第三版轮机英语听力与会话资料

第一章　公共用语

1. The engine room.

The engine room is the heart of the ship. There are a lot of machines in there. These machines provide power or assistant for the ship's propulsion ,or the power of daily used for the crew (daily lighting /cooking…). The main engine which is the heart of the engine room, it can supply power for the ship's propulsion, so you must especially to take care of it. （The auxiliary engine like boilers which is used for producing steam, air compressors are also important. Without them the ship can't operate. So as a cadet of the engine department, you should be familiar with them, and keep them in good running condition.)

2． The engine department.

1) The engineer and ratings in our engine department.
2) We are working hard to keep our engine tidy and clean.
3) We are standing together regardless of situation.

There are 11 people in our engine department. The chief engineer is in charge of the engine department. There are 4 engineers, 6 motormen and 2 electricians in our department. We work together in the engine room. We maintain the main engine and the auxiliary machine there. We often check the pressure of the fuel injectors and the temperature of the cooling water. We do repair work too. We all work hard to keep our engine room clean and tidy. We are standing together regardless of situations.

3. Self-introduction.

1).Your education background

2).Your working experience

3)Your family

My name is… I am…years old. I come from…. I am single. I graduated from GuangZhou Marine Technical School in 2003. I have been working on board as an engineer for about 5 years. In my spare time, I like listening to the music, reading books and doing some exercises. I like my job very

much.

4. Your daily work on board

1) Your position on board.

2) Your duties during watch-keeping and your experience.

I work as an engineer on board. I like the life on board. My main work is to keep all the pipes and pumps in good condition. Sometimes I have to do some repair work such as repairing the air compressor or pump cylinders. As my experience the most common problem is the pump cylinders.

5. Watch-keeping in the engine room

1) The engineer on duty works for 4 hours each watch.

2) He has to keep everything in good order.

3) He is going to hand over the shift.

The engineer on duty works for 4 hours each watch. He shall be able to service all the machinery. He has to maintain the machinery in good working condition. I am an engineer on board. I am in charge of deck machinery, all pumps, lifeboat, diesel engine and so on. Sometimes I have to do some repair work. When something goes wrong, I have to check and remedy it.

6. Could you introduce yourself?

My name is …… I am … years old. I graduated from …..University. I majored in Engineering. I have bachelor degree now.

六 问答

1. How long have you worked on board?

I have worked on board for 5 years.

2. Which certificate do you have now?

I have a fourth engineer certificate now.

3. What is your marital status? How many departments are there on board?

I'm single./ I am married.

There are three departments: engine department, deck department, service department.

4. How many people are there in your family? Are you married?

There are three people in my family. No, I'm still single. / Yes, I am married.

5. How many countries have you ever been to?

I've been to many countries, such as Singapore, Japan, Australia and so on.

6. When did you begin to work on board? What kind of ship have you worked on?

I began to work on board in 2003; I have worked on many kinds of ship, such as cargo ship, container ship, passenger ship.

7. How many important canals are there all over the world?

There are three canals. They are Panama Canal, Suez Canal and Kiel Canal.

8. Can you tell me what is the most important thing for a seafarer?

I think it is safety.

9.What kinds of main engine and generator engine have you worked on?

Large slow speed crosshead type marine diesel engine and high speed four stroke engine for A.C generator. / I've served several models, for instance, main engine: Sulzer RTA 84c type diesel engine, 4150BCF /4110AD type generator engine.

10. Which classification society is your ship registered with?

She is registered with (CCS) China Classification Society.

11. Have you worked any ship that caused damage in critical equipments?

No, I served my job cautiously, and my colleagues were also diligent. We kept the vessel in safe operation./ Yes, I have worked on a bulk carrier that the main engine had damaged.

12. How do you make your maintenance schedules?

Usually, the monthly maintenance schedules are made based on the annual preventive maintenance plan and the basic occasional maintenance work(通常月度维护计划是基于年度预防维护计划和非经常性发生的工作来制定的)。

13. Could you list international conventions concerning maritime shipping?

Yes, of course. For example: STCW, SOLAS, MARPOL, IMDG CODE, and so on.

(STCW--- International Convention on Standards of Training, Certification and Watchkeeping for Seafares. (1978 海员培训、发证和值班标准国际公约。

SOLAS--- International Convention for the Safety of Life at Sea.国际海上人命安全公约

MARPOL--- International Convention for the Prevention of Pollution from Ships 1973. 1973 国际防止船舶污染公约

IMDG CODE---- International Maritime Dangerous Goods Code.国际海运危险货物规则）

14. Could you tell the usages of the STCW convention?

STCW stands for International convention on standards of training, certification, and watch-keeping for seafarers. That is, it concerns training, certificate standards ,watch—keeping.

15. What is the purpose of classification society? Could you list some of them?

The Classification society devoted to evaluate the condition of the ship, the management system of marine company and the ships. It is non-governmental. The famous Classification societies are NV, Lloyd's, BV, ABS, CCS.

16. Could your list different kinds of ship's surveys?

Yes, of course. For example: annual survey, periodical survey, special survey, temporary survey, average survey, docking surveys, and so on.

17. What does UMS stand for? Have you served UMS?

UMS stands for Unattended Machinery Space. Yes, I have served UMS.

18. Have you ever studied SMS? What is SMS?

Yes, I have. SMS stands for Safety Management System.

19.What should be paid attention to in the overhaul of a cylinder?

Every operating must be complied with the precaution measures regulated in the SMS.

20.Before entering an enclosed space such as ballast tank, what action will you take?

Check the content of oxygen and ventilation.

21.Please tell me the minimum safe oxygen percentage for the safety of the workers in an enclosed space.

More than 18% and no more than 23% of oxygen in an enclosed space will be ok for the safety of the workers. 大于 18%，小于 23% 的氧气含量是安全的

第二章 机舱日常业务

五 口述

1. Please describe the difference between the diesel engine and the gasoline engine. (See Fig. 2-1 and Fig. 2-2)

There are many differences between the diesel engine and the gasoline engine. For example:

(1)the gasoline engine is operated with four -stroke, but the diesel engine could either be operated by four or two.

(2)The diesel engine is started by compressed air or electric motor, but the gasoline engine is normally started by motor and fired by spark plug.

(3)The diesel engine is a large type usually, it could produce much more power than the gasoline engine, and it has high mechanism efficiency, so it's the most commonly used engine on board ship

2. Xiao Wang is a cadet of the engine department, who just graduated from Shanghai Maritime University. How do you introduce all the engine room to him?

The engine room is the heart of the ship. There are a lot of machines there. These machines provide power or assistant for the ship's propulsion ,or the power of daily used for the crew (daily lighting /cooking…). The main engine which is the heart of the engine room, it can supply power for the ship's propulsion, so you must especially to take care of it. The donkey engine like boilers which is used for producing steam, air compressors are also important. Without them the ship can't operate. So as a cadet of the engine department, you should be familiar with them, and keep them in good running condition.

3. Xiao Zhang is a three-year student majoring in marine engineering from Shanghai Maritime University. How do you introduce the equipment and machinery in the engine room?

There are many machines in the engine room. The main engine is the heart of the engine room;

it could supply power for the vessel's propulsion. There are a lot of donkey engines in the engine room: boilers for producing steam, fresh water generator is used to produce fresh water from seawater, air compressor is used to supply compressed air … . So as one of engine department, you should be familiar with them, and keep them in good running condition.

4. Look at the illustration and say something about the disposal of the shafting and diesel engine.

The power of the diesel engine is transmitted to the propeller through the transmission system. The items of transmission system include various shafts, such as the thrust shaft, one or more intermediate shafts and tail shaft. These shafts are supported by the thrust block, intermediate bearings and the stern tube bearing. The propeller consists of a boss with several blades. The thrust is transmitted along the shafting to the thrust block and finally to ship structure.

5. Look at the illustration and say something about the probability of medium-speed and high-speed diesel engine.

When the ship is sailing at full speed, it needs four engines running. When the ship is sailing at half speed, it requires two engines running. While the ship is operating at about 30 % of full speed, one engine is enough to meet its power requirement. That is, the ship can be operated with single engine, double engines, or four engines according the load condition. Generally, when the ship is sailing at sea speed, it has four engines running, while it approaches the wharf, it has two in running.

6. Look at the illustration and say something about structure of the main engine.

The structure of the main engine is as follows:

（1） the construction mainly includes bedplate, frame, cylinders, pistons, connecting rod, main bearing and crankshaft.

（2） The crankshaft rests in main bearings built into cross girders of the bedplate. On the top of A frame there is a scavenging air box. The bedplate, frames and cylinder blocks are secured together by long tie-rods.

（3） A piston consists of a lower part called piston skirt and an upper part called piston crown.

7. Look at the illustration and say something about stress status of the moving parts.

The moving parts shown in the illustration mainly include the piston, the connecting rod, and the crankshaft. These are all critical/main parts of the engine. According to the specific condition shown in the picture, the piston is under compression force, the connecting rod is under tension stress and compression force, while the crankshaft is under the torsion forces.

8. Look at the illustration and say the type of piston head shape in diesel engine. (See Fig. 2-7)

knurled piston 圆顶活塞 dome head piston 凸顶活塞 flat head piston 平顶活塞 crown head piston(convex head piston)凹顶活塞 concave head piston 阶梯顶活塞

9. **Look at the illustration and say the types of piston ring(See Fig. 2-8)**

Pistons are usually equipped with piston rings. There are different kinds of piston rings in used. For example: In accordance with sub-section shape 按断面形状分,it can be divided into the following types: half keystone ring 半梯形环 Rectangular ring 矩形环 Chamfer Ring 倒角环 Twisted ring 扭曲环 and so on. By structure ,it can be divided into two main types: Scraping oil ring 刮油环, Gas Ring 气环, different kinds of piston ring has different functions, but all in all it including the function of **sealing, conditioning oil, Thermal conductivity (heat), Direction (bearing) 密封、调节机油（控油）、导热（传热）、导向（支承）**

10. Please describe the lubricating mode of main engine.

Large marine diesel engines of crosshead construction generally have **two** systems of lubrication: **a**

totally loss system feeding the cylinders and a circulating system lubricating the running gear and cooling the pistons. Oil is supplied to the cylinder liner wall and piston rings by means of mechanical lubricators. The lube oil to the various moving parts enables the formation of an oil film which reduces friction and wear.

11. Talk about the working principle of (oil) purifier according to the picture given.

Oil purifiers are used on board ship to treat fuel oil and lubricating oil.

The oil to be purified is first allowed to settle in a settling tank. Any large particles will settle out and can be drained every watch. After the oil has time to settle, it is passed through fine meshed wire filters to remove any coarse particles(油经过沉淀后 ,再通过细滤器去除大颗粒杂质). The oil is then sent to the oil purifier.

An oil purifier uses centrifugal force for separating dirt or water from oil. Oil to be purified is allowed to enter the bowl while it is rotating. The heavier components in the oil are thus forced outwards. The solid particles that are too fine to be removed by filtration are forced towards the circumference of the bowl.

