boiler, from the steam drum, the steam passes through the 1st and 2nd stage …………..where it becomes superheated and is led to the turbine.
2. Attemperator B. economizer C. superheater
3. The side and the roof of the furnace form a/ an ……….. of tubes very near each other which are supplied with water. A. Waterwall B. superheater C. economizer D. Preheater
4. The ................supply the fuel and air to the furnace.

A.Economizers B. oil burners C. atomizers D. fire tubes

1. In the boiler, the water .................serves as a reservoir of water. A. Pipe B. tube C. drum
2. Boiler ...............are usually valves and gauges that are attached directly to the pressure parts of the boiler. A. indicators B. mountings C. tubes
3. Filled with moisture. A. Indicated B. saturated C. ignited D. initiated
4. Part of the boiler which sprays the fuel. A. Economizer B. desuperheater C. atomizer D. attemperator
5. From the economizer the water enters the circulating tubes which take it in the water drum, where water is heated by the combustion ……... A. gases B. chamber C. fuel
6. The …………….. may be placed either at the bottom of the boiler or at the top. A. Furnace B. steam drum C. burners
7. The Scotch boiler is used only for ....................purposes, since it is less efficient than the water tube boiler. A. Circulating B. generating C. auxiliary
8. Boilers are used on board ships for producing ............... A. water B. air C. steam
9. The boiler may have a ..............which has a great number of small tubes and is used to heat the wet steam before it enters the main steam pipe which leads to the engines. A. Feed water system B. steam drum C. superheater
10. The steam generated in the boiler passes into the steam engine which ..............the heat energy into mechanical work. A. Discharges B. converts C. condenses
11. The attemperator is the same as a desuperheater. A. True B. false
12. Water changes into steam in the .............tubes. A. water B. generating C. boiling
13. The .............. boiler is a fire tube boiler. A. American B. Bristol C. Scotch
14. A water ..................... is a reservoir of water. A. Valve B. tube C. header
15. It changes the steam into water by cooling it. A. Economiser B. atomizer C. condenser
16. The safety system of a marine boiler plant controls that all values are within the ..................limits. A. minimized B. constant C. predetermined D. decreased
17. The Classification Societies have special .......................... for marine applications for various reasons. A. Requirements B. systems C. emissions
18. In the .................................. the boiler feed water gets rid of oxygen and other gases. A. Preheater B. condenser C. economizer D.deaerator
19. Apparatus which decreases temperature. A. Atomizer B. superheater C. attemperator D. economizer
20. Be in motion, move around. A. Circulate B. saturate C. supply D. diffuse
21. Filled with moisture. A. Indicated B. saturated C. initiated D. ignited
22. Part of the boiler which sprays the fuel. A. Economizer B. desuperheater C. atomizer D. attemperator
23. The LP turbine is larger due to the ……….of the steam. A. Extension B. expansion C. exhaust
24. The reaction turbine is ……………….than the impulse turbine. A. more efficient B. faster C. less advantageous
25. A vessel in which boiler feed water is heated under reduced pressure in order to remove dissolved air is …...…………….A. combustion chamber B. DFT C. superheater
26. A device for removing all or part of the superheat from steam by spraying water into it or by use of a heat exchanger is ...………….A. desuperheater B. superheater C. low pressure turbine
27. A device which cools exhaust steam back into water is...…... A. combustion chamber B. DFT C. superheater D. condenser E. economizer
28. A heat exchanger that transfers heat from the gases of combustion to the Boiler Feedwater is the………….A. economizer B. resuperheater C. desuperheater
29. A type of boiler design in which combustion gases flow inside the tubes and water flows outside the tubes is ………………….. A. fire tube boiler B. water tube boiler.
30. An enclosed space provided for the combustion of fuel. A. Furnace B. burner C. funnel
31. An upper drum of a water tube boiler where the separation of water and steam occurs. A. Heater B. steam drum C. water drum
32. The safety valve is actuated when there is ………...…….pressure. A. high B. low
33. The economizer is used to heat the ………………...before it goes into the steam boiler. A. Steam B. water C.fuel
34. A delay is a / an……………….. A. decrease B. lag C. emission
35. When something does not work normally it has a ...…………. A. disfunction B. malfunction C. unfuction
36. To cause to start is …………………. A. Initiate B. emit C. determine
37. The incoming feed water passes through a/ an …………..first before it enters the lower part of the steam drum. A. Atomizer B. superheater C. attemperator D. economizer
38. From the economizer the water enters the circulating tubes which take it in the water drum, where water is heated by the combustion ……... A. fuels B. gases C. chamber
39. After the water enters the economizer, it enters the …………..tubes where water changes into wet steam which enters the upper part of the steam drum and becomes saturated. A. Drain B. water C. generating
40. In the boiler, from the steam drum, the steam passes through the 1st and 2nd stage …………..where it becomes superheated and is led to the turbine. A. Atomizer B. superheater C. attemperator D. economizer
41. Depending on the case, in the boiler, there may be a/ an ………………… to decrease the temperature. A. Atomizer B. superheater C. water wall header D. attemperator

