Subject Area – 1
(a) Terms used in machinery spaces and names of machinery and equipment.
1. What is an internal combustion engine, Difference between petrol and a Diesel engine? Difference between a four stroke cycle and a two stroke cycle engine. How do you classify slow speed, medium speed and high speed engines? The names of the principal parts of the diesel engine.
2. Differentiate between a main engine and aux machinery. The different systems in the engine room. Such as fresh water, sea water, fuel oil system, lube oil system, sea water and freshwater sanitary system.
3. List the machinery installed in the engine room and state the function of each (A sketch of the lay out would be helpful)
4. Explain the engine room department organization and the duties of each individual.

(b) Engine room watch keeping procedures
Define terms like pressure, temperature, heat, atmospheric pressure, vacuum, pressure gauge, thermometer, level gauge. State the units of pressure temperature. Level and flow
State the watch keeping duties of a rating in port at sea and when the ship is manoeuvring in/out of port.
State what are the parameters to record on the engine and auxiliaries in the engine log book. What does a rating do initially before taking over an engine watch?
What is meant by engine control room also called MCR
When you hear an alarm what do you do and how do you distinguish it. Where the steering gear located is and what checks will you carry out on your rounds.

(c) Safe working practices as to engine room operations.
1. State personnel protective equipment.
2. What precautions do you take when the day workers are hoisting the Auxiliary generator engine at a sea.
3. What are the uses of spanner, glues, screwdrivers, screw spanner and Allan keys?
4. What is open ended / ring ended and socket spanners
5. What is the difference between a Beach and Pipe Viscs?
6. What are various parameters to be checked each time when you enter into the engine room?
7. What are the different types of hammers used on board the ship?
8. What is a torque wrench, and where is it used?
9. How do you operate the engine room bilges at sea and in port?
10. Who do you inform in case there is an engine alarm?
11. How do you respond when you hear an oil mist detector alarm. State action taken and the possibility of evacuating the engine room?

(d) Basic environmental protection procedures.
State the means of seeing the boiler water level in a remote location.
State the location of the fire control room and equipment provided.
State the precautions a watch keeper takes when operating portable electric equipment.
State how the quick closing valves are closed from a remote location.
State the class of fire which commonly occurs in the engine room?
State that there are the different types of alarms for various functions in the engine room.
State the difference between a Co2 alarm and a general alarm.
State what is the action to be taken when a watch keeper hears a Co2 alarm in the engine room

Subject Area – 2
Safe operation of boilers
1. Define boiler and state the use of boiler on board.
2. State types of boilers
3. List all the mountings on the boilers and uses
4. State what is blow down and why it lie done.
5. State what is shot blown and why is shot blowing carried out.
6. Describe the fuel systems of the boiler.
7. Describe the fuel burners. State the importance of purging the furnace before Igniting a burner. State the consequences of a back fire.
8. Explain the starting and stopping procedure of a boiler.
9. State the duties of a boiler watch. What risks are posed when working beside a boiler
10. State the means of seeing the boiler water level in a remote location.

Subject Area – 3
(a) Engine room alarm systems and ability to distinguish between various alarms with special ref to fire fighting
State that there are the different types of alarm for various functions in the engine room.
State the action to be taken when a watch keeper hears a Co2 alarm in the engine room
State the difference between a warning alarm and an alarm.
State the differences between a fire alarm and an emergency alarm
The action to be taken by a watch keeper when he hears an Engine alarm.
State the difference between a Co2 alarm and a general alarm
State the action to be taken when a watch keeper hears a Co2 alarm in the engine room
State that there are the different types of alarms for various functions in the engine room.
State the difference between a Co2 alarm and a general alarm

(b) Knowledge of Emergency Duties and Escape Routes
1. What is an emergency?
2. What are the various emergencies that may occur in Engine room?
3. State the importance of escape route in engine room,
4. State the action to be taken when a watch keeper hears a Co2 alarm in the engine room
5. What will you do if engine room is getting flooded?
6. In case of a fire in the engine room, why is the escape route considered safer than the normal staircase in the engine room?
7. State that an EEBD (emergency escape breathing device) is used to escape from the engine room in the event of a fire.

(c) Fire Fighting Equipment in Engine room
1. Identify different types of fire extinguishers from the available models or diagrams. How each type is to be used? Suitability for fire type?
2. State the common causes of fire in engine room.
3. State the class of fire which commonly occurs in the engine room?
4. List the different types of extinguishers you will find in engine room
5. State what Means is provided for extinguishing large fires in the engine room like Co2, high expansion foam, water fogging systems etc.
6. How will you light an electrical fire in engine room?
7. State the precautions a watch keeper takes when operating portable electrical equipment.
8. State how the quick closing valves are closed in engine room.
9. State the location of the fire control room and equipment provided.
10. State the location of the Co2 room and release mechanism. List the checks to be made before Co2 is Released in the engine room.