（ Oil purifiers usually maintain a layer of water inside the bowl to act as a seal for the oil. Without the water layer to act as seal, the oil can flow out together with the particles and be lost. There will be a ring that acts like a barrier between the oil layer and the water layer. This ring is known as dam ring or gravity disc. The most common designs have conical plates to ensure the particles to clump together. The larger particles formed will weigh more and more and are able to be separated from the oil easier. ）

12. Talk about the working principle of oily water separator according to the picture given.

The oily water separator works on the principle of coalescing small oil droplets （聚结小油滴)in the water to form larger oil drops. When the oil drops becomes large enough, the lower density oil

drops floats up and collects at the top of the vessel. The water remains at the lower portion and is pumped overboard. The oil layer is pumped into an oily bilge tank, which can be pumped out at an oil collecting facility when the ship arrives at a port.

The separator consists of a vertical cylindrical pressure vessel（垂直的圆柱形压力容器）containing a number of inverted conical plates（反向的锥形板）. The oily water enters the separator in the upper half of the unit and is directed downwards to the conical plates. Large globules of oil separate out in the upper part of the separator while the smaller globules are carried by the water into the space between the plates. The rising velocity of the globules are carried them upwards where they become trapped by the under surfaces of plates and coalesce until the enlarged globules have sufficient rising velocity to travel along the plate surface and break away at the periphery.（油滴向上的速度使油水向上运动，油滴在捕集板的下表面被捕集，并开始集合，直到油滴长大至有足够的上升速度沿捕集板的表面运动并在四周分离） As the oil rises, it is caught underneath an annular baffle （在圆形挡板下面）and is led up through the turbulent inlet area by risers to collect in the dome of the separator. The water leaves the conical plate via central a central pipe which is connected to a flange at the base of the separator.

13. Talk about the anti-pollution equipment on board ship.

There usually is some anti-pollution equipment on board ships: they are oily water separator, incinerator and sewage treating system. (1)Oily water separators are used to ensure that ships do not discharge oil when pumping out bilge water or oily water from oil tanker preventing oil contaminated space. They should be used in conjunction with some forms of filters if greater purity is required. (2)**The incinerators are used to burn the solid waste. (3)And some biological sewage treatment plants are in use at sea to treat the sewage water the whole ship produced. All these equipment perform their duties to prevent pollutions from ship to the sea. (And we must take great**

care about them to meet the latest legislative requirements.)

14. Talk about the operation of the ballast system.

(1)The ballast system is arranged to ensure that water can be drawn from any tank or the sea and discharged to any other tank or the sea as required to trim the vessel. Combine or separate mains for suction and discharge may be provided. Where a tank or cargo space can be used for ballast or dry cargo then either a ballast or bilge connection will be required. (2)The system must therefore be arranged so that only the appropriate pipeline is in service; the other must be securely blanked（安全隔离） or closed off. The automatic filling of any tank may be obtained by opening the valve of sea water main connected to the discharge main. For operating the ballast system, care must taken when we open or close the relative valves. Usually the ballast pump is centrifugal pump, so it must be operated according to the requirement.

15. Talk about the operation of the bilge system.

（The operation of the bilge system is an import routine work, which needs great carefulness. When it is needed, the following procedure must be strictly observed:）

1) Discharge the bilge tanks one by one.

2) Open and close the relevant valves when changing over to another tank according to the operation procedure.

3) Stop pumping out when the bilge tank is nearly empty.

4) Pay attention to the filters and mud-boxes（油泥箱） to ensure no clogging

5) The discharge must meet the relative legislative requirements.

6) The operation must be recorded and reported to C/E.

（ The duty engineer should discharge the bilges before handing over a watch. And relief engineer should check the bilge level when taking over a watch.）

六、 问答

1. Please introduce one type of the main engine.

The main engine is large bore two-stroke crosshead type with turbo- charging system.

2. Please introduce fuel injection process of electronically controlled main engine.

In a electronically controlled main engine, the fuel is injected into all the cylinder via a " common rail". The fuel is first stored in the fuel line and then , when a signal is given by the engine controls to the magnetics valves, injected into the cylinders.

3.Please introduce dual fuel technology (双燃料技术) of main engine.

This kind of main engine can burn both natural gas and fuel oil used in large medium speed engine.

4. Why is the two-stroke engine widely used as the main engine on board ship?

Because the two-stroke engine could produce much more power than the four-stroke engine of the size.

5. Why is the air exchanging quality of four-stroke engine more than that of two-stroke engine?

Because four –stroke engine has an enough overlap between inlet valve opening and exhaust valve opening.

6.Please introduce three moving parts of marine main engine.

They are crankshaft, connecting rod, crosshead, piston

7.What's the sequence of the four strokes?

They are suction, compression, expansion and exhaust.

8.Please introduce four fixing parts of marine main engine.

They are bedplate, frame, cylinder block, scavenge air box.

9. What is called a working cycle of a marine diesel engine?

The operation between two fuel injections is called a working cycle.

10. What is the function of the tie rods used in marine diesel engine?

To hold the bedplate, A-frames and cylinder block together.

11. What are the function and feature of the tie rods?

The function is to hold the bedplate, frames and cylinder blocks together to form a rigid structure. The feature is long and good tensioning strength.

12. What's the function of the governor?

The main function of the governor is to regulate the speed of the main engine.

13. What is the feature of the governor?

The governor maintains the engine speed at the desired value by continually positioning the device in the fuel system to control the amount of fuel being injected into each cylinder per cycle.

14. What is used for connecting the piston rod and connecting rod?

The crosshead is.

15. What is used for sealing between the crankcase and scavenging air box?

It is piston rod stuffing box.

16. What are the two types of cooling system in the engine room?

They are fresh water cooling system and sea water cooling system

17. What's the function of the head tank(高位水箱) used in the cooling water system?

The head tank is used to remove the air in the system, make-up the cooling water and provide the head（压头） for the cooling pump and so on.

18. Please introduce the open cooling system.

The seawater is direct contact with the engine. But it is not found on diesel engine vessels now because seawater is somewhat corrosive.

19.Please introduce the close cooling system.

In a closed fresh water cooling system the fresh water is circulated through the engine, the engine jackets, the heat exchanger and the circulating pumps form a continuous circuit which is not open to the atmosphere.

20. Please introduce the central cooling system.

Some modern ships use a central cooling system with only one large seawater circulated cooler. This cools a supply of fresh water which then circuits to the other individual coolers. **With less equipment in contact with seawater the corrosion problems are much reduced in the system.**

21. What's the advantage of the central cooling water system?

With less equipment in contact with sea-water, the corrosion problems are much reduced in the central cooling system.

22.How to control fuel oil viscosity of main engine?

The fuel oil viscosity is controlled by the fuel oil viscosity regulator. / By controlling the oil

temperature.

23. Please introduce two sub-systems（子系统） of fuel oil system.

They are the fuel supply system and the fuel injection system.

24.Please speak out the function of the fuel oil viscosity regulator.

The fuel oil viscosity regulator is used to control the fuel oil viscosity.

25.How does the fuel oil viscosity regulator work?

By regulating the fuel oil's temperature.

26.Please tell at least three composition of fuel oil.

They are sulphur, ash content, cetane number.

27.Please name at least three of main factors to select a fuel oil.

They are viscosity, gravity and flash point and so on. (Viscosity, cetane number, calorific value, sulphur, ash content, flash point, setting point, specific gravity.)

28. What is the usual coolant used in the marine diesel engine?

The usual coolant used is fresh water.

29. Why sea-water is not used directly as a coolant in the marine diesel engine?

Sea-water is not directly used as coolant because of its corrosive effect.

30. What's the advantage of oil-cooling piston?

Leakage from cooling system to lubrication system are relatively unimportant providing they not too large, and can not cause contamination of the oil. Not chemical treatment required. 漏泄不会造成油的污染，不需要化学处理。

31. What's the disadvantage of water-cooling piston?

Leakage from cooling system to lubrication system can cause contamination of the oil, and spend a lot of management work. 漏泄会造成油的污染，管理工作量较大。

32. What's the function of the lubricating oil used in marine diesel engine?

The function of the lubricating oil is not only to lubricate the running surfaces, but also to carry away a great deal of heat.

33.How do you clean the lube oil filters?

We should dismantle and clean the lube oil filter./By washing with diesel oil

34.When do you clean the fuel oil filters?

When the pressure drop in the fuel oil filter is excessive./ The filter is clogged by impurities

35. Why must the cylinder oil have alkalinity?

In order to neutralize the acid products of combustion.

36.What's the function of the cylinder oil?

It's used to lubricating cylinders/transfer the heat and reducing the wear and tear./ Lubrication, sealing and removing heat.

37. How do you start the air compressor?

Check lube oil and cooling water first, then open the drain cock, start the air compressor final.

38. What do you pay attention to when you stand by engine?

Checked various pressure and temperatures, warm up the engine, turn the engine with turning gear and so on.

39. Do you know the reasons why the engine does not start on air?

Maybe the starting air pressure is too low or the turning gear is still engaged.

40. What should you periodically do for the air reservoir?

I should drain water from air reservoir.

41. What's the function of gas exchange in diesel engine?

To supply of fresh air and removal of exhaust gas. / To supply fresh air and exhaust the wasted gas.

42. What's the function of the supercharging in diesel engine?

The foundation is increased air density will raise scavenge efficiency.

43. How do you operate the main engine in cold weather?

I will warm up the main engine gradually.

44. How do you heat the main engine?

By circulating the cooling water which is heated to proper temperature.

45. How do you change diesel oil into fuel oil?

Fuel oil heated to proper temperature and open the fuel oil valve.

46. How do you change fuel oil into diesel oil?

Shut the steam valve; decrease the fuel oil temperature, open diesel oil valve.

47. What is the function of steering gear?

The function of the steering gear is to control the ship's course.

48. How do you measure the clearance of the main bearings?

We measure the clearance by means of a feeler or lead.

49. How do you measure the crank deflection of the main engine?

By crank deflection gauge.

50. Do you know why the diesel engine exhausts black smoke?

The combustion was not sufficient.(The air supply is too low or The fuel valves or atomizers are defective.)

51. Do you know why the diesel engine exhausts blue smoke?

Because the lube oil is burnt due to blow-by.

52. Do you know why the diesel engine exhausts yellow smoke?

Because of too much sulphur in the fuel oil.

53. Do you know why the diesel engine exhausts white smoke?

The fuel oil contains too much water or cooling water leakage.

54. What is the function of the turning gear?

The turning gear is used to turn the engine.

55. What does CPP stand for?

It stands for Controllable Pitch Propeller.

56. What does VIT stand for?

VIT stands for variable injection timing.

57. What's the type of the freshwater generator?

Multi-stage flash water generator

58. What's the type of the fuel oil separator?

It's centrifugal.

59. What's the function of the fuel oil separator?

The fuel oil separator is used to separate impurities and water from the fuel oil.