**Turbocharger**

1. Both the diffuser and spiral casing of the turbocharger………………...to further rising of the pressure of the compressed air. A. Consist B. transmit C. contribute D. mount
2. The turbocharger consists of a single turbine wheel, the rotor of which is ….. on the same shaft as with the impeller of a centrifugal compressor. A. Included B. transmitted B. mounted D. diffused
3. The turbocharger uses some of the energy of the hot exhaust gases of the engine to drive the turbine. The turbine being on the same ………………..with the impeller of the compressor transmits the power to the impeller and drives the compressor. A. Casing B. shaft C. component D. diffuser
4. The compressor compresses the …………………...air . A. outgoing B. incoming C. exhaust
5. The air is then cooled and enters the ……………..air manifold. A. Scavenge B. exhaust/ C. stuffing
6. Besides the rotor, the turbine ………………….has a stator too, that is, stationary vanes which direct the gases to the rotor. A. Casing B. assembly C. silencer
7. On the compressor's side there is a …………….. and a spiral casing. A. Silencer B. vane C. diffuser
8. Both of them ………………...to further rising of the pressure of the compressed air. A. Consist B. contribute C. transmit
9. There is also a …………………………….to absorb the noise of the vibration of the running components. A. Stator B. silencer C. vane

**RINGS- VALVES- PISTON**

1. The top and bottom end bearings are between the top-end and bottom end ................ A, head B. stems C. spindles D. semi-shells
2. Not affected by fire. A. inflammable B. flammable C. fireproof
3. The valve consists of the head, the seat and the ............... A. crown B. stem C. skirt
4. The .....................rings are below the compression rings.

A.Oil scraping B. additional C. fire D. sealing

1. The piston consists of the skirt, the pin and the ........... A. head B. seat C. crown D. spindle.
2. The valve seats are housed on the cylinder........ A. liner B. cylinder head C. camshaft
3. Burning is .................... A. combustion B. firing C. ignition
4. The upper rings of the piston are the .......................rings. A. compression B. oil scraping C. fire
5. The valve consists of the ...................., the mushroom and the seat. A. Crown B. head C. stem

