



UNIVERSITI KUALA LUMPUR
Malaysian Institute of Marine Engineering Technology

FINAL EXAMINATION
MARCH 2025 SEMESTER SESSION

SUBJECT CODE : LOD20603
SUBJECT TITLE : CARGO HANDLING
PROGRAMME NAME : DIPLOMA IN MARITIME MANAGEMENT
(FOR MPU: PROGRAMME LEVEL)
TIME / DURATION : 09.00 AM - 11.00 AM
(2 HOURS)
DATE : 2 JULY 2025

INSTRUCTIONS TO CANDIDATES

1. Please read **CAREFULLY** the instructions given in the question paper.
 2. This question paper has information printed on both sides of the paper.
 3. This question paper consists of **TWO (2)** section, Section A and Section B.
 4. Answer **ALL** question in Section A, and **THREE (3)** questions **ONLY** in Section B.
 5. Please write your answers on the OMR answer script and answer booklet provided.
 6. Answer **ALL** questions in English language **ONLY**.
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THERE ARE 9 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 25 marks)

INSTRUCTION: Answer ALL questions.

Please use the objective answer sheet provided.

1. What is the main difference between a crude oil tanker and a chemical tanker?
 - A. Chemical tankers are larger than crude oil tankers
 - B. Crude oil tankers are designed to carry a variety of chemicals
 - C. Chemical tankers are equipped with specialized coatings and segregated tanks for carrying different chemicals safely
 - D. There is no difference; both carry the same type of cargo

2. Which of the following are edible tanker cargoes?
 - A. Fruit juice and gasoline
 - B. Wine and kerosene
 - C. Palm oil and molasses
 - D. Sulfuric acid and coconut oil

3. Which of the following types of livestock is commonly transported by sea?
 - A. Lions
 - B. Cattle
 - C. Rhinoceros
 - D. Elephants

4. What is a product tanker?
 - A. A vessel designed to carry raw crude oil
 - B. A vessel used to transport bulk grain and coal
 - C. A vessel specifically designed to carry refined petroleum products like gasoline, diesel, and jet fuel
 - D. A vessel specifically designed to carry refined petroleum products like palm oil, wine, and fruit juice

5. Which type of vessel is suitable for transporting large quantities of timber deck cargoes?
 - A. Tanker ship
 - B. Break bulk carrier
 - C. Container ship
 - D. Bulk carrier

6. Which of the following cargoes is commonly transported using refrigerated containers?
 - A. Machinery parts
 - B. Crude oil
 - C. Dairy products
 - D. Grains

7. What is the first action to take in response to a gas leak during the loading or unloading process on an LNG or LPG carrier?
- A. Raise the alarm and stop cargo operations immediately
 - B. Continue loading/unloading and report it after completion
 - C. Ignore the leak if it's small
 - D. Attempt to seal the leak with tape
8. What needs to be done to ensure the health and safety of livestock during sea transport?
- A. Ensure proper ventilation
 - B. Provide regular entertainment for the animals
 - C. Limit animal movement by tightly confining them
 - D. Keep animals in complete darkness

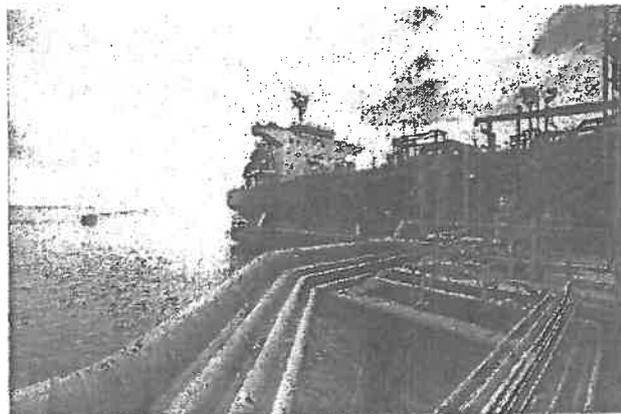


Figure 1. Pipelines

9. Based on figure 1, what is the primary function of pipelines at a liquid bulk cargo port?
- A. To store dry cargo before shipping
 - B. To transport liquid cargo between ships and shore storage tanks
 - C. To supply fuel to ships during the bunkering process
 - D. To provide lighting and electricity to docked vessels
10. Why is the inert gas system crucial during the loading and unloading of cargo on a tanker?
- A. It helps in cooling the cargo.
 - B. It increases the cargo capacity.
 - C. Reducing fuel consumption.
 - D. It prevents the formation of explosive atmospheres in the cargo tanks