60. What's the type of the oily water separator?

It's Gravity separation, adsorbents, flocculents, ultrafilter, chemical addition with temperature-enhanced centrifugal devices and polymeric surface modified filtration.

61. What's the function of the oily water separator?

It's used to prevent the ship from discharging oil while pumping out bilge water.

62. What's the function of the incinerator?

It is used to burn the oil sludge and solid waste.

63. What is the oil content limit when pumping out the bilge?

The oil content limit is 15 PPM.

64. What is hot work?

It includes gas welding and electric welding.

65. Why do you often carry out the water treatment for the boiler?

Because the contamination of the water will cause problem, so we should treat it at regular intervals. / Because the impurities form scale.

66. What boiler is used on a motor ship at sea?

Exhaust gas boiler is used on a motor ship when the ship is at sea.

67. What boiler is used on a motor ship in port?

Donkey boiler is used on a motor ship when the ship is in port.

68. How do you decide to overhaul the main engine generally?

According to specific working condition and requirement of instruction book.

69. What is the function of the soot-blower?

The soot-blower is to blow away soot and the products combustion from the tube surface.

70. How do you grind the valve plate of air compressor?

Grind it in the path of “8” shape

71. What is used to connect a diesel engine and a generator?

The coupling is used to connect a diesel engine and a generator.

72. What is the most common marine refrigeration?

The compression refrigeration is the most commonly used type of marine refrigeration.

73. Please introduce four components required for a compression refrigeration system.

They are the compressor, condenser, liquid receiver, and evaporator.

74. How do you fill Freon 22 into the refrigeration system?

Through the special passage for Freon 22.

75. Why does the refrigerating compressor start and stop frequently?

Because it is low-pressure controller differential set too close, lack of refrigerant, dirty or iced evaporator, leaky liquid line solenoid valve, restricted line strainer.

76. What equipment is used to handle the anchors?

The windlass is used to handle the anchors.

77. Please name at least three items of deck machinery.

There are many machines on deck, such as windlass, derrick, winch and so on.

78. How do you drain off air of the injection pump?

By using vent screw.

79. How do you clean the disc of an oil separator?

With disc cleaner.

80. What should be prepared before disassembly of cylinder for main engine/auxiliary engine?Special tools, draining off the residual oil and water.

81. How do you manage sewage? Drop in sterilized medicine regularly; keep the blower in constant working.定期投药,保持鼓风机连续工作。

第三章 驾机联系

四 口述

1. Communications with officers.

In order to ensure the safe navigation of the ship, frequent communication between the engineers and officers is necessary. The usual means of communication is by telephone and telegraph. If the communication between the engine room and the bridge fails, the ship will be endangered. The records of communication should be maintained which will provide evidence in the event of an accident at sea. Noon report is also a good means of communication between the engine room and the bridge.

2. Noon report.

Noon report must be recorded every day. It is a table with three columns in it. The first one is about the daily performance data; There are six lines in the first columns, some of the data of main engine running, ship and voyage are to be entered here, such as the total revolutions and average rpm of M.E. between noons; the speed of the ship; the distance the ship has made and the distance still remains to the next port of call; and of course the ETA which can be calculated according to the present speed and situations. The second one is about the remarks from chief engineer if he has any; and the third is the log of working hours of the main engine and auxiliary engines.

3. Take over watch.

Before taking over an engineering watch, the relieving engineer should check various things.
(1)He should read the standing orders and special instructions of the chief engineer.
(2)He should be aware of all work being performed on machinery and systems.
(3)He should check the level and condition of fuel, water or residues in tanks and bilges.
(4)He should know the condition and mode of operation of the main and auxiliary systems
(5)He should also check other necessary things.

4. Hand over watch.

At the completion of the watch, each member of watch-keeping should hand over to his relief, ensuring that the relief is competent to take over and carry out his duties effectively. Before going off duty, the engineer in charge of the watch shall ensure that all events related to the main and auxiliary machinery are suitably recorded. He should tell the relieving engineer the standing orders, special instructions and unfinished work, if any. If he has any reason to believe that the relieving engineer is not capable of carrying out the watch-keeping duties effectively, he shall not hand over the watch and the chief engineer shall be notified.

5. Standby engine before departure.

When standing-by engine for sailing, we should do various things.
(1)We should check various systems and parts of the main engine.
We should warm up the main engine.
We should engage the turning gear and give the engine at least one complete turn.
(2)After informing the bridge, we will give the main engine a brief trial on power ahead and astern.
Finally, we will ring “stand-by” on the engine telegraph.

6. Standby engine after sailing.

(1) When do you begin standby engine?船舶抵达锚地或进港需要备车。

Standby should be done when ship reaching anchorage or wharf.

(2) How do you stand by engine?

老型机应使用轻质燃油。起动另一台发电机提供备用电力，起动空气瓶应随时补足空气，并随时注意

和保持汽笛空气瓶的气压处于正常范围之内，以备驾驶台使用。

The old style engine should be started by light diesel oil. Start another generator to supply standby power. Starting air receiver should be charged at any time, and be sure to keep the pressure in whistle air receiver in normal scale for bridge ready use.

7. Measures to be taken by duty engineers at rough sea.

When sailing at rough sea, the ship will pitch and roll violently.
So we should pump up the slack tanks and secure some movable things.
The main engine speed may exceed the maximum allowable RPM because the propeller may be above the sea surface.
The ship's speed may be reduced because of greater resistance.
So we should closely observe the working condition of the main engine.
And we should get ready to respond to any emergency conditions.

8. Actions to be taken after "Finished with engine" is given.

After "finished with engine" is given, we should take the following actions:

(1) Ensure that the telegraph is at stop;

(2) Ensure that the fuel control or speed adjusting lever is at zero;

(3) Ensure that the starting air lever is in the neutral position;

(4) Shut the starting air valves and the starting air tanks;

(5) Open the drain cocks on the starting air manifold;

(6) Shut off the fuel booster pump and steam to the fuel heater;

(7) Engage the turning gear and lock the lever, open the indicator cocks;

(8) By-pass the jacket water and lubricating oil coolers and continue circulating the coolant;

(9) Gradually reduce the cooling water temperature over a period of 8 hours;

(10) Turn the main engine through 3 or 4 turns at first and through one turn at intervals during cooling.

Besides these, there are a lot of other things to be done.

9. Talk about steering gear testing.

The steering gear is for ensuring satisfactory operation. This job should be done before a ship's departure from any port. The testing should include:

1) Operation of the main steering gear.

2) Operation of the auxiliary steering gear or use of the second pump which acts the auxiliary.

3) Operation of the remote control system or systems from the main bridge steering gear.

4) Operation of the steering gear using the emergency power supply.

(5) checking of the rudder angle indicator readings;

(6) checking of the alarms fitted to the remote control system and the steering gear power units.

During these tests, the rudder should be moved through its full travel in both directions. The communication system between the bridge and the steering gear compartment should also be tested.

10. Actions to be taken in the case of the trial of main engine

Before the trial of main engine, the duty engineer will ask the motorman to warm up oil fuel, lubricating oil and the engine.

The systems of lubricating oil, cooling water and fuel oil should be checked, prepared and their pumps turned on.

The compressed air system should be drained, charged and its valves opened.

Then turn and run the engine by putting in starting air.

After the trial of main engine, the duty engineer should write down the starting air pressure values for each time the engine is started ahead and astern.

Any abnormal condition found during the trial should be written down and dealt with as soon as possible.

11. Talk about Engine Room Orders.

Orders like "dead slow ahead" "half astern" "full ahead" "stop" are some examples of engine room orders. The engine telegraph is a device with a pointer and handle, which is used to convey orders between the bridge and the engine room. When the personnel on the bridge move the handle of the

telegraph on the bridge, there is a corresponding movement of the pointer of the engine room telegraph together with the sound of a gong(盘形钟). The engineer maneuvering the engine at the engine room on hearing the gong and the movement of the pointer will acknowledge the order by moving the handle to the same indication. The gong will then stop sounding.

12. Talk about the telegraph in the engine room.

The engine telegraph is a device with a pointer and handle, which is used to convey orders between the bridge and the engine room. Orders like “dead slow ahead” “half astern” “full ahead” “stop” are some examples of orders. When the personnel on the bridge move the handle of the telegraph on the bridge, there is a corresponding movement of the pointer of the engine at the engine room on hearing the gong and the movement of the pointer will acknowledge the order by moving the handle to the same indication. The gong will then stop sounding.

五 问答

1. What may happen if the communication between the engine room and the bridge fails?

The ship will be endangered. /It will bring security risks for sailing or cause sailing accidents.

2. When do you need to communicate with the bridge?

When the engine room has any trouble or when standby engine./When changing the engine speed (slow or increase), shut down the engine or occurs machinery accidents.

3. What methods and ways can be used to communication with the bridge?

By telephone and telegraph.

4. Why do you think the records of the communication should be maintained?

Because records can be served as evidences in the event of accidents.

5. Do you think English is very important during the communication?

Yes, I think so. Yes, Because English is an international language.

6. When should you check the engine telegraph?

The engine telegraph is often checked before departure, usually one hour ahead.

7. How do you check the engine telegraph?

Checking the telegraph usually begins with the “Slow” position to “Full” position of “Ahead” and

“Astern” ordered from the bridge.

8. When must you test the steering gear?When stand by engine/ Before departure or arrival.

9. What should you check for the main engine before starting?

The reversing and control gear should be checked.

10. How do you test main engine?

Turn on the main engine by putting in start air and give a brief trial on power ahead and astern

11. What should you prepare for cooling water system when "Stand by engine"?

Cooling water should be at working level and heated to proper temperature.

12. What should you prepare for lube oil system when “Stand by engine”?

Start the lubricating oil pump and make sure that the lubricating oil supply is correct.

13. You are going to run fuel oil instead of diesel. What are you going to do for it?

I am going to open the fuel oil heater steam valve, open the fuel oil service tank valve and close the diesel oil service tank valve.

14. Why does the engine speed rise up a little bit using fuel oil instead of diesel oil?

Because fuel oil has higher density than that of diesel oil

15.What should you do when " Finished With Engine"?

Ensure the telegraph is at “stop”, fuel control lever at zero, starting air lever at neutral position, turning gear engaged and so on.

16. What should we have to do when the ship is sailing in the cold zone?

We must keep the oil temperature in proper readings.

17. What are duty engineer going to do when "Full astern" is ringing up?

Cut off the oil supply, brake, reverse, and then speed up./ Immediately get the pointer to "full astern " by pushing the handle of the telegraph and then push the handle of speed setting to proper position.

18. How does the duty engineer correct the clock in engine room?

The duty engineer checks the engine room clock with the officer on the bridge.

第四章 应急用语

四、口述

1、Describe briefly one of the main engine breakdown cases that you experienced or heard.

(1) The case.

(2) Actions taken in that case.

(3) Your comments as to the actions.