**VALVES- INDICATORS- STEAM TURBINES**

1. It shows the level of water in the boiler. Water level ………………. A. Check B. indicator C. control
2. The ................................... valve of the boiler controls the passage of the steam to the steam turbine. A. Feed check B. main steam stop C. safety auxiliary D. steam stop
3. It measures how salty the water is …A. salinometer B. saltometer C. alatometer
4. When heat, gas or radiation is sent forth ….A. emission B. transmission C.initiation
5. Decided in advance is ................ A. decreased B. predetermined C. initiated
6. It controls the passage of the steam to the engines. A. Steam drum B. main stop valve C. feed check valve
7. The chemical ........... valves are used for adding chemicals directly into the boiler. A. Safety B. level C. dosing
8. In a reaction turbine the steam from the boiler comes into the .............first. A. high pressure line B. LP turbine C. high pressure turbine
9. In the simple reciprocating steam engine the exhaust steam is condensed in a condenser, passes through a/an ..............and is discharged by a service pump into a preheater. A. Superheater B. boiler C. deareating feed tank D. atomizer
10. The steam turbine consists of a rotor that has a set of curved ............. A. blades B. stators C. tubes
11. In the impulse turbine, the steam from the .............is directed against the blades and turns the rotor. A. Nozzles B. shaft C. rim D. outlet
12. There are two types of steam engines, the reciprocating steam engine and the steam turbine. A. True B. false
13. The steam is fed from a HP line into the HP turbine through a/ an ................valve. A. exhaust B. inlet C. outlet D.throttle
14. In the reaction turbine the steam passes first through the stationary blades where it ...........and with increased speed enters the rotating blades and turns the rotor. A. Condenses B. expands C. decreases D. cools
15. The L.P. turbine usually consists of a combination of ..............and reaction elements. A. Feeding B. adjusted C. impulse
16. The main part of the reciprocating steam engine is the ......... A. nozzle B. vane C. piston
17. In the steam power plant of a reaction turbine, after the water leaves the DFT, it enters the .................. A. superheater B. boiler C. preheater
18. The piston slides into the ................. A. throttle B. stern C. packing gland D. scavenge box
19. To ...............is to be in motion, move around. A. Generate B. saturate C. circulate
20. The turbine .................require special attention. They support the weight of the rotor and are adjusted to maintain a close clearance between the stationary and rotating blades. A. Nozzles B. stators C. bearings D. stators
21. The steam turbine is enclosed in a/ an .................case. A. airtight B. airlock C. impulse
22. The combustion control system of the marine boiler plants maintains ................steam pressure by controlling the flow of air and oil to the burner. A. Increased B. prompt C. constant
23. There two types of steam engines, the reciprocating and the steam .................. A. turbine B. Rotor C. vane
24. ****In a reaction type turbine the steam is fed from the HP line into the LP turbine through a .............valve. A. suction B. throttle C. discharge
25. There are 3 types of turbines. The ...............,, the reaction and the action- reaction. A. Regenerative B. action C. impulse
26. In the reaction turbine the steam passes first through the ...............blades where it expands. A. Stationary B. rotating C. circulating
27. The ...................tank is where water gets rid of air and other gases. A. Boiler B. preheater C. deaerating
28. The ...............are flat thin metal parts. A. Rims B. rotors C. blades
29. To grow larger is to ................ A. convert B. decrease C. expand
30. When the temperature of the steam falls below permissible limits, ............takes place. A. Evaporation B. condensation C. expansion

**FILL IN THE GAPS WITH THE FOLLOWING WORDS**

**scavenge centrifugal transmits exhaust incoming**

**silencer shaft components wheel diffuser**

A turbocharger consists of a single turbine ………………………, the rotor of which is mounted on the same …………………….. as with the impeller of a …………………. compressor.

The turbocharger uses some of the energy of the hot ………………………… gases of the engine to drive the turbine. The turbine, being on the same shaft with the impeller of the compressor, ……………….. the power to the impeller and drives the compressor. The compressor compresses the ……………………. air which then is cooled and enters the ……………………… air manifold. Besides the rotor, the turbine assembly has a stator too, that is, stationary vanes which direct the exhaust gases to the rotor. On the compressor’s side on the other hand, there is a …………………….. and a spiral casing, both of which contribute to further rising of the pressure of the compressed air. There is also a ……………………. to absorb the noise of the vibration of the running …………………………………..

**FILL IN THE GAPS WITH THE FOLLOWING WORDS**

*FLOW / INSULATION/ THROTTLE/IMPULSE/ EFFICIENCY/ CONVERTED/ GASES/ LAG/ FURNACE/ CASING*

*DESUPERHEATER/ TRANSMIT/ CHECK/ STEAM/ ECONOMISER*

In the boiler, the incoming feed water passes through an/a …………………………… first before it enters the lower part of the ………………………… drum From there it enters the circulating tubes which take it in the water drum , where water is heated by the combustion……………………

The combustion control system maintains constant steam pressure by controlling the…………………… of air and oil to the burner. The more advanced combustion controls ……………………. the air and oil to the burner simultaneously, but with a slight ………………… between air and oil, so that with an increased boiler load, the air will lead the oil, and on a decrease in the boiler load the oil will lead the air.

The reaction – type turbine has all the advantages of the …………………. - type, plus a slower operating speed and greater …………………………

The steam in a reaction type turbine is fed from a high- pressure line into the high pressure turbine through a …………………………………….. valve. After passing through this high pressure turbine where some of its energy is …………………………… to useful work, the steam is fed to a low pressure turbine.