11. Why are pipelines preferred over other methods of transportation for loading and unloading liquid bulk cargo?
- A. Pipelines are slower but more cost-effective
 - B. Pipelines reduce manual labor and allow for continuous, safe, and efficient transfer of cargo
 - C. Pipelines are easier to install than hoses
 - D. Pipelines are mainly used to transport solid goods
12. Which of the following is a reason why refrigerated cargo must be monitored?
- A. To increase the weight of the cargo
 - B. To ensure the cargo remains frozen solid at all times
 - C. To maintain the required temperature and prevent spoilage or quality loss
 - D. To reduce the need for refrigeration equipment
13. How can stress be monitored in livestock cargo such as cows, pigs, and chickens during a voyage?
- A. By measuring how much they eat only
 - B. By checking their weight once at the end of the trip
 - C. By letting them roam freely on deck
 - D. By observing behavior, and checking for signs of dehydration or discomfort
14. Which type of livestock cargo needs a specialized area in a livestock carrier to avoid stress and death?
- I. Cattle
 - II. Poultry
 - III. Goats
 - IV. Pig
- A. III only
 - B. I, II, and III only
 - C. III, and IV only
 - D. All of the above
15. What is the benefit of using dunnage during the loading of timber deck cargo?
- A. It provides ventilation and prevents damage to the cargo
 - B. It helps to reduce the weight of the cargo
 - C. It speeds up the unloading process by eliminating the need for securing
 - D. It replaces the need for lashing and securing equipment

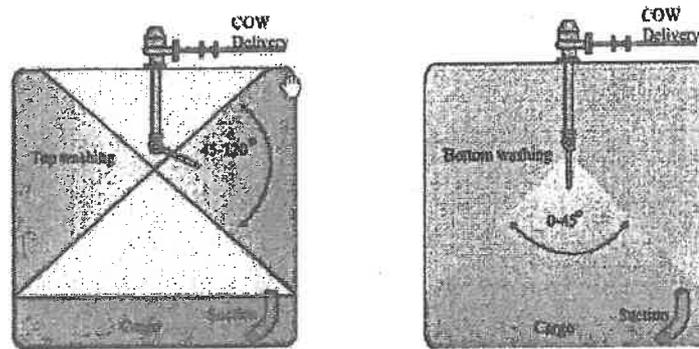


Figure 2. Crude Oil Washing Method

16. Based on figure 2, how does the crude oil washing (COW) method clean an oil tanker?
- By using seawater to rinse all cargo tanks
 - By spraying crude oil under high pressure onto the tank walls to dislodge and remove remaining residues
 - By pumping hot freshwater through the tanks to remove residue
 - By using chemical detergents and manual scrubbing
17. Which of the following represents the correct process for loading tanker cargoes?
- Pre-inspection, mooring, connection, monitoring, emergency shutdown, disconnection
 - Inspection, connection, mooring, monitoring, and disconnection
 - Pre-inspection, mooring, disconnection, monitoring, emergency shutdown, connection
 - Inspection and monitoring only
18. Which gas is commonly used in inert gas systems on tanker ships?
- | | |
|-------------|-------------------|
| A. Oxygen | C. Carbon dioxide |
| B. Nitrogen | D. Helium |
19. What is compartment insulation in a refrigerated container?
- A system that heats the container to prevent freezing
 - A type of cargo packaging used to separate different goods
 - A type of material that help to maintain a consistent internal temperature
 - A cooling fan used to circulate air inside the container

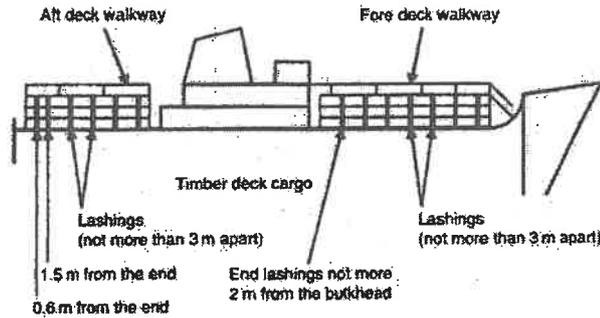


Figure 3. Lashing points or guidelines for Timber Cargo

20. Based on figure 3, why is a lashing point important for securing timber deck cargoes?
- A. It helps to speed up the loading process
 - B. It ensuring the cargo remains stable and safe during transit
 - C. It reduces the weight of the cargo
 - D. It is only used for aesthetic purposes
21. What are the advantages and disadvantages of a livestock carrier?
- A. Livestock carriers provide specialized facilities for animal welfare but are more expensive to operate.
 - B. Livestock carriers are cheaper but less comfortable for animals.
 - C. Livestock carriers are faster but less safe for animals.
 - D. Livestock carriers require fewer crew members but have higher maintenance costs.
22. How does a high-level alarm function on tanker ships?
- A. It opens the cargo valve automatically
 - B. It notifies the engine room to increase speed
 - C. It alerts the crew when the liquid in the tank reaches a pre-set maximum level to prevent overfilling
 - D. It shuts down the main engine
23. Which of the following PPE is not required during the loading and unloading of tanker cargo?
- A. Safety gloves
 - B. Goggles
 - C. Safety helmet
 - D. Earmuffs

