UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF MARINE ENGINEERING TECHNOLOGY

FINAL EXAMINATION
SEPTEMBER 2016 SEMESTER

COURSE CODE	: LGB 11702
COURSE NAME	: INTRODUCTION TO SHIP TECHNOLOGY
PROGRAMME NAME	: BACHELOR OF ENGINEERING TECHNOLOGY (HONS.) IN MARINE ELECTRICAL AND ELECTRONIC
DATE	: 24 JANUARY 2017
TIME	: 09.00 AM – 11.30 AM
DURATION	: 2.5 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 6 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

SECTION A (Total: 40 marks)

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

Question 1

(a) A floating body like a ship is required to operate in "six degrees of freedom" or subjects to six dimension of movements such as heave, yaw, pitch, sway, roll and surge. List four (4) of the major requirements of the design of a floating vehicle.

(4 Marks)

(b) An iceberg is a large piece of freshwater ice that has broken off a glacier or an ice shelf and is floating freely in open water. Identify four (4) effects of an iceberg on maritime activities.

(4 Marks)

(c) Tide is a flow of a large mass of the sea due to rise and fall in sea level, which is caused by the gravitational effect of the sun and the moon on the earth. With the aid of a diagram, briefly describe spring tides and neap tides.

(6 Marks)

(d) In a marine environment, the main factor that influences corrosion is the environment itself and there are several causes of corrosion in the marine environment. Briefly describe three (3) causes of corrosion in marine environment.

(6 Marks)

Question 2

(a) Marine vessel is a floating vehicle that can carry goods, cargo, passenger etc from one place to another place with safety condition. One of the marine vessels is tug boat which are capable to handle a lot of duties. Identify four (4) functions of tug boat.

(4 Marks)

(b) The ship which is always crossing the oceans will encounter bad weather, rough sea with big waves and experienced hogging and sagging. With the aid of a diagram, briefly interpret hogging and sagging.

(6 Marks)

(c) A ship structure usually consists of a network of plates and supporting structure. The supporting structure consists of large members running both longitudinally and transversely which must be of adequate strength and integrally welded together. With the aid of a diagram, explain longitudinal farming system and transverse framing system.

(10 Marks)

SECTION B (Total: 60 marks)

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

Question 3

(a) The initial design of a ship generally proceeds through four stages. Choose four (4) preparation design in shipbuilding industry.

(4 Marks)

(b) Regardless of weather, the shipyard is to be built from scratch or modification of existing yard, there are several things that need to be taken into consideration. Explain two (2) basic requirements of a modern shipyard.

(4 Marks)

(c) In modular construction method, the components are formed into assemblies that are then connected to larger units and then finally assembled into a ship. State six (6) processes for modern shipbuilding before perform the hull construction.

(6 Marks)

(d) Shipbuilding is always in a state of change. Innovations in design, materials, equipment, techniques, propulsion and construction improve and therefore alter the methods used in shipbuilding. Both traditional and modern method of shipbuilding process will be started with the design plans. Outline six (6) processes for traditional and modern method of shipbuilding process after the design plans.

(6 Marks)

Question 4

(a) Docking ships is an integral component of shipyard operations. Most large vessels are docked once every three years. State four (4) reasons the purpose to dock the vessel.

(4 Marks)

(b) Launching means 'to set a ship afloat for the first time'. When the vessel is nearly complete, it has to be transferred to the water. List four (4) methods for launching a vessel.

(4 Marks)

(c) There are four (4) requirements must be taken into consideration for ensure that a ship launches successfully for inclined building berth. Identify the requirements needed for this type of launching.

(4 Marks)

(d) Docking ships is an integral component of shipyard operations. Most large vessels are docked once every three years. With the aid of a diagram analyze the basic arrangement, operation and the advantages of a floating dock.

(8 Marks)

Question 5

(a) Glass Reinforced Plastic (GRP) and Fibre Reinforced Plastic (FRP) is widely used in the construction of boat hulls as well as fittings. Justify three (3) processes can be used for fiberglass boat construction.

(6 Marks)

(b) 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. Justify three (3) types of timber used in boat building.

(6 Marks)

(c) Suppliers have their own specifications for their standard products. Suppliers' specification may also include certification of the product, such as compliance with various government quality regulations such as SIRIM and Malaysian Standard (MS). In a shipyard, structural materials may need to comply with the Rules of the Classification Societies. These may be listed in their brochures and product manual. Choose eight (8) of suppliers' specification.

(8 Marks)

Question 6

(a) The aim of materials and plant materials management is to co-ordinate, within shipyard, all activities connected with the flow of materials to the facility and on to the individual project in order to achieve efficient controls at optimum cost- in line with the ship building strategy. The scope and objective of purchasing, stock control and stores management within an organization must be taken into consideration such as the critical areas of purchasing. Identify three (3) critical areas of purchasing.

(6 Marks)

(b) The design department issues the drawings and associated bills of materials relating to the construction of the ship. These drawings and materials lists (BOM, TPS) are then transmitted to the planning and control department, which issues a material requisition to the procurement department. The procurement department creates a procurement schedule. Select six (6) of the relationship between the design and procurement departments.

(6 Marks)

(c) 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 four broad groups. Evaluate four (4) material handling equipment groups.

(8 Marks)

END OF EXAMINATION PAPER