A steam generating plant consists of a ……………………….. which is the space where the air and fuel oil mix and burn. The……………………….. or shell is made of steel sheets and forms an airtight chamber. The walls and floor of the furnace have an ………………………. of fireproof bricks in two or three layers.

A ……………………….. is the opposite of a superheater.

The feed ………………….. valve controls the entry of the water in the boiler.

**FILL IN THE GAPS WITH THE FOLLOWING WORDS: compression, downwards, BDC, suction, upwards, rise, injection, compresses, combustion, TDC, exhaust, ignited, power, inlet**

During the ……………………………………or intake or induction stroke the intake valve is open and the piston is moving…………………….. Air is drawn into the cylinder and when the piston reaches the ………………………….the cylinder is full of air and the ………………………… valve closes.

In the ……………………………stroke the piston is moving …………………….and …………………………..the air. The pressure and the temperature ………………………. All valves are closed when the piston is almost at the …………………..the fuel is sprayed into the cylinder by the fuel ……………………..valve. it is self ………………….. because of the high temperature of the compressed air.

Then fuel is burnt and the …………………………gases push the piston down. This is the ………………………stroke- only this stroke provides power for the propulsion of the ship.

Finally, in the ………………………stroke the piston is moving ……………………..and the exhaust valve is opened, through which the exhaust gases are driven out.

**FILL IN THE GAPS WITH THE FOLLOWING WORDS**

***Superheater/Steam drum/generating/economizer /drum/burners/header/attemperator/Water wall/gases***

The incoming feed water passes through an/a ……………………………first before it enters the lower part of the ………………………… From there it enters the circulating tubes which take it in the water ……………………..., where water is heated by the combustion……………………

Then it enters the 3…………………………..tubes where water changes into wet steam which enters the upper part of the steam drum and becomes saturated. From there the steam passes through the 1st and the 2nd stage …………………………..where it becomes superheated and is led to the turbine.

Depending on the case there may be a/an …………………………..to decrease the temperature of the superheated steam. The side and the roof of the furnace form a/ an ……………………………of tubes very near each other, which are supplied with water from a water wall …………………………..The ……………………………….may be placed either at the bottom of the boiler or at the top.

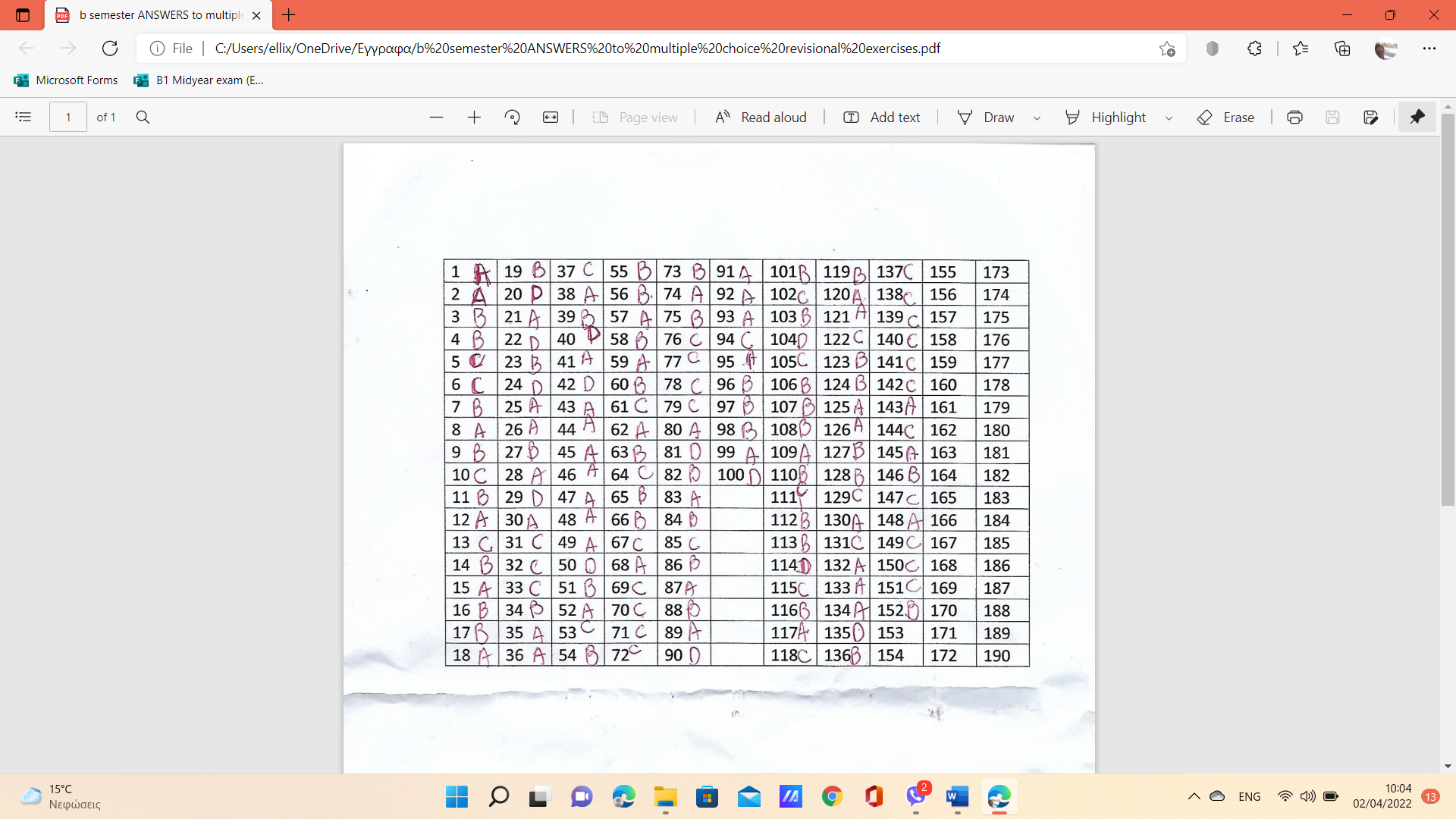
**Fill in the gaps with the following words**

