UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF MARINE ENGINEERING TECHNOLOGY

FINAL EXAMINATION
JANUARY 2016 SEMESTER

COURSE CODE	:	LGB 11702
COURSE NAME	:	INTRODUCTION TO SHIP TECHNOLOGY
PROGRAMME NAME	:	BACHELOR OF MARINE ELECTRICAL ELECTRONIC (HONS.)
DATE	:	20 MAY 2016
TIME	:	08.00 AM – 10.00 AM
DURATION	:	2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please CAREFULLY read 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) sections; Section A and Section B.
4. Answer ALL questions in Section A. For Section B, answer THREE (3) questions only.
5. Please write your answers on the answer booklet provided.
6. Answer all questions in English language ONLY.

THERE ARE 7 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

SECTION A (Total: 40 marks)

INSTRUCTION: Answer ALL questions.
Please use the answer booklet provided.

Question 1

(a) The Royal Malaysian Navy is the naval armed of the Malaysian Armed Forces. State the roles of Naval Defense industry.

(5 marks)

(b) In the days of sailing ships, winds were essential, and sailing with the wind behind you was much quicker and easier than trying to sail into a strong head wind. Provide a brief definition of wind and effects of strong winds on ship.

(5 marks)

(c) Corrosion is the chemical breakdown of the surface of the metal, with consequent loss in thickness and strength.
With the aid of diagram briefly explain the galvanic corrosion process and methods to prevent corrosion?

(10 marks)

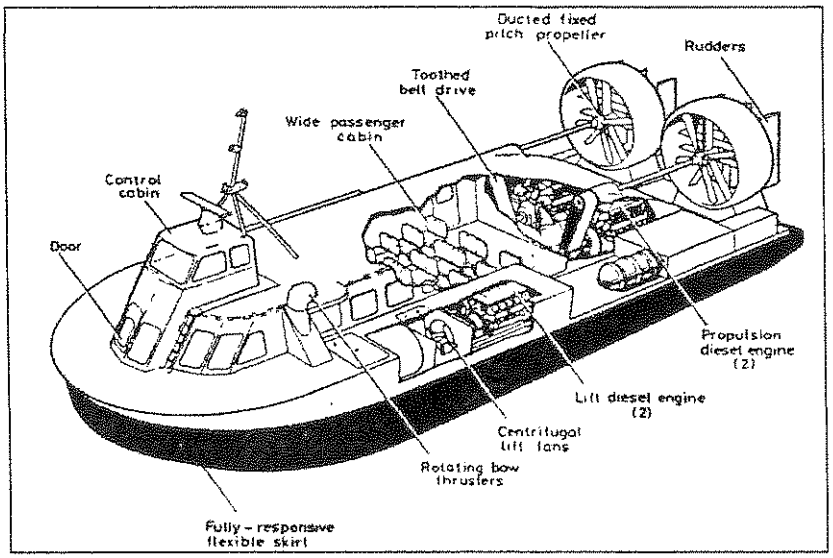
Question 2

(a) All aspects concerning the measurement of seagoing vessels are arranged in the certificate of registry act of 1982.
Define any two (2) of the following terminologies that related to ship's dimensions, volume and weight.

i. Depth
ii. Freeboard
iii. Breadth moulded
iv. Draught

(2 marks)

(b) Briefly explain the reasons for the development of the vessel below



(4 marks)

(c) The ship structural frame must be of adequate strength, and comprises of longitudinal and transverse members integrally welded together.
With the aid of a diagram, define the primary role of combination framing system of ship structures

(6 marks)

(d) The vessels' mission requirements determine the design and shape of the vessel to be constructed. This has results various types of vessels with their own unique features.
Briefly explain the basic features of the following merchant ships:

i. Submarine
ii. Passenger Liner
iii. Frigate
iv. Tug Boat

(8 marks)

SECTION B (Total: 60 marks)

INSTRUCTION: Answer only THREE (3) questions.
Please use the answer booklet provided.

Question 3

(a) In its simplest form shipbuilding is large steel fabrication, components are formed into assemblies that are then connected to larger units and then finally assembled into a ship.
List two (2) of the facilities that are found in almost all shipyards.

(2 marks)

(b) Shipbuilding involves producing boats and ships to the client's specifications.
Justify the processes involved in shipbuilding

(7 marks)

(c) Regardless of whether the shipyard is to be built from scratch or created by modification of existing yards, there are several things that need to be considered.
Justify the steps to be considered before the construction of the shipyard begins.

(5 marks)

(d) In its simplest form shipbuilding is large steel fabrication, components are formed into assemblies that are then connected to larger units and then finally assembled into a ship.
Explain six (6) of the hull construction stages

(6 marks)

Question 4

(a) Glass Reinforced Plastic (GRP) is widely used in the construction of boat hulls as well as fittings. GRP is replacing timber in ship construction
List four (4) main spray-up composite components.

(4 marks)

(b) Classification Societies such as Lloyds Register of Shipping have strict rules regarding the grading of materials for marine construction.

State the rules for GRP, steel and aluminium construction of a vessel.

(4 marks)

(c) Timber is commonly used to fit out pleasure craft and small boats. Apart from its versatility and ease of use it provides an attractive finish. There are three types of timber used in boat building; hardwoods, softwoods, and plywood.
Briefly describe any two (2) of the following three types of woods:

i. Plywoods
ii. Softwoods
iii. Hardwoods

(8 marks)

(d) Timber is commonly used to fit out pleasure craft, small boats and constantly in contact with moisture due to marine environment. There are two types of wood rot, wet rot and dry rot.

i. Briefly explain the cause of wet rot and dry rot
ii. Justify three (3) procedure to prevent wood rot

(4 marks)

Question 5

(a) Identify two (2) differences between shipyard and dockyard

(2 marks)

(b) The build plan is the detailed plan of how the ship will be constructed. Decisions are made on which components will be built first and the assembly order.
State two (2) of the factors affecting these decisions.

(2 marks)

(c) Ship components can be from raw materials such as steel plates for building the keel or other parts of the ship. An item may specified as follows:

i. Part number
ii. Descriptiopn of item
iii. Manufacturer
iv. Quantity required

Briefly explain three (3) of the specifications of a required construction materials as sated above

(6 marks)

(d) Docking ships is an integral component of shipyard operations. It is necessary to dock a vessel to repair a damage part and major refit.
With the aid of a diagram briefly explain the basic arrangement, operation and the advantages of a floating dock.

(10 marks)

Question 6

(a) Purchasing is an important feature of Just-In-Time (JIT) methods of inventory control. JIT requires the lead times to be shorter and deliveries to be more reliable and cost effective.
List two (2) goals of JIT

(2 marks)

(e) The EOQ model provides a strategy for efficient implementation of the procurement process in a shipyard. By minimizing the sum of the set-up and holding costs, the total costs are minimized.
Justify the relationship between various cost and the optimal order quantity.

(6 marks)

(c) The EOQ model provides a strategy for efficient implementation of the procurement process in a shipyard. This strategy is based on the certain assumptions.
State three (3) of the assumptions.

(6 marks)

(d) A typical shipyard includes wide-ranging material handling equipment to transport a wide variety of materials ranging from large metallic objects to gas cylinders. Material handling equipment can be classified into the following four broad groups:

i. Conveyors
ii. Industrial Trucks
iii. Cranes
iv. Containers.

Justify any three (3) of the above material handling equipments.