GUÍA DE ESTUDIO - JEFE DE MÁQUINAS					
Q. Number	**Question**	**A**	**B**	**C**	**D**
ORGANISE SAFE MAINTENANCE & REPAIR PROCEDURES					
1	If the refrigerant compressor was running continuously with a high discharge pressure, what could be the problem?	Dirty condenser.	Low refrigerant charge.	Air in the refrigerant.	Compressor bursting disc ruptured.
2	If welding repairs are being carried out in the workshop, you must inform in advance the duty deck and engineer officers, and that ...	a "permit to work" form is completed and the chief engineer informed.	the fire team is alerted and standing by.	the safety officer is told and he checks all safety aspects.	a "permit to work" form is completed and the workshop fire alarm is switched off.
3	If inspection of a main engine bottom end bearing shows minor damage to 25% of the bearing surface, what action would you take?	Renew all of the engine bottom end bearings.	Refit the bearing for further service if the clearance is acceptable.	Renew only this bottom end bearing.	Seek advice from the engine manufacturer.
4	At which of the following settings would you adjust the main engine low lube oil alarm to activate?	Slightly below running pressure but before the stand-by pump cuts-in.	Slightly below running pressure but after the stand-by pump cuts-in.	Just before the low lube oil shut down operates.	At the same pressure as the stand-by pump cuts in.
5	If you have bacterial contamination of your fuel tanks, what could you do to rectify the situation?	Increase the purifier throughput.	Add anti bacterial agent to the service tanks.	Drain and clean the affected tanks and fuel system.	Drain the affected tanks, refill with clean fuel and antibacterial agent.
6	When preparing to sail you are informed that a main engine heat exchanger is overdue for survey. What procedure would you follow?	Carry on and organise to open up and survey the heat exchanger at the next port.	Delay sailing and organise to have the heat exchanger surveyed.	Advise the captain of a possible delay and check with the local classification surveyor.	Carry on and plan the survey for a convenient opportunity.

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7	If a lube oil analysis report was received indicating water present in the crankcase oil, what action would you take?	Check all fuel tanks for water.	Check the purifier is operating efficiently.	Check for internal jacket water leaks.	Carry out all of the checks listed.
8	You discover that there is a corrosion problem in a localised area of the main deck. How would you carry out repairs?	Expose the extent of the damage and weld doubling plates in place.	Cut back to good steel and weld in place new sections.	Check with classification surveyor and carry out recommended repairs.	Double over the worst sections until the next drydocking.
9	If you have had to renew the main engine oil charge due to serious fuel contamination, how would you dispose of the old oil?	Pump the oil into the fuel oil tanks.	Pump the oil to the renovating tank, purify and re-use for topping up the crankcase oil.	Discharge overboard in the open sea.	Pump oil to the renovating tank and pump ashore when convenient.
10	"What do you consider to be the most important task on completion of maintenance work in the crankcase of a large, slow speed main engine?"	Start the auxiliary blower to ventilate the scavenge, ensuring there is sufficient fresh air to start.	Start the engine to see that it rotates without obstruction.	A search inside the crankcase for tools, rags or any other foreign materials.	Circulate the jacket/piston cooling water to check for leaks.
11	If there was a leaking ballast line in the duct keel space, what action would you take to carry out repairs?	Under no circumstances would engineers enter the duct keel at sea.	Make sure the repair was necessary and take all precautions for entering an enclosed space.	Secure the duct keel access covers and allow the space to flood.	Make sure the engineers wore breathing apparatus while working in the space.

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12	You are about to sail and the watchkeeping engineer informs you that the main engine sump level has risen unaccountably, what would you do?	Delay sailing until you have established the cause.	Instruct the engineer watchkeeper to keep an eye on the jacket water header tank.	Instruct the engineer watchkeeper to monitor the sump level when on passage.	Submit an oil sample to a lab for full analysis and delay sailing until you receive the result.
13	At what pressure would you set the main engine stand-by lube oil pump to cut in?	Slightly below the running pressure, before the alarm sounds.	Slightly below the pressure setting of the low lube oil alarm.	At the same pressure setting as the low lube oil alarm.	Just before the low lube oil shut down operates.
14	If the chloride contamination of the main engine jacket water was increasing, what would you check first?	Contamination of the jacket water with combustion gases.	Internal water leakage.	Sea water contamination via a heat exchanger leak.	The quality of the domestic supply used for the topping up water.
15	On completion of the fitting of a new air conditioning, refrigerant compressor, the plant must be inspected by...	A surveyor from the ship's registeration authority.	A surveyor from the classification society.	An appointed marine surveyor.	A senior ship's engineeer.
16	If on inspection of a tubular heat exchanger, the sacrificial anodes are only part worn, what would you do?	Refit for a further period.	Renew but use smaller anodes.	Renew all of the anodes anyway.	Only renew one of the anodes.
17	When you have engineers carrying out maintenance in the main engine crankcase, what precautions would you take?	Blank off or remove a section of air start line.	Engage the turning gear on the engine and post warning notices.	Close all starting air valves and post a warning notice on the start air bottle.	Have a crewmember standing by in the control room.