***Volume /throttle/efficiency/ expands /require/ principle/ combination/adjusted/converted/ astern***

The reaction – type has all the advantages of the impulse- type, plus a slower operating speed and greater ……………………….. The steam is fed from a high- pressure line into the high pressure turbine through a ………………………….. valve. After passing through this high pressure turbine where some of its energy is ………………………… to useful work, the steam is fed to a low pressure turbine. The larger the diameter of the low pressure turbine is due to the increased ………………………. of steam as it ………………………… because of the decrease in pressure. The low pressure turbine usually consists of a ………………………….. of impulse and reaction elements. All of the stages of the low pressure turbine operate on the reaction ……………………... This rotor also carries the blading of the …………………………… element which is used for backing down.

The turbine bearings…………………….. special attention. They support the weight of the rotor and are …………………… to maintain a close clearance between the stationary and rotating blades.

The answers for the gap filling exercises can be found in the book. The answers for the multiple choice questions are the following:



PUMPS- ANSWER THE FOLLOWING – THE FIRST TWO HAVE BEEN ANSWERED. There are no answers for the following exercises. The answers can be found at the book.

1. In the displacement pump the increase of decrease of the .........................of the pump chamber causes the suction or discharge of the liquid. A. Impeller B. centrifuge C. volume
2. In the centrifugal pump there is a/ an ................rotating at high speed. A. Impeller B. rotor C.ram
3. Gear wheeled pumps are ……….. A. reciprocating B. displacement rotary C. centrifugal
4. The diffuser pump is a ...............pump. A. displacement B. centrifugal C. reciprocating
5. The single acting ram pump is a …………. A. Rotary displacement B. reciprocating displacement C. centrifugal
6. The vane pump is a ...............pump. A. reciprocating B. displacement C. centrifugal
7. Multistage pumps can be ....................pumps. A. centrifugal B. displacement C. rotary
8. The cooling water ..................pump supplies the engine with cooling water. A.Sanitary B.condensate C.service D.circulating
9. In ................pumps the increase or decrease of the volume of the pump chamber causes the suction or discharge of the liquid. A.Regenerative B.volute C.centrifugal D.displacement
10. In the centrifugal pump there is a/ an ................... rotating at high speed inside the pump casing. A.Vane B.rotor C.shaft D.impeller
11. In the diffuser pump the impeller is surrounded by diffusion ...............which are stationary. A.Lobes B.screws C.gears D.vanes
12. Centrifugal pumps with more than one impeller are called ................. pumps. A.Reciprocating B.discharging C.double acting D.multistage
13. Centrifugal pumps are suitable for small capacities. A.True B.false
14. The volute pump is a ............... pump. A.displacement reciprocating B.displacement rotary C.regenerative centrifugal
15. A gear-wheeled pump is an example of a ........... A.displacement rotary pump B.displacement reciprocating pump C.displacement centrifugal
16. There are two main groups of pumps in maritime use. Displacement and …..pumps. A.reciprocating B. centrifugal C.rotating