Last year when I worked on a bulk carrier, I found the exhaust temperature of the main engine is rising quickly. There was a fire in the scavenge air box. The engine was slowed down. The fuel was shut off from the affected cylinders. I opened wide the inlet valve of the cooling water. The duty motorman increased the cylinder lubrication. The fire The fire is quickly extinguished by activating the local protection system. So the quick response and proper action are very important to handling the breakdown of the main engine.

2、 Actions to be taken in the event of sudden stoppage of the main engine.

(1) Possible reasons.

(2) Actions to be taken.

In the event of sudden stoppage of the main engine, the possible cause may be the safety protection system functioning, due to low lube oil pressure, fuel oil breakdown, blackout, overspeed and so on. Generally, we should take the following actions: firstly, we will carefully examine the main engine and find the causes. Secondly, we will take measures to remedy the trouble. Thirdly, we will reset and restart the main engine.

3. Actions to be taken in the event of the turbocharger surge.

(1) possible reasons.

(2) actions to be taken.

If the turbocharger surges, the possible causes include high back pressure of exhaust manifold and low flowing quantity, rapid change in load, insufficient fuel oil, bad combustion, scavenge fire and so on. In the event of turbocharger surge, we will slow down the main engine, find the causes, and do some remedies.

4. Notices to be taken when the main engine running with one cylinder being cut off.

In this case the engine must run in a low speed. The engineer must reduce the load of the engine. The engineer must keep watch, and some measure must be taken, when the M/E running with one cylinder being cut off, the exhaust gas temperature should not exceed normal full load temperature. If the turbocharger surges, reduce load further to avoid continuous surging.

5. Actions to be taken when scavenge fire occurs.

（If a scavenge fire, starts two immediate objectives arise-they are to contain the fire within the scavenge space of the engine and to prevent or minimize damage to the engine.）

1. The engine must be put to dead slow ahead and the fuel must be taken off the cylinders affected by the fire. The lubrication to these cylinder must be increased to prevent seizure and all scavenge drains must be shut to prevent the discharge of sparks and burning oil from the drains into the engine room.

2.A minor fire may shortly burn out without damage, and conditions will gradually return to normal. The affected units should be run on reduced power until inspection of the scavenge trunk and overhaul of the cylinder and piston can be carried out at the earliest safe opportunity. (Once navigational circumstances allow it, the engine should be stopped and the whole of the scavenge trunk examined and any oil residues found round other cylinders removed. The actual cause of the initiation of the fire should be investigated).

6. Actions to be taken when a crankcase explosion occurs.

Personnel must keep away from crankcase doors and relief valves and from possible fire or blast paths near casing doors, and as well.

1) Reduce speed to slow and ask bridge for permission to stop.

2) When engine is stopped, stop fuel oil primary pump.

3) Stop lubricating oil pump.

7. Describe briefly one of the blackout cases that you experienced or heard.

(1) The case,

(2) Actions taken in that case.

(3) Your comments as to the actions.

If a blackout occurs in the engine room, we should take actions immediately.
First we should inform the bridge.
If the blackout relates to the generator, the stand-by generator should be started up automatically.
As the visibility in the room decreases, avoid falling from a height or bumping against objects.
Then we should try to find the problem causing the blackout.
We should eliminate the problem as quickly as possible.

8. Describe the procedure to start an emergency generator.

When we start the emergency generator, we should take the following steps. First, check the lube oil and fuel oil levels, as well as the water level. Second, the selecting switch will change over from “automatic ” to “manual”. Third, push the starting button, and check the voltage and frequency.

9. Describe the maintenance work of emergency battery.

The maintenance work of emergency battery include: 1) Check the electrolyte level. 2) Keep the emergency battery clean. 3) Measure the voltage of the battery. 4) Measure the specific gravity of the electrolyte. 5) Periodically charge and discharge the battery so as to protect the plate electrode.

10. Actions to be taken when a blackout occurs in the engine room.

There are two reasons for blackout. The first one related to the generator, the second one relates to

the prime mover. In the first case, the stand by diesel generator should start automatically. If the second occurs, the following procedure shall be taken:

1) Bridge being informed.

2) The stand-by generator shall be started up automatically

3) As the visibility in the E/R and accommodation decrease case must be taken to avoid falling from a height or bumping against objects.

11. Talk about fire fighting equipment on board.

(1) There are various kinds of fire fighting equipment on board.

(2) Different fire extinguishers can be used to put out different kinds of fire.

(3) It is important to keep fire fighting equipment in good order and ready for use.

There are several types of portable extinguishers in the engine room.
CO2 extinguishers are for extinguishing fire resulted from valuable instruments and others.
Dry chemical extinguishers are for fire on oils, flammable gases and electric fire.
Halon extinguishers are for oil and electric fire.
There are also fixed fire-extinguishing systems in the engine room.
These systems use CO2 or Halon.

12. Talk about fire.

(1) Fire is a constant hazard at sea.

(2) Fire is the result of a combination of three factors (elements).

(3) Fires are classified according to the material involved.

Fire is a constant hazard at sea. It is the result from a combination of three factors, namely, inflammable material, hot source, and oxygen. According to the material involved, fires can be divided into four classes: For example, burning light metals will be classified as Class D, burning electric equipment classified as Class C, burning oils is Class B, and burning wood, Class A.

13. Talking about a fire fighting drill.

Last voyage our ship had a fire fighting drill.

Three hours after we left the port , fire alarm on the whistle was sounded.

It was short blasts lasting about one minute, followed by three prolonged blasts.

Within one minute, the firemen were all on station in their fire outfits.

Fire hydrants were ready for water.

The fire detecting team set off for the fire.

When the fire spot was established, hoses were connected.

Fire pumps were started immediately.

After a few minutes , the fire was put out.

The drill was successfully finished.

14. Actions to be taken when a fire occurs in the engine room.

If a fire occurs in the engine room, alarm must be sounded. The engineer must give information to the bridge. The bridge will inform the crew. The chief engineer should give orders on the spot. Measures will be taken to extinguish the fire. Portable extinguishers will be used first.

The valves of oils and the ventilation should be closed. Cool the equipment, tanks and bulkhead near the fire. If the fire cannot be put out. Stop the engines, generators and boiler. Activate the fixed fire-fighting system after evacuating the personnel.

15. Describe briefly one of the collision cases that you experienced or heard.

(1) The case.(2) The measures taken in that case.

(3) Your comment about the measures taken.

(1)I once heard a collision case told by my teacher in class. It happened on the way to Singapore port.

(2)Chief engineer went to the engine room soon and commanded other duty personnel to prepare for maneuvering the main engine; reduced the speed of the main engine, because the ship was in shallow water at that time, the low-level sea chest was changed to a high one ;sounded relevant tanks and asked for information from the bridge frequently. Crewmembers tried hard to reduce the flooding with a collision-mat and asked for help from the port authority.

(3)Since effective and timely measures were taken, they succeeded to control the situation and secured the safety of ship and the crew. All these are contributed to the regular drill, so we should pay attention to these normally drills.

16. Actions to be taken in the event of collision.

(1) Acting in full compliance with the Muster List.

(2) Actions to be taken in terms of notifying, detecting, restricting, and handling,

In the event of collision, the chief engineer should go to the engine room immediately.

He should command the duty personnel to prepare for engine maneuvering.

The speed of the main engine should be reduced.

The sea chest should be changed to a high-level position.

If there is any damage found, damage control should be carried out.

And constant contact with the bridge should be maintained.

17. Talk about the on-board communication in the event of collision.

In the event of collision, the bridge will inform the captain and the engine room immediately. The bridge should tell the engine room the striking position, damage extent and so on. The engine room should take measures accordingly. In case of engine room flooding, the engine room personnel should report to the bridge, and take actions according to the muster list.

18. Describe briefly one of the flooding cases that you experienced or heard.

(1) The case.(2) Actions taken in that case.(3) Your comments as to the actions.

(1)I once heard a collision case told by my teacher in class. It happened on the way to Singapore port.

(2) Chief engineer went to the engine room soon.

All watertight/weather-tight doors, hatchers and ventilators were secured to ensure maximum available watertight integrity.

All available pumps, including portable salvage pumps were immediately utilized to control/limit the flooding of water.

At last they found the damage location succeeded to stop it with a collision-mat.

(3)Since effective and promptly measures were taken, they succeeded to control the situation and secured the safety of ship and the crew. All these are contributed to the regular drill, so we should pay attention to these normal drills.

19. Actions to be taken in the event of flooding.

(1) Acting in full compliance with the Muster List.

(2) Actions to be taken in terms of notifying, locating, restricting, and handling.

If engine room flooding occurs, we should secure all watertight doors, hatches and ventilators.
We should use all available pumps to control the ingress of water.
We should try to find the leak and stop the leak.
When the leak is stopped, further measures should be taken.
If the flooding cannot be controlled, other emergency response should be made.

20. Talk about the Muster List.

(1) An important document.(2) The contents.

(3) Your responsibilities in the Muster List for flooding.

The muster list is an important document on board. It tells the crew members their position and duties in emergency situations, such as fire, collision, oil spill, abandoning ship, ship grounding and so on. For example, in case of flooding, the chief engineer should go to the engine room and be in general command. The second engineer should maneuver the main engine. Some other members should go to stop the flooding and so on.

21、Describe briefly one of the cases that you experienced or heard about evacuating from the engine room.

(1) The case. (2) Actions taken in that case. {3) Your comments as to the actions

Once a container ship collided with a bulk carrier. The captain of the container ship decided to abandon the ship since it was in danger of sinking. The engine room personnel stopped the engine, cut off the electric supply, closed the ventilators and released the compressed air and steam. The chief engineer collected the important documents and all engine room staff evacuated from the engine room.

22. Talk about an abandon ship drill.

Abandoning ship is extremely rare. But it is necessary to carry out the drill periodically. During an abandon ship drill, the engine department may imitate the following:

(1) Stop all the running machine and equipment in the engine room;

(2) Shut down the boilers and other devices;

(3) Shut off all the ventilators and watertight doors;

(4) The chief engineer should bring the Engine Room Logbook with him;

(5) Evacuate all people from the engine room;

(6) All personnel muster at the abandon ship station with lifejackets on.

The effectiveness of the drill will be checked.

23. Talk about the maintenance work of the lifeboat engine.

The maintenance work of the lifeboat engine mainly include: 1) check the various oil levels and water levels. 2) Start the lifeboat engine once every week, make it run for about five minutes. 3) Protect the engine from freezing with anti-freezing fluid

24. Talk about the SOPEP.

(1) Its whole name is the shipboard oil Pollution Emergency Plan.

(2) It contains the following contents.

(3) It is very important.

SOPEP stands for Shipboard Oil Pollution Emergency Plan. Its main contents include the person to be contacted in case of oil spill, his contacting methods such as phone number and address, the procedure to be adopted in case of oil spill, such as the disposal methods, anti-pollution equipment and materials.

25. Talk about some material used for oil spillage.

(1) Oil spillage material should be available and ready for use.