24. What is one of the most important factors in developing a livestock carrier?
- A. High-speed propulsion system
 - B. Luxurious design
 - C. Proper ventilation
 - D. Large fuel tanks for long voyages
25. Which international convention establishes regulations not related to tanker ships?
- A. SOLAS (International Convention for the Safety of Life at Sea)
 - B. MARPOL (International Convention for the Prevention of Pollution from Ships)
 - C. ISPS Code (International Ship and Port Facility Security Code)
 - D. IMSBC Code (International Maritime Solid Bulk Cargoes Code)

SECTION B (Total: 75 marks)**INSTRUCTION: Answer THREE (3) questions only.****Please use the answer booklet provided.****Question 1**

Hatch covers are essential components on cargo ships, designed to seal the cargo holds and protect goods from weather and seawater. Proper operation and maintenance are crucial to ensure watertight integrity and cargo safety. Heavy lift cargo operations involve the handling of oversized or extremely heavy items such as machinery or industrial equipment. These operations demand detailed planning, the use of specialized lifting gear, accurate stability calculations, and secure lashing to prevent damage and ensure the safety of both cargo and vessel.

Based on the explanation above, answer the following questions:

- (a) List FOUR (4) types of vessel hatch cover and explain how they operate. (8 marks)
- (b) List SIX (6) types of deck cargoes. (6 marks)

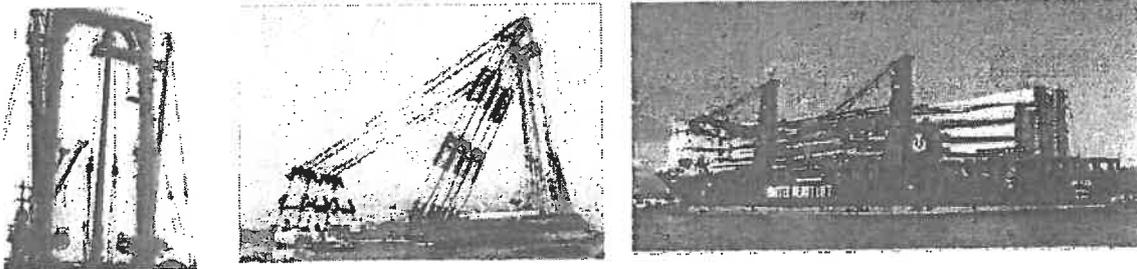


Figure 1: From left - derrick cranes, heavy lift floating cranes, and heavy lift ships/project cargo ships.

- (c) Based on figure above, explain the functionalities of THREE (3) types of heavy lift equipment. (6 marks)
- (d) Justify FIVE (5) precautions during loading and unloading heavy lift cargoes (5 marks)

Question 2

Stowage is important to ensure the safety of the vessel, cargo, and crew during loading, voyage, and unloading operations. To achieve safe stowage, proper guidelines must be followed to prevent damage and maintain stability. Key personnel responsible for monitoring and implementing safe stowage include the chief officer and the junior cargo officer.

Based on the explanation above, answer the following questions:

- (a) List FIVE (5) principles of stowing cargo. (5 marks)
- (b) Justify FIVE (5) duties and responsibilities of:
- i. Chief Officer (10 marks)
 - ii. Junior Cargo Officer (10 marks)

Question 3

Identified cargo refers to cargo that is labeled or marked to indicate special handling requirements, often due to its hazardous, fragile, or perishable nature. Cargo sweat, caused by condensation when warm, moist air contacts cooler cargo surfaces, can lead to significant cargo damage, especially for moisture-sensitive goods. The use of dunnage is important in stowage as it provides ventilation, absorbs moisture, and cushions the cargo, helping to prevent physical and moisture-related damage during transport.

Based on the explanation above, answer the following questions:

- (a) List the FIVE (5) guidelines for loading identification cargo. (5 marks)
- (b) Describe in table the phenomenon of cargo sweat in maritime shipping: including its causes, effects, and preventive measure. (10 marks)
- (c) List FOUR (4) types of dunnage. (4 marks)
- (d) Outline the roles of dunnage in order to protect cargo from damage during transit and prevent movement or shifting (6 marks)

Question 4

Bulk cargoes play a crucial role in the maritime industry. To ensure safe transportation, there are established guidelines such as the International Grain Code, which provides standards for stability and loading procedures. Additionally, specific methods are implemented to prevent cargo from shifting during the voyage, which could affect the vessel's stability and safety.

Based on the explanation above, answer the following questions:

- (a) List FIVE (5) types of bulk cargo. (5 marks)
- (b) Justify the content of the International Grain Code (IGC Code). (6 marks)
- (c) Justify FIVE (5) methods used to avoid grain shift during transit or voyage. (10 marks)
- (d) List FIVE (4) hazards during loading/unloading grains. (4 marks)

END OF EXAMINATION PAPER