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ORGANISE SAFE MAINTENANCE & REPAIR PROCEDURES					
18	If a centrifugal pump's efficiency had gradually decreased, what components would you first inspect for wear?	The pump impeller.	The pump shaft seal.	The pump impeller wear rings.	The pump impeller neck bush.
19	If outside contractors are carrying out burning operations in the engine room, what must you do?	Complete a "permit to work" form and conform to all of the safety checks.	Inform the local port authority and obtain an authorisation certificate.	Inform the contractor that he has full responsibility for safety.	Ensure that all fire alarms are activated.
20	If a cylinder head pressure relief valve has lifted on the diesel main engine, what procedure would you carry out?	Adjust the spring to a higher setting.	Lower the fuel pump fuel rack setting.	Replace the relief valve and check the peak pressure.	Operate the engine at a lower load.
21	If you are about to sail and receive a lube oil report stating dangerously lowered flashpoint, what would you do?	Depart as planned, investigate possible source, purify and submit further sample.	Delay sailing until you establish the safe condition of the lube oil.	Take no action until receiving the results of a second sample.	Delay the sailing and renew the entire oil charge.
22	If repairs had been carried out to the main engine lube oil pressure supply pump, what action would you take before starting the engine?	Renew the lube oil filter elements.	Make sure the stand-by pump is running.	Prime and run the lube oil pump for several minutes.	Ease the pressure relief valve to its lowest setting.
23	If some part of a purifier bowl assembly is defective, what action should be taken ?	Have it repaired on board if possible.	Send it to an approved contractor for repair.	Order the specific bowl spare part from the manufacturer.	Contact the manufacturers for guidance and act on their advice only.
24	If a diesel engine cam drive fails, which of the following components is most likely to sustain demage?	Camshaft and bearings.	Pistons.	Main crankshaft bearings.	Valve push rods.

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25	If a lube oil analysis report was received indicating a decrease in the TBN, what would you suspect?	Fuel contamination.	Incorrect oil has been used for topping up.	Combustion product contamination.	Jacket water contamination.
26	What would be an acceptable repair for a cracked main engine crankcase?	Electric arc welding of the crack.	Welding a doubling plate in place over the crack	Using a cold, metal stitch repair of the crack.	Low temperature brazing of the crack.
27	On a slow speed, diesel main engine the repositioning of exhaust cams for reverse operation is unnecessary when...	the exhaust timing is unsymmetrical about bottom dead center.	the fuel timing is symmetrical about top dead center.	the exhaust timing is symmetrical about bottom dead center.	the engine operates on the 4 stroke cycle.
28	If, after overhaul of a centrifugal pump, difficulty was experienced in obtaining any suction, what would you first inspect?	The pump shaft seal.	The pump priming system.	The pump suction and discharge valves.	The pump cover joint.
29	In the event of oil contamination on the water side of any boiler, how should the boiler be treated after repairing the source of the leak?	The boiler should be blown down and refilled with distilled water, and steam raised slowly.	The boiler should be boiled out using an alkali additive.	The boiler should be boiled out using an acid solution, and be scummed at regular intervals until clean.	The boiler should operated at reduced pressures until it can be manually cleaned.
30	When in a foreign port who would you expect to undertake a "loadline survey"?	A surveyor from the ship's registration authority.	A marine surveyor authorised by the ship's registration authority.	A surveyor from the classification society.	A local registration authority surveyor.

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31	If during overhaul, several of an alternator diesel engine bottom end bearing bolts appear to be stretched, what would you do?	Make a note in the planned maintenace record for them to be checked at the next service.	Renew all of the bottom end bolts.	Renew only the apparently stretched bottom end bolts.	Take the engine out of service until a marine surveyor could check the bolts.
32	While the vessel is alongside in port, the engine room bilges are filled due to maintenance work on the engine cooling system. How would you deal with this situation?	Authorise pumping the bilges over the side via the oily water separator and note in the Oil Record Book.	Instruct the watchkeeper to lower the bilges only, using the separator over the side.	Organise the bilges to be pumped to a shoreside reception facility or barge.	Instruct the watchkeeper to pump bilges into the bilge holding tank.
33	Which of the following would indicate a cracked liner or cylinder cover?	Increased cylinder exhaust temperature.	Increased lube oil consumption.	Lifting of the cylinder head pressure relief valves.	Boiling up of the jacket water header tank.
34	If the main engine fuel oil filters require constant cleaning which of the following is the most likely?	Water contamination of the fuel oil.	Presence of bacterial growth in the fuel.	High sulphur content in the fuel.	Fuel is being stored at too high a viscosity.
35	If a diesel engine exhaust valve rotator failed in service, what might you expect to happen?	Burning of the exhaust valve edge.	Seizing of the valve stem in the guide.	Damage to the valve seat.	Decrease in valve tappet clearance.
36	When in rough weather the UMS engine room bilge alarm keeps sounding though the level is not excessively high, what would you suggest the watchkeeper does?	Lower the bilge level by pumping to the bilge holding tank.	Raise the bilge level and cancel the alarm.	Disconnect the alarm and inspect the bilge regularly.	Pump the bilges over the side.

