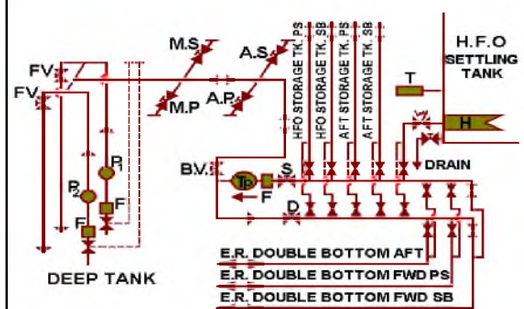
GUÍA DE ESTUDIO - JEFE DE MAQUINAS						
Q. Number	**Question**	**IMAGEN**	**A**	**B**	**C**	**D**
	MANAGE FUEL AND BALLAST OPERATIONS					
1	If when in port there is an urgent need to pump bilge water from the vessel, what would you do ?		Authorise pumping the bilges over the side via the oily water separator.	Instruct the watchkeeper to lower the bilges only during night time.	Issue strict instructions that the bilges must only be discharged to a shore tank or barge facility.	Instruct the watchkeeper to pump bilges to the dirty oil tank or sludge tank and note in logbook
2	After bunkering when all the fuel oil tanks have been topped off, which of the listed procedures should be followed next ?		The pressure vacuum relief valves should be reset.	The tanks should be sounded to make sure the levels are not rising.	The tanks should be marked with a bull stamp on the manifold filling valve.	All of these options.
3	A pump can empty a tank in 12 hours, another pump can empty the same tank in 4 hours, and another can empty this tank in 9 hours. If all three pumps are used together, how long would it take to empty it ?		4/9 hours	2 and 1/4 hours	2 hours	3 hours
4	Every ship above 400 tons gross shall be provided with tank(s) of adequate capacity to receive oily residues or sludges such as those resulting from		heavy fuel oil purification leakages, lantern and scavenge spaces leakages and drainages from engines.	lubricating purification and crankcase leakages from machinery and stern tube leakages.	diesel oil leakages from purification, main and auxiliary engine fuel leakages.	All oil leakages in the engine room inclusive of these.
5	Concerning the designing and construction of Machinery Space Oily Residue Tanks (Sludge Tanks) what requirements, besides capacity, need to be met ?		All engine room overflows and leakage tanks must drain into them..	They must be capable of being pumped overboard through a 15ppm separating system.	They must have cleaning facilities and arrangements to discharge to reception facilities.	They must have steaming out and pumping out connections fitted.

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6	For ships not fitted with a sludge burning incinerator, the sludge tank capacity shall be directly proportional to		the size of the vessel.	the total horse power (or kWatt) generated in the engine room.	the amount of fuel purified for daily consumption times the maximum period between voyage ports.	the number of purifiers fitted on board times the maximum range of the ship.
7	Written information must be available each time a ship carries out bunkering operations inclusive the titles. This information includes the names of the persons engaged in bunkering operations. Which persons ?		The responsible person in charge, the engineer officer in charge of bunkering in the engine room and the person(s) assigned on deck.	The chief engineer, the engineer officer in charge in the engine room and the petty officer on deck.	The chief engineer, the duty engineer and the duty officer.	The responsible person in charge, the duty engineer, the engineer in charge of bunkering and the stand-by team on deck.
8	Written information must be available each time a ship carries out bunkering operations. This information must include the following....		the specific gravity of the oil and the level at which bunker tanks are to be closed.	the ventilation and overflow system of each tank and the bunker rate in tons per hour.	the procedures for topping off tanks and the bunker slow down rate.	the bunkering rates, procedures for topping off tanks and the level at which bunker tanks are to be closed.
9	Written information must be available each time bunkering operations are carried out. This should include information about reporting oil spills and provide contact details for which of these organisations?	I = The police. II = The Fire Brigade. III = The terminal representative. IV = The agents. V = The Company's representative or responsible person. VI = The Port Authorities. VII = H & M underwriters. VIII = Local P & I agents. IX = When trading in the USA, the National response Centre (NRC) and the US Coast Guard.	II, III, IV, VI, VIII, IX	I, II, III, VI, VII, VIII	I, III, IV, V, VIII, IX	III, IV, V, VI, VII, IX
10	When taking fuel oil bunkers the start and stop times must be entered in the...		ship's official log book.	engine room log book.	Chief Engineer's fuel records.	Oil Record Book.
11	The efficiency of an oily water separator will be adversely affected by the presence of which of the following in the bilges?		Carbon cleaning solvents.	Proprietary hand cleaning materials.	Cleansers for washing down engine room paintwork.	Any of these will affect the efficient operation of the separator.