(2) Material for cleaning-up spilled oil. :

(3) Material for preventing spilt oil from spreading out.

The materials used for oil spillage mainly include the following: 1) the material used for cleaning up spilled oil, for example, the oil absorbent such as saw dust and oil felt. 2) The material for preventing split oil from spreading out, such as oil booms. Oil dispersant is seldom used since it must get the approval from the port administration and may cause secondary pollution.

26. Describe briefly one of the oil spill cases that you experience or heard.

(1) The case. ,

(2) Actions taken in that case.

(3) Your comments as to the actions.

(1)I once heard a collision case told by my teacher in class. It happened on the way to Singapore port.

(2) Firstly it was reported to the master, then actions were taken according to the SOPEP. All crewmembers controlled the oil spill under the master's command. Master reported the port

authorities. Finally, all the activities taken were recorded in the oil Record Book, including: when it occurred, position of ship when occurred, approximate quantity and type of oil and so on.

(3)Since effective and promptly measures were taken, they succeeded to control the situation. All these are contributed to the regular drill, so we should highly pay attention to these normal drills.

27. Talk about the actions to be taken in the event of a man falling overboard.

(1) Shouting and notifying,

(2) Take measures to rescue the person falling overboard.

In the event of a man falling overboard, the person who sees the accident must shout for help, inform the bridge, throw a lifebuoy into the water and keep the man in his visual scope. The bridge should sound the alarm, and take measures to save the man, for example, slowing down, changing the direction, and lowering the lifeboat to pick up the man falling overboard.

28、Talk about the first aid.

(1) The importance of the first aid. ;

(2) Actions to be taken for the first aid.

First aid is emergency care for a victim of sudden illness or injury until more skillful medical treatment is available. The usual actions taken in the first aid include artificial breathing, stopping bleeding with bandage and so on. Once I saw a sailor who had his hand injured during the firefighting drill. I immediately help him stop the bleeding with the medicine and the bandage.

29. Safety measures to be taken when working in engine room.

As we all know, the working conditions of the engine room are not very well. As an engineer, when you are working in engine room, it is necessary for you to take some safety measures.

1) Working suits or boiler suits should be put on .

2) Safety shoes should be put on as well.

3) Helmets or hard hats are indispensable.

4) Jewelry is prohibited.

5) Ear protection is helpful.

6) Workers are required to wear goggles when working with machine tools. But gloves are not allowed in this case.

问答题

1.The engine does start on air, but combustion does not immediately begin. What is the possible cause?

Failure in the fuel oil system. / The cause may be low compressed air, failure of fuel pumps, or incorrect timing of fuel pump.

2. The engine may loss power or slow down when running. What is the possible cause?

It may be due to excessive wear of piston and cylinder or leakage of the valves.

3. Please list some indications of a scavenge fire. (List at least three)

Scavenge air box temperature high, exhaust gas temperature high, turbocharger surge.

4. If a filter is found leaking, what should you do?

I should change the standby one into use and then repair the damage one. /Change over to standby filter.

5. What's a common trouble with a fuel pump plunger?

The common trouble with the fuel pump plunger is oil leakage/ seizure.

6．If a warning of a crankcase explosion is received, what steps should be taken right away?

Slow down the main engine at once and report the bridge officer, then find the cause.

7. What actions should you take if the exhaust temperature of the main engine is excessive high?

I will reduce fuel supply to the cylinder affected.

8. What kind of precaution will you take to avoid a scavenge fire?

The scavenge trunk should be regularly inspected and cleaned if necessary and scavenge drains should be regularly blown and any oil discharges investigated at the first opportunity.

9. What kind of precaution will you take to avoid a crankcase explosion?

Eliminate fuel leaking into the crankcase and analyze crankcase oil at regular intervals.

10. In which cases must the main engine be stopped?

The main engine must be stopped when it is necessary for the safety of the ship, its machinery and crew.

11. What is the emergency source of electrical power on board?

It's the batteries or emergency generators

12. Where is the emergency generator located?

It is located above the main deck or on the boat deck.

13. Who is in charge of emergency generator?

The 3rd engineer is.

14. What equipment should be first provided with electricity by emergency generator?

The navigation equipment, steering gear system and fire-alarming apparatus should be first provided with electricity.

15. In the event of blackout, what should you do at first as a duty engineer?

I should inform the bridge at once.

16. In the event of blackout, what should you do as a chief engineer?

I should get into the engine room and conduct the spot.

17. What are the three elements of fire?

Inflammable material, heat and oxygen.

18. What can not be used for an electric fire?

The water and foam extinguisher can't be used.

19. How often is a fire drill required to be held in a passenger ship?

Once a week.

20. What shall a person first do if he discovers a fire?

Sound the fire alarm

21.What does a Muster List show?

It shows muster station, duties, and alarm signals

22. What fixed fire fighting appliances do you know?

Fixed CO_2 appliance and water spray extinguishing system.

23. What can be used to put out a fire?

Fixed CO_2 appliance and water spray extinguishing system.

24．As soon as you hear the fire and emergency signal, what should you ensure?

I should ensure that the fire pumps are started.

25. When the fire alarm is sounded continuously, what should the engine room personnel do?

Start the fire pump.

26. Burning light metals should be treated as which class of fire?

It should be treated as Class D.

27. Burning generator should be treated as which class of fire?

It should be treated as Class C.

28. Burning diesel oil should be treated as which class of fire?

It should be treated as Class B.

29. Burning wood should be treated as which class of fire?

It should be treated as Class A.

30.How do you put it out when you come across the fire caused by electrical equipment?

To cut off electricity supply first and put it out by dry powder.

31. What will the accumulation of dirt on electrical equipment result in?

It will result in insulation breakdown and leakage currents, possibly even an earth fault.

32. How do you maintain carbon dioxide extinguishers?

Check the weight of CO2 bottles regularly. If the weight is reduced by 10 percent, stowed separately from charged extinguisher and recharge the bottle without delay.

33. How many types of extinguishers do you know? List some.

There are many types of extinguishers, such as Pressurized Water Extinguishers, Dry Chemical Extinguisher, Carbon dioxide Extinguisher, and Foam Extinguisher and so on.

34. What should be done before carbon dioxide is released to the engine room?

It is necessary to warn engine room personnel and let them know they should leave the engine

room.

35. What is the general emergency alarm signal?

It's continuous ringing on the alarm bell.

36. What kind of sea chest should be used in the event of collision, a low-level sea chest or a high-level one?

It should be used the high-level chest in the event of collision.

37. What should be done in the engine room when collision occurs?

Stand by engine, check leakage and so on.

38. In the event of collision, what should you do?

Chief engineer and electrician go to engine room, standby engine, other crew muster for order.

39. What materials can be used to block the leaks in the event of flooding?

Blanket, wood blocks.

40. What can be used to discharge the incoming sea water overboard in the event of flooding?

Emergency suction valve.

41. What should be firstly done in the event of flooding?

Inform the bridge and the chief engineer. Sound the alarm.

42. What immediate actions should be taken for engine room flooding?

Inform the bridge promptly and take all possible measures to eliminate the flooding.

43. How often shall an abandon ship drill be conducted for a passenger ship?

Once a week .

44. Who is responsible for operating lifeboat engine?

The 4th engineer is.

45. What should you do with boilers before evacuating from the engine room?

I should shut down boilers and release pressure.

46. How do you evacuate from the engine room upon abandon ship order?

Take actions according to the muster list, put on my lifejacket and rush to my boat station.

47. What life-saving devices are equipped on board your ship?

There are lots of life-saving devices on board my ship, such as lifeboats, life rafts, life jackets and life buoys.

48. How do you test the engine for the lifeboat?

Start the engine , test the reduction gear box both ahead and astern, and make sure various

working systems are in good order and the remaining fuel is sufficient to operate for 24hours.

49. What can be used to prevent spilt oil from spreading out in the event of oil spill?

The oil booms.

50. What can be used to clean up spilt oil in the event of oil spill?

Saw dust, oil felt, rags or chemical dispersants

51. What shall be taken into consideration when selecting and using equipment and material to deal with spilt oil?

It should be consideration that the material will or not cause the Secondary pollution.

52. What are materials for oil pollution prevention?

These materials are sawdust, oil booms, oil skimmers , chemical dispersants and so on.

53. In which case can you use oil dispersant?

After getting permission from the Harbor Authority

54. What is the alarm signal for oil spill?

One short blast, two prolonged blasts followed by another short blast.

55. What equipment should you prepare for IOPP survey?

Incinerator, oily water separator, sewage tank, oil discharge monitor..

56. What is alarm signal for a man falling overboard?

Three long blasts.

57. What should you do firstly when a man is overboard?

Sound the alarm, throw the buoy to the man overboard and so on.

58. What life-saving appliances do you know?

Life jacket, lifeboat, life raft and life buoys.

59. What is essential before checking any kind of electrical equipment?

Cut off the electricity supply and tag it.

60．How do you treat the injured person who is not breathing?

I will apply artificial respiration to the injured person.

61. Could you tell me the main reason when you see the black smoke exhausted by the diesel engine?

The possibly reasons are as following: the discharge valve damaged, or over-load operation of

diesel engine, or the leakage of nozzle, or the in-complete combustion in the cylinder because the fresh air is not pumped enough.

62. Could you tell the main reason for scavenge fire?

Ignition of carbon/oil deposits by prolonged blow-by, combustion gas blow-back through scavenge air ports and so on./The main reason for scavenge fire is that there is too much oil sludge inside, higher oil mist density or abnormal high temperature.

63. Could you tell the main reason for crankcase explosion?

Oil mist and hot spot exist.

64. What does the turbine super-charger surge?

High back pressure of exhaust manifold, rapid change in load, scavenge fire and so on.

65. If you found an oil spill in the sea, how would you react?

Immediately report to the nearest competent port authority and take positive action to control the pollution and make an entry in the log-book.

立即报告最近的港口当局然后采取正确的行动去控制污染并将整个过程记入 LOGBOOK

第五章　对外业务联系

四、口述

1. Talk with the workers on oil barge.

1) Before bunkering2) During bunkering3)After bunkering

Talking with the workers on oil barge is very important when a ship is goings to take bunkers. Before bunkering, both sides—the ship and the oil barge—should agree with each other about the bunker quantity on board ship by sounding and calculating according to the tank tables, and the signaling of starting and stopping the pumping, and of course the pumping rate. Don't forget to get spill prevention work ready, prepare the absorbent material and fire fighting equipment for immediate use. During bunkering, the most important thing is to keep an eye on the pumping rate, pay special attention to the prevention of oil spillage, especially when topping up the bunker tanks.

After bunkering, do the routine work of checking the quantity bunkered and clean the site carefully if there is any oil trace on deck.

2. Please describe a bunkering operation on board your ship.

(1) What characteristics of oils must you take into account when selecting oils?

(2) Before bunkering, the third engineer will go down to the oil lighter to do some measurement work. What will he do?