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37	In an exhaust boiler, using only exhaust gas as a heat source, would there be any risk of explosion on the gas side?	There is no possibility of an explosion in such boilers.	It is possible for unburned engine fuel to cause such an explosion.	An explosion can only occur if the boiler runs short of water while in use.	A scavenge fire can cause an explosion in such a boiler, if the tubes are very dirty.
38	The low pressure alarm for a diesel engine jacket cooling water system should be set...	slightly lower than normal pressure, with the pump working.	slightly lower than the static system pressure, with the pump stopped.	slightly higher than the static system pressure, with the pump stopped.	exactly equal to the static system pressure, with the pump stopped.
39	If the watchkeeping engineer reported the main lube oil filters required constant cleaning, what would you advise him to do?	Take a lube oil sample and carry out a test using the test kit.	Slow the engine and check all temperatures and pressures.	Run with both filters in use.	Check that the purifier is operating efficiently.
40	When carrying out a "loadline survey" what is the surveyor most concerned with?	The watertight integrity of the vessel.	The accuracy of the draft markings.	The security of the hatch coverings.	The plate thickness of the main deck.
41	If, in a refrigerant system, all of the pressures and temperatures are normal, what would be indicated by bubbles in the sight glass?	Low refrigerant charge.	Air in the refrigerant.	Expansion valve jammed shut.	Condenser requires cleaning.
42	If the refrigerating plant required constant addition of refrigerant, the first place to check for gas leakage would be at the...	expansion valve.	room evaporator units.	compressor crankshaft seal.	compressor discharge valve.
43	Should a waste heat boiler lose its water level whilst operating, the best procedure would be to...	allow the boiler to run "dry" for a short period.	shut down the boiler immediately to avoid damage.	by-pass the exhaust gases.	slow down the engine, lowering the exhaust temperature.

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44	If you experience a crankcase explosion, how would you establish the cause?	Open up all of the crankcase bearings and check condition.	Feel round all suspect crankcase areas as, even after cooling, a hot spot remains detectable.	Run the lube oil pump and check for inadequate flow.	Turn the engine and locate the tight spot.
45	If the alkalinity of the main engine jacket water was dropping, what would you check for?	External water leakage.	Addition of too much additive.	Sea water contamination.	Contamination of the topping up water.
46	If the air conditioning compressor suction and delivery valves are closed for test and the compressor is losing gas pressure rapidly, which of the following would you check for refrigerant leakage first?	The unloader linkage seals.	The main isolating valve glands.	The gauge pipe connections.	The main shaft seal.
47	If you suspected that the auxiliary boiler had been operating with the feed water seriously contaminated with sea water, what action would you take?	Add more chemical treatment to the feed water.	Shut down the boiler and descale the heating surfaces.	Blow down the boiler to reduce the high chloride readings.	Operate the boiler on low flame setting only.
48	What does it mean when a classification society inspects a vessel by "special survey"?	The entire vessel must be surveyed every 4 years.	The vessel must be completely surveyed over a 4-year cycle.	The complete vessel is surveyed by special arrangement.	The vessel's planned maintenance schedule is inspected routinely.
49	After a major overhaul and survey of an auxiliary diesel engine, which of the following would the surveyor wish to check before returning to service?	That all of the covers have been replaced.	That the lube oil charge has been renewed.	That the overspeed trip operates at the correct setting.	That the engine can be started and stopped from the control room.

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ANSWERS	
1	A
2	D
3	B
4	A
5	C
6	C
7	D
8	C
9	D
10	C
11	B
12	A
13	B
14	D
15	D
16	C
17	B
18	C
19	A
20	C
21	B
22	C
23	D
24	D
25	C
26	C
27	C
28	B
29	B
30	B

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ANSWERS	
31	B
32	C
33	D
34	B
35	A
36	A
37	B
38	C
39	D
40	A
41	B
42	C
43	C
44	B
45	A
46	D
47	B
48	A
49	C