17. In the displacement pump the increase or decrease of the volume of the pump chamber causes the …..or discharge of the liquid. A.Suction B. discharge C. outlet
18. In the centrifugal pump there is an ………...rotating at high speed inside the pump casing. A.Stator B. rotor C. impeller
19. The liquid enters the pump through the suction pipe, is thrown against the surrounding ………….. by centrifugal force. A.Casing B. outlet C.vane
20. The displacement pumps can be subdivided into reciprocating and ….pumps. A. gear B. rotary C. volute
21. In reciprocating pumps a piston ………….mechanically in a liquid cylinder. A. Reciprocates B. rotates
22. In the double acting piston pump the chamber is fitted with suction and ………..valves at the top and bottom. A. Inlet B. discharge C/ drain
23. Rotary pumps are mainly used for oil or ……….fluids. A. vicous B.watery C.oily
24. There are three types of centrifugal pumps. Volute, ….and regenerative. A. Rotating B. reciprocating C. diffuser
25. In the volute type the impeller is surrounded by a spiral case called ... A. volume B. volute C. impeller
26. The diffuser pump is a version of the volute type, but the impeller is surrounded by diffusion …..which are fixed. A. Vanes B. gears C. lobes
27. The diffuser pump may also be called ….pump. A.turbocharger B. turbine C. regenerative
28. The diffuser type is used on …...pressure. A.high B.low C. medium
29. ……………. pumps can be single stage or multistage pumps. A. Reciprocating B. displacement C. centrifugal
30. With the multistage pumps we can have ….. capacities. A. High B. low
31. Centrifugal pumps are ……….for very low speeds. A. Suitable B. unsuitable
32. Displacement pumps are …………….for very high speeds.A. Suitable B.unsuitable
33. There are two main groups of pumps in maritime use- A. Displacement pumps and ….. rotary B. reciprocating C. centrifugal
34. A pump is a device which is used to transfer liquids from one point to another under …………….A. Pressure B. suction C. construction
35. A pumping system on board consists of a ……………..branch, a pump and a discharge branch. A. Suction B. exhaust C.compression
36. In the displacement pump the increase or decrease of the ………………..of the chamber causes the suction and discharge of the liquid. A. Rotor B.capacity B.volume
37. In rotary pumps the liquid is forced through the pump casing by means of gears, screws or ………... A.valves B. vanes C. inlets
38. Rotary pumps are used mainly for oil or ……………….fluids. A. vacuum B. viscous C. liquid
39. The volute type of pump is the most common type of …………………...pump.A. centrifugal B.diffuser C. reciprocating
40. In the diffuser pump the impeller is surrounded by diffusion vanes which are ...…...…...……. A. moving B. stationary C. rotating
41. The diffuser pump is used on …………..pressure. A. low B. high
42. Displacement pumps are not suitable for …………………...speeds. A. high B. very high C. low
43. A vane pump is a …………………….. ……………………..pump. A.reciprocating displacement B. rotary centrifugal C.Rotary displacement
44. A single acting pump is a ………………………. ………………….pump. A. reciprocating displacement B. rotary centrifugal C.Rotary displacement
45. A screw pump is a ...…………………….pump. A. reciprocating B. rotary C. volute C.displacement
46. A diffuser pump is a …………………..pump. A. reciprocating B. rotary C. volute D. displacement
47. Centrifugal pumps are suitable for all duties except very ………………..capacities. A. small B. big