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12	In a general cargo vessel, how often should the hold bilges be tested?		At 6 monthly intervals.	As required by the classification society.	After every discharge, before loading the next cargo.	Annually, in preparation for the load line survey.
13	The ability of an oil to separate cleanly from any water present is referred to as its...		precipitation number.	demulsibility.	emulsification factor.	neutralization number.
14	The output volume of a positive, fixed displacement pump can be changed only by...		regulating the suction valve.	changing the speed of the pump.	regulating the discharge valve.	moving the shaft trunnion block.
15	Main sea water circulating pumps must have an emergency bilge injection valve with a suction diameter of at least...		one-third the diameter of main sea water inlet.	two-thirds the diameter of main sea water inlet.	half the diameter of main sea water inlet.	the diameter of the main sea water inlet.
16	The combined area of the perforations in a bilge suction pipe strum plate must not be less than...		the area of the suction pipe diameter.	half the area of the suction pipe diameter.	twice the area of the suction pipe diameter.	the area of the pump suction inlet.
17	What should be the outlet area of air pipes fitted to double bottom fuel tanks?		150% greater than that of the fuel filling pipes.	Not less than 75% of the area of the fuel filling pipes.	At least equal to that of the fuel filling pipes.	At least 25% greater than that of the fuel filling pipes.
18	What gauge screen should be used for the flame screen on a pressure-vacuum (PV) valve?		4 wires/cm	24 wires/cm	8 wires/cm	12 wires/cm
19	How are high capacity liquid cargo pumps normally controlled?		Manually, from the pump room lower level.	Remotely, from the cargo control room.	Manually, from the cargo control room.	Remotely, from the engine room.
20	A centrifugal pump is not normally fitted with a relief valve, because the throughput is...		minimum when the discharge head is minimum.	maximum when discharge valve is shut.	maximum when the head is minimum.	minimum when the head is maximum.
21	What is the greatest danger associated with overfilling double bottom ballast tanks?		Flooding the engine room.	Holing the ballast lines.	Over stressing the tank tops.	Holing the air vent pipe.
22	Why is a float control valve fitted in the line to the vacuum pump from a bilge and ballast pump suction?		To prevent air from passing to the vacuum pump.	To prevent dirt from passing to the vacuum pump.	To allow only air to the vacuum pump.	To prevent a vacuum forming in the bilge and ballast pump suction.
23	Machinery space oil/water separators are required to reduce the oil content in the discharge to...		less than 15 parts per million (ppm), if used in"special areas".	less than 100 parts per million (ppm), for discharging in all sea areas.	less than 15 gallons per hour while in port or 100 gallons per hour while at sea.	15 parts per million when used anywhere.
24	Which of the following conditions in oil/water separators would contribute most to oil carry-over with the water discharge?		High throughput, cold mixture & high oil density.	Low oil density, low throughput & hot mixture.	Hot mixture, low oil density & high throughput.	Cold mixture, high oil density & low throughput.