(3) After bunkering, but before dismantling the pipe, how to deal with the oil retained in the hose?

When selecting the fuel oil, there are many factors to consider, such as viscosity, cetane number, calorific value and so on. Before bunkering, the engine room personnel should make the bunkering plan and other necessary preparations. The third engineer will go to the oil lighter to measure the content of all the oil tanks. During bunkering, the engine department and deck department should work cooperatively. After bunkering, the crew will flush the oil retained in the hoses with compressed air and calculate the volume of oil received.

3. The Voyage repair

1) Our ship came into the shipyard for the voyage repair

2) The workers did a lot of repair work and maintenance

3) The voyage repair will come to the end soon

Last month our ship went to shanghai for a voyage repair. Voyage repair is a procedure when something happened in the last voyage and the relevant key equipment which will affect the safe operation of the ship need repairing, and repairing work cannot be done by the personnel on board during the next voyage. At the same time there may be some planned repairing and maintenance work. The shipyard workers came on board and did a lot of repair work and several maintenance items were carried out, too. We have done a lot to cooperate them. The repairing

work seemed to be quite well done, and we have been quite satisfactory about the work. Now the voyage repair will come to the end soon, and we'll sail again several days later.

4. The work before repair.

Before repair, the engine room personnel have a lot of work to do. They should confirm which items in their charge are to be repaired. They will prepare the necessary spare parts and special tools. Then the second engineer will collect all the information about the repair items. After being verified by the chief engineer and signed by the captain, the repair list will be submitted to the company for approval.

5. Talk about the safety measurements during ship repair in shipyard.

According to some regulations and rules, vessels should be carried out repairs such as annual repair. During ship repair in shipyard, it is essential and important to take some safety measurements in order to prevent some human injury and loss of life, especially for fire control. The measurements are mainly as follows.

1) Vessel and shipyard should work together and make some measure to carry out fire prevention and fire control.

2) Vessel and shipyard should comply with the agreed agreement strictly, and the chief engineer should arrange a crewmember to oversee the process in engine room.

3) In case of fire, vessel and shipyard should work together and try their best to fight and extinguish the fire.

6. Talk about the dock repair.

In order to keep ships in good conditions and be more available for sailing, it is essential to carry out dock repair periodically. At first, we should do some preparing work for dock repair. For example, we should make the repair list in advance. Vessel should order some important stores

and spare parts needed during dock repair. Secondly, during period of dock repair, there always be such main items: brushing propeller, repacking and refitting valves and sea connection valves and so on. After dock repair, we should check the quality and to see whether these items meet our requirements or not, at last we should accept the project.

7. As a Chief Engineer, What will you take into consideration if you want to receive new ship?

As a chief engineer, if I want to receive a new ship, I will take the following items into consideration. Firstly, check the list of engine room equipment and machinery, as well as the list of stores and spare parts. Secondly, test all the devices in the engine room. Thirdly, conduct the sea trial, collect and submit all the items of non-conformity to the company.

8. Talk about the management of spare parts.

To ensure the machinery in good order and maintenance, the engine department should order some stores. (1)Each engineer should make an application for spare parts according to the machinery in charge, (2) The chief engineer collects and compiles them into a list .(3) The engineer concerned should pay special attention on them.

The chief engineer should be in charge of spare parts. He must know how many have been used and how many have been left. In a word, he should be responsible to record for spare parts.

9. Please talk about a damage survey on board your ship.

1) In what situation was the damage survey carried out

2) Whom will you invite to carry out the survey

3) The general purpose of a damage survey

When damage occurs on board ship, and we would like to know the extent and the causes of the damage, we usually claim for the damage survey. We usually invite a surveyor from Classification Society to carry out the damage survey through our agent. When the surveyor comes

on board ship, we will introduce the situations of the damage to the surveyor. The surveyor will inspect the damage. According to the facts, the surveyor will issue a damage survey report. If the damage is due to poor workmanship or inferior materials used, We shall claim for compensation from the yard or manufactures.

10. Talk about an accident occurring in engine room.

Now I'd like to describe an accident occurring in our engine room. Last night, when I was on watch in control room and two motormen was taking some running parameters from the main engine. The vessel is on voyage from Shanghai to Hong Kong and it appeared that everything is in good order. Suddenly there was a "pang" in the engine room and we came to check the main engine. We found there was something wrong with the piston ring and some high temperature gas from combustion chamber rushed into the crankcase and lead to the explosive. The chief engineer gave instructions to lift the piston out and renew the piston rings. Fortunately, now everything is OK and the engine room is in good order.

11. Talk with a ship-chandler

1)Questions to be asked

2)Things to be orders

3)Delivery time

When you want to order some stores or spare parts, you can contact with the ship-chandlers you trust. You may make the ordering by a phone call or he may come on board to deal the business with you face to face. The key points here are the quantity of the things you want to order, and the quality, the maker, etc. Of course, the prices are also very important. You don't want to buy with a higher price than others do. Make sure that you're familiar with the available market trends, and then you can bargain with the ship-chandler to get s reasonable price. You

surely have an order list before you contact with a ship-chandler. Check the order list one by one and get all the items on the list settled. Finally it is the delivery time. Pay attention to the scheduled timetable and manpower available of your department when the stores or spare parts are to be delivered on board. Set the time suitable for you and your men.

12. How do you order stores and parts?

1)When you want to order stores and spare parts, whom will you order them from

2)How do you bargain?

3)What details should you state clearly in a store list?

When you want to order some stores or spare parts, you can contact with the ship-chandlers you trust. You may make the order by a phone call or he may come on board to deal the business with you face to face. The key points here are the quantity of the things you want to order, and the quality, the maker, etc. Of course, the prices are also very important. You don't want to buy with a higher price than others do. Make sure that you're familiar with the available market trends, and then you can bargain with the ship-chandler to get s reasonable price. You surely have an order list before you contact with a ship-chandler. Check the order list one by one and get all the items on the list settled. Finally it is the delivery time. Pay attention to the scheduled timetable and manpower available of your department when the stores or spare parts are to be delivered on board. Set the time suitable for you and your men.

13. Talk about the management of ship's stores.

To ensure the machinery in good order and maintenance, the engine department should order some stores. (1)Each engineer should make an application for spare parts according to the machinery in charge, (2) The chief engineer collects and compiles them into a list.

The chief engineer should be in charge of spare parts. He must know how many have been

used and how many have been left. In a word, he should be responsible to record for spare parts.

Among stores chemical substances management is very important, because most of chemical substance is dangerous, sometimes it is deadly. The engineer concerned should pay special attention on them.

五、问答

1. In which cases must bunkering be stopped?

Bunkering must be stopped if: 1.During an electric storm; or 2. Fires occurs on or near the vessel; or 3. Vessel surges due to another vessel(or heavy winds)

2. What preparations are required on deck prior to the bunkering operation?

Block the scuppers, prepare the anti-pollution material and fire-fighting equipment, and so on

3. Describe a procedure for the commencement of pumping oil.

Check the bunkering valve, confirm the contacting signals with the oil barge first, slowly fill in the oil, and speed up.

4. What should you do before bunkering?

We must make the bunkering plan and take every precaution against fire.

5. What measures against oil pollution should be taken before bunkering?

The deck scuppers should be firmly plugged and some materials such as saw dust should be kept ready for use.

6. What do the terms TAN and TBN for lube oil stand for?

TAN stands for Total Acid number while TBN stands for Total Base number.

7. When handling oil, what is an important consideration in order to ensure safety?

We must take every precaution against fire.

8. What sort of documentation is involved with bunkering?

Bunkering plan, oil receipt, bunkering notice, and so on

9. What should you do during bunkering?

Tanks sounded from time to time; Watch air vent for air flow; Hose connection station manned all times; Pumping rate checked; Watch keep for leakage; Slow down pumping rate and take sounding frequently when a tank nearly filled to 2/3; give stop signal to oil barge when need; If oil spill should

occur, stop pump, report and initiate oil spillage response procedure right away; Take oil sample.

10. How do you take samples during bunkering?

Take oil samples of two bottles for each kind of oil and sign the labels.

11. Why are communications important during bunkering?

Because good communication can help us prevent oil spillage

12. Describe how you would determine the volume of fuel loaded during the bunkering operation.

Sound the oil tanks, measure the oil temperature, and ship's draft, and calculate the bunking quantity according to the tank table.

13. What should you do after bunkering?

Confirm the bunking quantity, disconnect the oil pipe and make records in the logbook

14. What are usually contained in a repair list?

Name of the items to be repaired, position and the requirement

15. Name some commonly used repairing methods.

Welding, grinding, machining, polishing and so on

16. Who will be responsible for the damage of the repaired parts if they occur within a few days after the repair?

It's shipyard.

17. What power will be supplied after docking?

It's ashore power.

18. What kind of work do we usually do for docking repair?

The repairing work is below the water line.

19. During the docking repair, who usually supply fresh water?

It's shipyard

20. Who is in charge of the safety code agreement for the docking repair?

It's shipyard

21. What kinds of cargo should be discharged from the vessel while proceeding docking repair?

All kinds of cargo should be discharged.

22. When reassembling propeller, who must supervise the working course on the spot?

The chief engineer will do that.

23. When you want to build a new ship, it must comply with some rules. What are they?

Rules for the construction of sea-going steel ships, SOLAS, MARPOL, and so on,

24. Why is a survey necessary for a ship?

To the safety of the ship, the crew, and property

25. When and where did you have the PSC inspection?

It was the last month in Singapore.

26. Who should be present when a boiler survey is carried out?

The chief engineer and the surveyor should be present.

27. Suppose your ship has been insured, what will you do first to claim for the insurance it the engine is damaged?

I shall apply for a damage survey first.

28. Whom do you usually invite to come on board to ascertain and verify the extent of damage of machines or equipment?

A surveyor from classification society will be invited on board to do that.

29. A ship's survey may be divided into three basic types. What are they?

Statutory survey, classification survey, notarial survey(公正鉴定).

30. What does general survey usually include?

It include annual survey, periodical survey, damage survey and so on

31. How do you bargain?

I would say: “Can you lower your price?”

32. What will you say if the price offered is higher than you expected?

I would say: “I’m afraid your price is very much in the high side”

33. If you want to order stores and spare parts, whom will you turn to?

I will call my agent.

34. What will you take into consideration if you want to get some stores and spare parts aboard?

Delivery time, place, and quantity

35. If you order some stores form the, shipchandler, what should be generally listed out on the order list?

Name, specification, and quantity

36. How do you usually pay for the stores and spare parts?

Usually we settle the account through our agent.

37. Who will check the stores and spare parts delivered on board ship?

The second engineer will do that.

38. What should be paid attention to when bunkering fuel oil?

Fire prevention, and pollution prevention./Firstly, we must pay much attention not to spill the oil; secondly, the quantity to the oil must correspond to the contract; thirdly the quality must comply with the required one; fourthly, we must take samples during bunkering.