AUXILIARY MACHINERY

1. It is used for Handling the anchor …………..A. crane B. capstan . windlass
2. It is used for Handling the ropes …A. windlass B. capstan C. crane
3. It supplies the ship with electrical power and lighting. A. Generator B. motor C.pump
4. ................ are used for cooling either oil or water. A. Coolers B. heaters C. compressors
5. The oil gets rid of water and other harmful substances in a / an ……. A. Incinerator B. condenser C. purifier
6. To place under water is ................. A. submerge B. drip C. evaporate
7. The .......................treatment plant is where human body waste is treated biologically. A. Sewage B. incinerator C. sanitary
8. It is used to handle the cargo. Α. Capstan B. windlass C. crane D. lift
9. It is used for fire fighting. A. Fire extinguisher B. firefighter C. fire alarm
10. It is used to transfer liquids. A. Pump B. motor C/ generator
11. It is used to reduce the rolling of the ship. A. Fin stabilizer B. anchor C. immobilizer
12. It drives another machine. A. Generator B. stabilizer C. anchor D. windlass
13. It supplies compressed air for starting the engine. A. Air expansion B. air compressor C. air intake
14. We take distilled water from it. A. Evaporator B. sewage C. condenser
15. They supply air for the engine. A. Ventilators B. davit C. gear
16. It is necessary to operate the rudder. A. Launching gear B. steering gear C. davit
17. It is used to lower lifeboats to sea. A. Launching gear B. steering gear B. davit C. blower
18. Garbage is burnt there. A. Sewage B. incinerator C. purifier
19. The oil gets rid of water and other harmful substances in a/an ............................. A. condenser B. reverse osmosis plant C. purifier D. evaporator
20. We can have distilled water from a/ an ..................... A. incinerator B. purifier C. sewage treatment plant D. evaporator
21. ........................gears are used for lowering the lifeboats. A. Reduction B. turning C. steering D. launching

**Fill in the gaps with the following words:**

ram regenerative centrifugal suction displacement

gear- wheeled impeller rotary reciprocating single acting

volute vanes stationary lobe diffuser

Centrifugal pumps have the………….……..which is inside a casing.

A gear wheeled pump is an example of a …………………. ……………………………pump.

A single acting ram pump is a displacement …………………….. pump.

In a ……………………………pump, the liquid is thrown against the casing of the pump.

In a …………………………pump, the vacuum is formed by the teeth on both wheels.

The …………………………..type of pump is a centrifugal pump.

The vane type of pump is a ………………………………..pump.

The double acting piston pump is fitted with ………………………… and discharge valves at the top and bottom, so the liquid can be drawn in and discharched on each stroke.

The diffuser pump is a version of the volute type, but the impeller is surrounded by diffusion ……………………….. which are ……………………………

The ……………………….pump is a combination of the volute around the impeller and it is surrounded by a spiral casing.

A ………………………..pump is a rotary displacement pump.

………………………………….pumps are reciprocating displacement pumps.

In reciprocating pumps a piston or ……………………….is mechanically reciprocated in a liquid cylinder.

In the ……………………………..type of pump, the impeller is surrounded by a spiral case.

**Fill in the gaps with a word from the list below. There are two (2) extra words. (15)**

rotary volute diffusion impulse vanes displacement

regenerative impeller discharge reciprocating suction diffuser

casing multistage reaction 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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The most common type of centrifugal pump is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which has taken its name after the spiral case which surrounds the impeller. In the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pump the impeller is surrounded by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ vanes which are stationary. Because of this slight similarity to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ turbine, it is often called turbine pump. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pump is a combination of the other two types. With centrifugal \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pumps we can have high capacities and high \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pressure which is needed in cases such as boiler feeding.

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| --- |
| Which auxiliary machinery is used for … |

* Burning the garbage? I........................................................
* Increasing the temperature of fuel and improving its viscosity? H.........................................
* Operating the rudder for manoeuvring? S................................ G...................................
* Lowering lifeboats to sea? L..............................G............................(or D..............................)
* Supplying the ship with electrical power and lighting? D......................... G............................
* Reducing the rolling of the ship? F.................... S........................
* Providing forced ventilation to holds? V.........................(F..................or B........................)
* Having distilled water ? E…………………………………..
* Lifting heavy objects, containers, etc? C.......................................
* Removing water and dirty particles from fuel? O............ W............. S........................( or P...................)