Watchkeeper Motor Orals

Examiner: Lloyd Schooling
Duration: 2 hours

Sketch and describe a refrigeration system with pressures and temperatures.
What do low and high pressure cutouts do.
Sketch a TX valve.
Sketch and describe an oil separator of refrigeration plant,
At what form is the refrigerant as it goes through the refrigerant system.
What are some problems that can be found in the system and how are they detected, and why are refrigeration systems dangerous.
What would you do if the chief asked you to remove the condenser.
How would you de-gas the system (explained pumping the gas down to the receiver).
What type of refrigeration is used on ships.

Sketch a 2-stroke cross section.
Sketch a crosshead bearing.
Show and explain how it is lubricated.
How is oil mist detected in a 2-stroke engine (sketched comparator-type oil mist detector).
What would you do if the oil mist alarm sounded in the middle of the night.
What would you do if you had a scavenge fire, and how would you detect one.

Sketch an air start system for a 2-stroke vessel, with reversing arrangements.
Sketch a start air distributor.
Describe what happens in the engine when controls change from ahead to astern.
How is the fuel pump cam follower reversed to the opposite side of the cam.
What could cause an air start explosion and how are they prevented.
How would you detect if a start air valve is leaking.
What safety arrangements are on the system and what do they do.

Sketch a fuel system from tank to injector.
Why is the Fuel heated.
How is the viscosity regulated (I explained the control system, but he didn’t ask to sketch).
Why is a settling tank used, how does it work.
Why is a service tank used.
What type of valves are used on the tanks.
Sketch a purifier, how does it work. What does a gravity disc do.
What is the difference between a purifier and clarifier, why are both used.

Sketch and describe an oily water separator.
If the chief asked you to pump the bilge water overboard via the oily water separator, what steps would you take.
The bilge alarm goes off in the middle of the night, and you find that the bilge levels are rising, what do you do.
What are your duties as a watchkeeper in relation to marpol in prevention of pollution.
Explain the Oil record book, what information is recorded, why, and what operations are recorded (bunkering, transferring between tanks etc).
Explain what steps you would take for bunkering.
What is SOPEP and why is it in place.
How are the tanks vented, and how do you know if the vents are working.

What general checks do you make on the boiler when doing your rounds.
How do you check the water level in a boiler.
How do you know if the gauge glass is operating correctly.
Sketch and describe tube type gauge glass and explain gauge blow down procedure.
Describe full procedure from having the tank open and empty for survey, to pressurising and steaming.
What would you do if there was a fire at the front of the furnace, originating from the furnace.
If you couldn't get to the foam fire extinguishers at the front of the boiler, what would you do.
Explain how you would use a fire extinguisher.
Sketch a quick closing valve and explain how you operate it.
How do you conduct the test on boiler water for chloride levels. What is the maximum operating level.
Where do you take the sample from.

Explain the process of starting and synchronising another generator (wanted everything including visual inspection, valves and checking cooling etc).
Sketch how a synchroscope is wired into the system.
What would you do if the ship blacked out.
The prime mover on a generator won't start, what do you do. (I asked whether the engine was turning over with air, he then proceeded with wanting to know what I would do if the engine turned with air, but combustion didn't take place, and also with the scenario of no air).