首先，我们要严防跑油；第二，加油的数量要与合同相符；第三，质量要符合要求；最后，加油过程中我们要连续地取油样。

第六章

四、口述

1. How do you prevent pollution to the sea on board your ship?

(1) What will cause sea pollution?

(2) The main anti-pollution equipment on board your ship.

(3) The general methods of pollution prevention.

There usually is some anti-pollution equipment on board ships. They are oily water separator, incinerator and sewage treating system. Oily water separators are used to ensure that ships do not discharge oil when pumping out bilge water or oily water. The incinerator is used to burn the oil sludge and solid waste. And sewage treatment plants are in use at sea to treat the sewage water the whole ship produce. All these equipment perform their duties to prevent pollutions from ship to the sea. And we must take great care about them to meet the lowest legislative requirements.

2. Talk about the entries of the Oil Record Book.

Part of the Oil Record Book is require to record machinery space operations for every ship of 400 tons gross tonnage and above, other than oil tankers, and every oil tanker of 150 tons gross tonnage and above. For oil tankers, Oil Record Book partII shall also be provided to record relevant cargo ballast operations.

The following items which are, when appropriate, to be recorded in the Oil Record Book in accordance with MARPOL73/78:

1) Ballasting or cleaning of oil fuel tanks.

2) Discharge of dirty ballast or cleaning water from oil fuel tanks referred to under section (a).

3) Collection and disposal of oil residues (sludge).

4) Non-automatic discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces.

5) Automatic discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces.

6) Condition of oil discharge monitoring and control system.

7) Accident or other exceptional discharge of oil.

8) Bunkering of fuel or bulk lubricating oil.

9) Additional operational procedures and general remarks.

3. Talk about the treatments of the dirty wastes and rags, especially plastic wastes on board your ship.

During PSC inspection, if I were a duty engineer, the PSCO might ask me more questions. Sometimes they may ask me how to treat the dirty waste and rags especially plastic waste. It's my responsibility for the response to their question correctly. At first, I will tell the PSCO what the three

combined color barrels used for and how to operate them. Then I will emphasize that plastics shall be kept on the red barrel, and could not be through into the sea directly. As for the incinerator, it is used to burn out oil sludge and solid waste. I will tell the PSCO the fuel consumption and show how to operate the incinerator.

4. Please talk about a PSC inspection on board

(1) What does PSC stand for? .

(2) What equipment in the engine room is usually inspected during a psc inspection';

(3) What shall you do if deficiencies are found in the inspection?

PSC inspection means port state control inspection. It is carried out under many international conventions, such as SOLAS 74 convention, MARPOL 73/78 convention, and STCW78/95 convention and so on. It aims to ensure the safety of life and marine pollution prevention from ships. For the engine department, the main inspection items include: Emergency generator, stand-by generator engine, auxiliary steering gear bilge and fire pumps etc. If the serious deficiencies found, the ship would be detained. And usually the ship owner shall be informed.

5. Please describe a bunkering operation on board your ship.

(1) What characteristics of oils must you take into account when selecting oils?

(2) Before bunkering, the third engineer will go down to the oil lighter to do some measurement work. What will he do?

(3) After bunkering, but before dismantling the pipe, how to deal with the oil retained in the hose?

Be sure of the breeds and quantities of stored oil before bunkering. Consult with the chief officer to ensure position of oil tank and quantity. It is important to keep the ship's balance. We must prepare anti-pollution prevention material, in event of the oil leak. Smoking should be forbidden in the area when bunkering. The one who is in charge of the bunkering operation must stick to his

post, and follow the operation rules strictly. He should measure the oil and take note of the oil level. The oil in tank is not allowed to be, more than 85% of the whole tank capacity to avoid overflowing accident. Close the related valves when bunkering operation is over. Take the piping hoses down, seal the outlet of the bunker pipe with blank plate to prevent the stored oil from returning.

6. As a Chief Engineer, talk about your responsibility for PSC inspection.

As a chief, I am responsible for arrangement PSC inspection. My responsibility/duty is to tell engine room staff to check the machinery carefully, especially the oil pollution prevention equipment, fire-fighting equipment, etc. before inspecting. I want to ask the engine department to review the procedures of drills and their duties. I want to ensure communication and corporation between the PSCO and the crew during the inspection, and to ensure the success of the inspection.

7、Talk about fire prevention and fire fighting on board ship.

(1) How do you prevent fire on board?

(2) The fire fighting apparatus on board your ship.

(3) The general methods of fire fighting.

As we all know, any substance caught fire and gone on the process of the combustion. It should meet three factors. If any one factor can't be met, the combustion will not take place. This will be helpful for us to prevent fire occurring and for fire fighting.

There are many types of portable extinguisher used on board ship, such as soda-acid extinguisher, CO_2 extinguisher. They are useful on carbonaceous fire. The chemical foam extinguisher is used to deal with the oil fires. Carbon dioxide extinguisher and dry powder extinguisher are very useful on chemical fires. Besides the extinguisher, there are fire fighting pumps and emergency fire pump. The emergency fire pump can be started outside the engine

room.

8、Talk about a fire and boat drill.

(1) Person in charge.(2) Equipment to be used.(3) People to take part in.

In the case of a fire on board ship, each person on board has to carry out his assigned duty. Each person has a specific task to do. Fire drills are conducted as soon as the ship departs on a long journey. Usually it is about one day after departure.

Engineering staffs will attend to equipment in the engine room. In case of fire in the machinery space, the engineering staffs will play the major role in controlling the fire, and putting it out. In case of fire on the deck, the navigation staffs will be frontline fire fighters, while the engineering staffs will play a supporting role.

In a normal situation, the Captain and the Chief Engineer will be overall in charge of the fire-fighting operation, and the Chief Officer and the Second Engineer Officer will assistant them.

9. Talk about the picture given (Fig. 6-1).

This picture describes three factors of combustion. As we all know, any substance caught fire and gone on the process of the combustion, it should meet three factors. If any one factor can't be net, the combustion will not take place. For example, when a diesel engine in the end of compression stroke and the piston moves upon to the TDC, at that time, the temperature is very high. The injector will inject some fine spray fuel oil into the combustion chamber. And there is also some fresh air, so it meets such three factors above. Then the combustion happens. On the other hand, this will be helpful for us to prevent fire take place and for fire control.

(This picture describes the elements of a fire.)

To produce a fire, four things must be present at the same time:

(1) air containing enough oxygen to sustain combustion,

(2) enough heat to raise the material to its ignition temperature,

(3) some sort of fuel or combustible material, and

(4) the chemical reaction that is fire.

The picture shows that air, heat and fuel form a triangle, with fire in the middle of the triangle.

Taking any of these four things away, you will not have a fire or the fire will be extinguished.

Fire extinguishes put out fire by taking away one or more elements in the picture.

Fire safety is based upon the principle of keeping fuel sources and ignition sources separate.)

10. As a Chief Engineer, talk about your responsibilities according to your company ' s SMS.

According to our company's SMS, as a chief engineer, my responsibilities are as follows:

1) Be responsible for the safe and efficient running of all mechanical and electric machinery ship-borne equipment;

2) Be responsible for organizing the Engine Department activities in the most cost effective and safe manner;

3) Be responsible for operative status for the equipment; answer the Master's device and alert the Master of any possible delays to repair machinery;

4) Be responsible for safe keeping of blue prints, operational manuals, certificates related to his department;

5) Be responsible for producing maintenance and survey's plan;

6) Be responsible for close working relationship with Company Technical Staff;

7) Be responsible for all working conditions of fire-fight appliance in the engine department, and testing lifeboat engine when life drills are conducted;

8) Be responsible for spare parts and ship's stores covering ordering. Control over consumption,

safe stowage and inventory with the assistance from 2nd engineer;

9) Be responsible for inspecting the engine room and steering gear room frequently;

10) Be responsible for bunkering and oil transfer operations and giving instructions to his staff;

11) Be responsible for training engineering staff to meet the requirement of their jobs and filling the Appraisal Forms

12) Be responsible for taking a positive role in pollution prevention in order to eliminate any possible oil and water leakage;

13) Be responsible for producing a detailed repair specification when major repair or dry dock is expected.

11. As a Second Engineer, talk about your responsibilities according to your company' s SMS.

According to our company's SMS, as a second engineer, my responsibilities are as follows:

1) Be responsible for watching at periods of 0400-0800 hours and 1600-2000 hours;

2) Be responsible to chief engineer for the operation and maintenance of all machinery and associated equipment;

3) Be responsible for operational procedures of main and auxiliary engines according to their respective manuals;

4) Be responsible for carrying out planned maintenance laid down by the Chief Engineer and keeping a full record of all work; he is responsible for all deck electric, hydraulic mechanical working condition;

5) Be responsible for maneuvering the main engine; he is responsible for cleaning of the Engine Room and associated compartments;

6) Be responsible for assisting Chief Engineer in the preparation of spare parts and repair lists;

7) Be responsible for familiarizing all pumping, piping, valve system in the engine room together

with all emergency equipment; he is responsible for taking care of the Engine Logbook, Engine Bell Book and other relevant record; he is responsible for participation in emergency drills;

8) Be responsible for taking positive measure to prevent collision in co-ordination with Chief Engineer;

9) Be responsible for assuming Chief Engineer's duty if Chief Engineer is absent.

12. As a Third Engineer, talk about your responsibilities according to your company ' s SMS.

According to our company's SMS, as a third engineer, my responsibilities are as follows:

1) Be responsible for watching at period of 0000-0400 hours and 1200-1600 hours;

2) Be responsible for the operation, maintenance and repair of generators, and auxiliary boilers, under the direction of the superior officer;

3) Be responsible for taking measure in safe and efficient operation of all machinery and preventive measure against fire and oil pollution;

4) Be responsible for taking measures in safety procedure and maintenance of all safety appliance, fire detection and fighting equipment, and engine control system in a thoroughly efficient state, and fuel transfer operation;

5) Be responsible for carrying out the instructions of the duty officer related to ballasting and de-ballasting and recording the operations;

6) Be responsible for testing the boiler water and jacket cooling water, recording the result in the Engine Room Log Book;

7) Be responsible for the maintenance, overhaul and upkeep of all electrical equipment under the direction of the Chief Engineer for preparation of electrical stores and spare parts;

8) Be responsible for carrying out the meager test for all electrical equipment and cables.

13. As a Fourth Engineer, talk about your responsibilities according to your company' s SMS.

11. As a Fourth Engineer, talk about your responsibilities according to your company's SMS.

According to our company's SMS, as a fourth engineer, my responsibilities are as follows:

1) Be responsible for watching at period of 0800-1200 hours and 2000-2400 hours;

2) Be responsible for assisting the second engineer in all technical aspects;

3) Be responsible for operation and maintenance of other auxiliary machinery except those taken up by the third engineer;

4) Be responsible for taking positive measure in the safe and efficient operation of all machinery and guarding against fire and oil pollution;

5) Be responsible for assisting in bunkering and fuel transfer operation under the direction of the second engineer;

6) Be responsible for carrying out the instructions relating to ballasting and de-ballasting and recording the operations.