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25	Which of the following pumps would normally have a priming unit attached?		Ballast pump.	Fuel oil transfer pump.	Boiler feed pump.	Sea water cooling pump.
26	Where clean ballast pipes are led through cargo oil tanks in tankers, all pipeline joints should be...		welded.	expansion type.	flanged.	only at bulkheads.
27	A centrifugal, ballast pump's delivery pressure drops, overloading the motor as the flow increases. What should you do to reduce the load?		Increase the pump speed.	Throttle the pump suction valve.	Throttle the pump discharge valve.	Decrease the pump speed.
28	Ballast tank air vent pipes are fitted with...		flame screens at the upper ends.	ball float valves at the upper ends.	open goosenecks at the upper ends.	shut off valves at the main deck.
29	Which of the following conditions is likely to contribute most to good performance of oil/water separators?		Cold mixture, laminar flow & high oil density.	High oil density, turbulent flow & hot mixture.	Turbulent flow, high oil density & high discharge rate.	Laminar flow, hot mixture & low oil density.
30	Which tanks must be empty before commencement of bunkering?		Settling tanks.	Double bottom tanks.	Daily service tanks.	Overflow tank.
31	The vessel's "Oil Record Book" requires which of the following information to be recorded when discharging bilge water?		Start and stop times.	Ship's position.	Quantity and type of discharge.	All of this information is required.
32	What is the best way to obtain a sample when loading bunkers?		Requesting a sample from the supplier.	By using the drain valve in the ship's loading line.	By dropping a sampling can after 1m of fuel has been loaded.	By taking a sample from one of the filled ship's tanks.
33	You are simultaneously filling 2 fuel tanks of unequal capacity but equal depth. Which should be topped off first?		The smaller tank.	The larger tank.	The tanks should be topped off simultaneously.	The tank furthest from the loading line.
34	When pumping out clean ballast tanks the most important consideration is...		not to run the ballast pump dry.	to maintain the ship's upright position.	to monitor the oil content.	to maintain the ship's trim.
35	Why are centrifugal type cargo oil pumps usually fitted with impellers of the double-entry type?		To increase the velocity of the discharged oil.	To reduce the radial thrust on the impeller.	To increase their capacity.	To balance the axial thrusts.
36	If a vessel causes pollution at sea, who is held responsible?		The ship's Master only.	The ship's owner and the ship's Master.	The ship's Master and the person who causes the pollution.	The Chief Engineer.
37	Which pumps are most suitable for duties which involve large volumes of fluid with low/medium differential pressures?		Rotary vane and diaphragm pumps.	Reciprocating and rotary pumps.	Screw and vane pumps.	Centrifugal and axial flow pumps.
38	When fuel oil drain tanks or overflow tanks are built into the double bottom structure, they must be provided with...		remote-operated quick closing suction valves.	non-return valves fitted on suction lines.	an independent suction to the transfer pump.	a gas-tight level indicator.

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39	What can account for slight discrepancies between supplier and ship's bunker figures?		Accuracy of the measuring equipment.	Alteration of S.G. due to temperature variation.	Variations in unpumpable oil remaining in ship's tanks.	Any of the other answers might cause a discrepancy.
40	A pump serving both bilge and ballast systems will have...		non-return valves on the ballast suctions.	blanks on the ballast suctions.	non-return valves on the bilge and ballast suctions.	screw lift, butterfly or gate valves on the ballast suctions.
41	What is the most effective method of establishing the correct quantity of bunkers delivered onboard?		Noting supplier's tank gauge readings before and after bunkering.	Checking the flow meter reading before and after bunkering.	Sounding the supplier's tanks before and after bunkering.	Obtaining an invoice from the supplier detailing the amount delivered.
42	What is the arrangement for filling and discharging the ballast tanks on a general cargo vessel?		By separate filling and discharging lines and valves.	By separate lines to a single shut off valve.	By a single line to separate filling and discharging valves.	By a single line and valve for each tank.
43	All vent pipes from fuel oil tanks are fitted with...		open goosenecks.	flame screens.	open ends at the main deck level.	a connection to the overflow system.
44	Sounding pipes to fuel oil tanks must not terminate in either...		refrigerated spaces or battery rooms.	machinery spaces or refrigerated spaces.	battery rooms or accommodation passageways.	accommodation passageways or machinery spaces.
45	You are going to fill a deep tank with water ballast, after discharging a general cargo. What must you do to the smoke detection piping?		Close a valve near the inlet.	Test it for water tightness.	Connect an extension pipe which leads into the coaming.	Remove the pipe from the tank and blank it off.
46	Pumping bilges in port is always forbidden unless...		pumped to a shore reception facility.	the bilges are only lowered.	emulsifying chemicals have been added to the bilge water.	the bilge water appears to be clear.
47	Ballast systems are sometimes served by pumps which also serve...		fresh water systems.	bilge systems.	sea water cooling systems.	fuel oil systems.
48	Fuel oil tanks within the machinery spaces should be fitted with...		filling connections with quick closing valves.	gauge glasses with quick closing valves.	quick closing fuel outlet valves.	remote reading contents gauges.
49	An ullage reading is the distance from a given point at the...		sounding tube to the tank bottom.	top of the tank to the bottom of the tank.	the liquid level to the bottom of the tank.	top of the sounding tube to the liquid level.
50	What is the required minimum thickness of clean ballast pipes which pass through cargo tanks of an oil tanker?		At least 16mm.	The same thickness as the main cargo oil piping.	Twice the thickness of the main line ballast piping.	A thickness 25% greater than that of the cargo oil lines.
51	The bilge and ballast suctions for a deep tank on a cargo vessel should both be blanked when the deep tank contains...		only edible oils.	any liquid cargo.	dry cargo.	only hydro carbon oils.

