

Final Exam

A. Provide the right derivative of the word in the parentheses. (15)

- In a _____ (refrigerate) system the _____ (condense) cools down the _____ (refrigerate).
- _____ (vibrate) can be reduced by proper _____ (insulate).
- High fuel _____ (consume) is a problem that requires immediate _____ (attend).
- We must make _____ (alter) in the programme.
- _____ (catalyst) fines often cause _____ (abrade) wear.
- The _____ (recommend) is for a 100 BN cylinder oil.
- Low temperature prevents the _____ (oxide) of the cargo.
- To prevent cold _____ (corrode), one _____ (solve) is to insulate the outside of the liner so that there is a _____ (reduce) in the cooling effect.

B. Put an appropriate word from the list in the gaps that follow. (30)

*diameter maintenance regulations fabricated scuffing dew point pipe
sulphur elbow sulphuric low-load blanket rate select calculate*

- New engines must now comply with the Tier III NOx _____.
- Fuels usually contain _____, which combines with the water to form _____ acid.
- _____ occurs when there is poor lubrication; it is a serious form of wear.
- Proper _____ will extend the life of the cylinder liner.
- Temperatures below the _____ allow steam to condense.
- Some older engines are modified for _____ operation.
- The liner has to be replaced when the wear is over 0.8% of the bore _____.
- Insulation is available in various forms, depending on the product, such as flexible _____, and preformed _____ and _____ sections.
- The 'Sweep Test' helps you to _____ the correct cylinder oil.
- Cylinder liners are _____ from a cast iron alloy.
- Wear _____ is a measurement of the speed at which wear happens. The liner is gauged at regular intervals to _____ this speed.

C. IMO SMCP: fill in the missing words in the following questions. (15)

*connect operational maximum washing stripping
disconnected inerted receiving available pressure*

- What is the backpressure for _____?
- Is the Oil Pollution Prevention Plan _____?
- What is the _____ loading rate?
- Are your tanks _____?
- What is the pumping _____?
- Can we _____ the loading arm?
- Is the inert gas system _____?
- When will crude oil _____ start?
- Are the cargo hoses _____?
- Are you _____?

D. Choose the correct answer. (15)

- Diesel engine lube oil diluted with diesel fuel oil is indicated by ___
a. decreased viscosity b. decreased pour point c. increased flash point
d. increased viscosity

- If the analysis of used lube oil indicates a high content of iron particles, this could indicate ___
a. excessive ring and liner wear b. excessive cooling of lubricating oil
c. corrosive deterioration of a bearing d. inadequate air filtration

- “Loop”, “uniflow”, “cross flow” are terms used to describe various types of ___
a. scavenging b. turbochargers c. control air circuits d. supercharging

- The possibility of damage from operating a diesel engine at critical speeds is reduced by the use of ___
a. a vibration damper b. an isochronous governor c. elastic engine mounts
d. a cast iron bedplate with good flexible qualities

- What occurs in the combustion space of a diesel engine cylinder shortly after ignition and before the piston reaches TDC?
a. rapid increase in pressure and temperature
b. rapid increase in volume and decrease in pressure
c. rapid increase in temperature with constant pressure
d. rapid increase in pressure with constant temperature

- Which of the following operations will have a direct impact on the rate of wear in a cylinder liner?
a. temperature of the scavenging air b. compression ratio of the piston
c. quality of fuel injected d. amount of scavenge air in the cylinder

- Whether using a centrifuge or a simple filter, oil cleaning and filtration will be the most effective when the oil is at a ___
a. low temperature and a high viscosity b. low temperature and a low viscosity
c. high temperature and a high viscosity d. high temperature and a low viscosity

- In a diesel engine, the function of lubricating oil is to ____
- provide a film between the shafts and bearings
 - cool the pistons and bearings
 - remove metal or dirt particles resulting from wear
 - all of the above
- A diesel engine is supercharged in order to ____
- increase the no-load rpms
 - provide more fuel for combining with the air
 - lower the no-load rpms
 - provide more air for combining with the fuel
- Combustion knock will most likely occur as a result of using a fuel with ____
- low ignition quality
 - high volatility
 - low ignition delay
 - a high cetane number
- A diesel engine which is rated for normal operation at a crankshaft speed of 800 rpm is commonly classed as ____
- slow-speed
 - medium-speed
 - high-speed
 - constant-speed
- A centrifuge will satisfactorily remove ____ from fuel oil.
- gasoline
 - water
 - lube oil
 - sulphur compounds
- A scored diesel engine cylinder liner will cause ____
- rapid wear of piston rings
 - combustion gases in the cooling water
 - high firing pressure
 - abnormally high cooling water temperature
- Burning fuel with a high sulphur content in a diesel engine will ____
- cause clogging of the fuel system
 - increase thermal efficiency
 - increase the ability of the engine to start in cold weather
 - produce corrosion in the cylinder and exhaust systems at low loads
- Combustion knock can occur in the cylinders of a diesel engine under any condition permitting ____
- a shortened ignition delay period
 - a lean fuel/air mixture
 - excess fuel in the combustion chamber
 - rapid vaporisation of injected fuel droplets

E. Discuss the problem of cylinder liner wear (why it happens, how it can be minimized etc.)
(25)