7) Be responsible for testing the telegraph before departure and recording all engine movement in the Bell Book for staying in the engine room when vessel is entering or leaving a port when engine is on stand-by maneuvering;

8) Be responsible for assisting the second engineer in testing of emergency fire pump and lifeboat engine.

14. Please describe something about ship security training and drills.

(1) The time or interval of such ship security training and drills to be conducted on-board?

至少每 3 个月进行一次演练。此外，如果在任一时间有 25%的船舶人员被换成了前 3 个月内未曾参加过该船的人员，应在变动后一周内进行演练。

Security should be carried out at least every three months. Additional, if 25% crews who never attend the ship security training within the former 3 months are replaced at any time, security

training should be held within one week after staff changing.

(2) The persons involved in ship security training and drills?全体船上人员。

All the crews.

(3) The main procedures and requirements of ship security training and drills.（1）了解当前的保安威胁极其特征；(2）辨认和探查武器、危险物质和装置；(3）在非歧视的基础上，辨认可能威胁保安员的特点和行为模式；(4）用来逃避保安措施的技术；(5）搜身和非侵犯性检查方法。演习和演练的目的是确保船上人员熟练履行其在各保安等级所承担的保安职责,发现需加以解决的任何与保安有关的缺陷。

（1）Knowledge of security threaten and feature presently.

(2)Identify and detect weapons, hazardous material and equipment.

(3)Identify characters and action modes which pose possible threaten to security officers with no discrimination.

(4)Technologies to avoid security measures.

(5)Frisking and non-invasion check method. Training and drill aim to ensure crewmembers fulfilling security responsibility undertaken in respond security level, and finding any security defect to be resolved.

五、问答

1. What is STCW?

STCW stands for International convention on standards of training, certification, and watch-keeping for seafarers.

2. What is SOPEP?

SOPEP stands for Shipboard Oil Pollution Emergency Plan.

3. What is IOPP? What is the valid period?

IOPP stands for International Oil Pollution Prevention certificate. It is in effect for 5 years.

4. What is ISPS?

It stands for International Ship and Port Facilities Security.

5. What is SOLAS?

SOLAS stands for International Convention for Safety of Life at Sea .

6. Which operation should be entered into the Oil Record Book Part I, internal transfer of fuel oil or disposal of oil residues?

Disposal of oil residues should be entered into the Oil Record Book Part I

7. What kind of ships should be provided with Oil Record Book Part I?

Every oil tanker of 150 tons gross tonnage and above, and every ship of 400 tons gross tonnage and above, other than oil tankers.

8. Which equipment must be used when discharging the bilge water over board?

When discharging bilge water overboard, we must use the oily water separator.

9. What is an Oil Record Book?

It is an important oil pollution prevention document on board ship.

10. What does ORB stand for?

It stands for Oil record book

11. How can an oily water separator separate water and oil?

Using gravity system and conjunction with filter.

12. What should you do if you found a person electric shocked?

We should cut off the power first, then report and take emergency action to save him.

13. In case of scavenge fires, what procedures should be followed?

Slow down the engine, shut off fuel to the affected cylinders and close all the scavenge drains. If the fire doesn't burn out, follow further procedures.

14. What will happen when the PSCO find that emergency fire pump fails to work?

The ship may be detained until the deficiency is remedied.

15. Where are the carbon dioxide extinguishers on board your ship?

They are in the engine room and cargo holds.

16. How do you check the lifeboat during safety inspection?

To check the boat engine.

17. Who is in charge of the oily water separator on board your ship?

The fourth engineer is in charge of it.

18. What is the main purpose of PSC?

The main purpose of the PSC is to verify the condition of the ship, to eliminate the unsafe procedures or deficiencies, to keep safety of life and property at sea and to avoid pollution at sea.

19. Who takes charge of maintenance and repair work of the lifeboat engine?

The fourth engineer does.

20. What would happen if your ship were found serious deficiencies during the PSC inspection ?

The ship would be detained.

21. What does ISM stand for?

It stands for International Safety Management.

22. What are the objectives of ISM code?

Its objectives are to ensure safety at sea, to prevent human injury or loss of life, and avoid the damage to marine environment and to property.

23. What does SMS stand for?

SMS stands for Safety Management System.

24. What is SMC?

SMC means Safety Management Certificate.

25. What is DPA in ISM code?

DPA stands for designated person ashore.

26. What is NCR in ISM Code?

NCR is a Non-Conformity Report.

27. What does PSCO stand for? ; '^

PSCO stands for Port State Control Officer.

28. What is the requirement of oil content pumped out overboard?

Not more than 15ppm.

29. What do you know about MARPOL?

It is an international convention for marine pollution.

30. What are IMO and ILO?

IMO stands for International marine organization while ILO stands for International Labor Organization.

31. What does DOC imply? |

DOC stands for Document of Compliance.

32. How often do you perform a fire-fighting drill? Who controls on the spot?

Once a month. The chief officer takes charges of the drill on the spot. If the drill occurs in the engine room, the chief engineer takes charge of the drill on the spot.

33. How often do you have a boat drill or fire drill?

One month interval.

34. When some new rules or acts referred to your department need to be studied, who will arrange it?

The second engineer will arrange it.

35. How often do you have a safety meeting on board your ship?

According to our company's SMS, we usually have a safety meeting every month.

36. How often do you carry out an oil spill drill?

Once every three months.

37. What is the function of the incinerator?

The incinerator is used to burn sludge.

38. Please name at least three of anti -pollution equipment on board ship.

They are the incinerator, oily water separator and sewage treatment plant.

39. How often do you have a SOPEP drill?

Once a month.

40. What fire fighting apparatus have you got on board?

We've got quite a lot: fire pumps, emergency fire pump, fire extinguishers, and carbon dioxide system and so on.

41. If you find your vessel leaks out oil, what measures will you take?

I shall report to Pollution Control Authority immediately. Meanwhile, I shall take every active measure to control the pollution.

42. Who takes charge of fire fighting appliance in the engine room? What does it include?

The second engineer. Large fixed installation, CO2 extinguisher, fire pump and so on

43. Could you list some key equipment on board?

Alarm, fixed fighting equipment, lifesaving equipment and emergency and so on.

44. How often should the emergency fire pump be tested?

The emergency fire pump should be tested weekly.

45. How to test the emergency fire pump?

Start the diesel engine or the motor with the suction valve open and discharge valve closed. Check the seawater pressure.

46. How do you deal with your bilges?

We discharge them overboard through oily water separators.

47. How often should the emergency generator be tested?

The emergency generator should be tested once a month.

48. How often is the fire drill carried out on ocean -going vessels?

Usually once a month

49. Which convention is the most important of all international conventions dealing with maritime safety?

The SOLAS convention is the most important.

50. What does ISPS stand for?

It stands for International Ship and Port Facility Security.

51. What does SSO stand for in the ISPS Code?

SSO stands for the Ship Security Officer.

52. What does CSO stand for in the ISPS Code?

It stands for Company Security Officer.

53. What does SSP stand for in the ISPS Code?

It stands for Ship Security Officer.

54. What does SSA stand for in the ISPS Code?

It stands for Ship Security Assessment.

55. What does DOS stand for in the ISPS Code?

It stands for Declaration of Security.

56. What does SSAS stand for in the ISPS Code?

It stands for Ship Security Alert System.

57. What does ISSC stand for in the ISPS Code?

It stands for International Ship Security Certificate

58. What does PFSO stand for in the ISPS Code?

It stands for Port Facility Security Officer.

59. What does RSO stand for in the ISPS Code?

It stands for Recognized Security Organizations.

60. How often do you perform security drills?

Once every three months

61. When will an engineer in charge of watch call the Chief Engineer?

When engine damage of malfunction occurs or in any other emergency situations when he is unsure of the action to take.

62. What is the Critical Equipment and System?

Critical equipment and system refer to those whose sudden loss of functional capability or failure to respond when activated manually or automatically may create high risk situations or major accidents. For example, main engine, steering gear and so on 指的是突然失去性能或者当手动或自动地作用时会造成高的危险情形或大的事故。例如，主机，舵机等等

63. What are the critical operations and conditions?什么是关键操作和临界状态？

Critical Operations and Conditions are those which have a significant risk of causing major injuries or illness to people, or damage to ship, cargo, other property and/or the environment.

关键操作和临界状态是指能够引起对人员所造成重大伤害，造成船舶损坏，货物或其它的财产和环境的损坏的重大危险的操作。

64. What is a near accident? Please give an example to show your understanding.什么叫险情？请举例说明。

The near accident is a kind of potential danger. If it is worse, it will become an accident. For example, two ships are in close quarters situation. 险情是一种潜在的危险。如果恶化的话，他会变成一个事故。例如，两条船非常靠近地航行。

65. What is the main duty of the 2/E?

The Second Engineer is responsible for watching at periods of 0400-0800 hours and 1600-2000hrs. He is responsible to the Chief Engineer for the operation and maintenance of all machinery and associated equipment.

2 / E 在航行中负责值 4 - 8 和 16 - 20 班。在轮机长的领导下 2 / E 负责操作及维护所有的机械设备和相关的设备。

66. What is the main duty of the 3/E?

The third engineer stands watch from 0000 to 0400 and from 1200 to 1600 hours. He is responsible for generators and fuel oil separators, as well as bunkering and fuel transfer operation.

67. What is the main duty of the 4/E?

The fourth engineer stands watch from o800 to 1200 and from 2000 to 2400 hours. He is responsible for boilers, pumps, decks equipment and pollution prevention equipment.

68. What is the main duty of the C/E?

The Chief Engineer is ultimately responsible for the safe and efficient running of all mechanical and electric machinery shipboard equipment.轮机长主要负责船上所有机电设备的安全和有效的运转.

69. What is the purpose of the ISM Code?

The purpose of this Code is to provide an international standard for the safe management and operation of ship's of ships and for pollution prevention. ISM 规则的目的是提供针对船舶安全管理和操作以及防污染的一个国际标准。/Ensure safety at sea, human injury, and prevent avoid damage to the environment and property.

70. What basic safety training shall all crew members received?

Fire fighting, life saving, pollution prevention and first aids.

71. What shall the engineering watch keeper know in addition to their assigned watch-keeping duties? .

The engineering watch keeper know how to deal with the emergency situations.

72. What enforcement action would be taken on the vessels without being in compliance with the ISM Code?

Detaining.

73. What key elements does a Safety Management System include?

Safety and environmental protection policy, levels of authority, procedures for reporting accidents and nom-conformities, emergency responses audits and reviews.

74. What does MARPOL 73/78 consist of?

MARPOL consist of regulation aimed at preventing and minimizing pollution from ships as well as six technical annexes.

75. What shall SOPEP consist of?

Emergency contacts anti-pollution equipment, muster list for oil pollution, report procedure when accident occurs, and so on.