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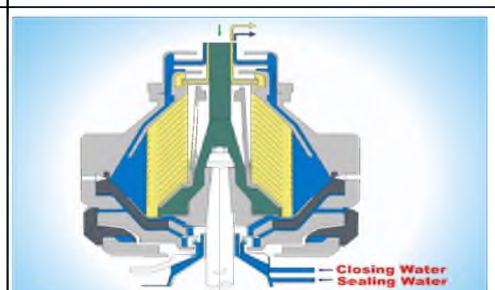
52	When you are discharging volatile cargo, the discharge efficiency is sometimes reduced by gassing-off in the suction piping, even when the suction inlet is still covered by cargo oil. What causes this?		The heavy oil fractions begin to vaporize as the tank level falls.	The lighter oil fractions vaporize more easily as the tank level falls.	Excessive inert gas pressure builds up in the tanks.	The pumps speed up, which is normal at this stage of discharge.
53	The engine room bilges are prevented from accidental flooding back from the bilge main by...		subdivision of the bilge system.	a positive displacement bilge pump.	non-return valves on the bilge suction chests.	a swing blank installed before each bilge valve.
54	When bunkering operations are complete, the hoses should be...		emptied into storage drums.	emptied by the supplier and blanked.	swung ashore vertically to prevent spillage.	Flushed through with light oil before disconnecting.
55	When a tank is being emptied and the liquid level becomes low it is common practice to...		speed up the pump maintain suction.	slow down the pump to maintain suction.	run the pump at a constant speed until it trips.	stop pumping before the pump loses suction.
56	When a deep tank on a cargo vessel is used for carrying dry cargo, what should the ring and blank suction arrangements be?		Bilge and ballast suctions connections both blanked.	Bilge suction blanked and ballast suction open.	Ballast suction blanked and bilge suction open.	Bilge and ballast suctions both open.
57	Cargo line suction points within cargo tanks are normally fitted with...		strainer boxes.	bell mouths.	non-return valves.	strainer plates.
58	If the engine room bilge holding tank was nearly full, what arrangements would you make for emptying this tank?		Pump most of the contents directly overboard as they will be water.	Organize transfer to a shore reception facility at the next port.	Discharge the entire tank contents through the oily/water separator.	Drain off any clean water into the bilges and pump overboard via the separator.
59	When is it permitted to ballast empty fuel oil tanks?		If an independent ballast pump is installed.	If such tanks are double bottom tanks.	When they no longer contain any fuel oil vapor.	If an oil/water separator is fitted.
60	What will cause the oil/water interface in this centrifugal separator to move outwards from its correct position?		An increase in the oil flow rate.	A decrease in the viscosity of the oil.	An increase in the temperature of the oil.	An decrease in the temperature of the oil.

GUÍA DE ESTUDIO JEFE DE MAQUINAS	
MANAGE FUEL AND BALLAST OPERATIONS	
ANSWERS	
1	C
2	B
3	B
4	D
5	C
6	C
7	A
8	D
9	A
10	D
11	D
12	C
13	B
14	B
15	B
16	C
17	D
18	D
19	B
20	D
21	C
22	C
23	D
24	A
25	A
26	A
27	C
28	B
29	D
30	D
31	D

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MANAGE FUEL AND BALLAST OPERATIONS	
ANSWERS	
32	B
33	A
34	B
35	D
36	C
37	D
38	C
39	D
40	D
41	C
42	D
43	B
44	A
45	D
46	A
47	B
48	C
49	D
50	A
51	B
52	B
53	C
54	B
55	B
56	C
57	B
58	B
59	D
60	D