UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF MARINE ENGINEERING TECHNOLOGY

FINAL EXAMINATION
JANUARY 2017 SEMESTER

COURSE CODE	: LNB20903
COURSE NAME	: SHIP PRODUCTION TECHNOLOGY
PROGRAMME NAME (FOR MPU: PROGRAMME LEVEL)	: BACHELOR OF ENGINEERING TECHNOLOGY (HONS) IN NAVAL ARCHITECTURE & SHIPBUILDING
DATE	: 07/07/2017 FRI
TIME	: 9.00 AM - 12.00 PM
DURATION	: 3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read CAREFULLY the instructions given in the question paper.
2. This question paper has information printed on both sides.
3. This question paper consists of TWO (2) sections; Section A and Section B. Answer ALL questions in Section A and THREE (3) questions from Section B.
4. Please write yours answers on the answer booklet provided.
5. Write your answers only in BLACK or BLUE ink.
6. Answer all questions in English.

THERE ARE 6 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

SECTION A

INSTRUCTION: Answer four (2) questions only.

Please use the answer booklet provided.

Question 1

a) The nature of shipbuilding industry differs very much from mass production industries like car and electronic industry. Briefly, discuss the **characteristics of the shipbuilding industry**.

(5 marks)

b) The current scenario of Shipbuilding and Ship repair (SBSR) industry in Malaysiais unfavourable as there is a shortage by nearly 30% of local skilled manpower in shipyards. Briefly, identify and explain the **Strengths and Weakness** in the **development of a local skilled workforce** for SBSR industry.

(5 marks)

c) Shipyards in Malaysia face many challenges but there is a lot of potential for them to develop and grow in the future. Briefly, **propose and explain** your three (3) **plan of action measures to provide a boost to the SBSR industry** in Malaysia.

(10 marks)

Question 2

a) The building of modern shipyards requires detailed layout planning. One shipyard may have a different layout design compared to others. Briefly, discuss on the importance of the shipyard layout to the production flow.

(5 marks)

b) One of the important aspects of the operations in shipyards is their organization. These organizations are divided into departments, sections and units. Describe the functions of the **'marketing department'** in a shipyard organization and give your opinion on the **skill and knowledge marketeer** should have.

(5 marks)

c) In designing a good layout of a shipyard, state the **main objectives to be achieved.** With the aid of a sketch, discuss a **typical layout and production/ material flow** of a modern shipyard which implements an advanced technique of ship production process.

(10 marks)

SECTION B

INSTRUCTION: Answer four (2) questions only.

Please use the answer booklet provided.

Question 3

(a) Briefly, explain the definition of **Production Planning, Scheduling and Control System** in the shipbuilding industry. Also, state factors of Production **Control Practical Indices** for monitoring in shipbuilding projects.

(8 marks)

b) Refer to the Table 1.0 below: 1

Table 1.0: Activity Data

Activity	Activity Description	Immediate Predecessors	Duration (Days)
A	Detail Design of wave-piercers	-	3
B	Procurement of aluminium plates	-	7
C	Cutting of plates using CNC machine	B	7
D	Unit pre-assembly for block 1	A, C	2
E	Assembly of block 1 by welding joint	C	5
F	Piping pre-outfit	C	5
G	Outfit installation	D,E,F	5

i) Draw the Network Diagram.

(6 marks)

ii) From the network diagram in (i) , determine the "critical path".

(2 marks)

iii) Give your opinion, what is the most important between **shipyard planning and production planning** upon signing the contract? State your reason.

(4 marks)

Question 4

(a) MSEB Sdn Bhd is experienced in building vessel type offshore patrol vessels. It has signed a contract with the Malaysian Navy to build a new type of offshore patrol vessels. The management has decided to apply **Design for Production (DFP)** to ensure that the production will be cost effective.

You have been given the task to present this concept to the management team of your shipyard. Prepare a short technical report about this concept. The report should at least include the following;-

i. A clear and concise definition of DFP.

(5 marks)

ii. The main aims and benefits of implementing this concept in the shipyard.

(4 marks)

iii. The general approach that must be adopted by the management team. Also, problems that are likely to be faced by the management team.

(8 marks)

iv. Basic principles to be considered in the implementation. Briefly, discuss **a standardization** in order to clarify its concept.

(8 marks)

Question 5

(a) Describe the **systems oriented work breakdown structure**.

(5 marks)

(b) Venice Manjung Raya Sdn. Bhd. is a shipyard specialising in building mega vessels. To improve the production in the shipyard, accuracy control system (ACS) will be used in the production of a mega container. Explain the requirements needed to implement the accuracy control system (ACS) for the shipyard's production process.

(10 marks)

(c) Draw the zone outfitting method of Manufacturing Levels flow chart.

(5 marks)

Question 6

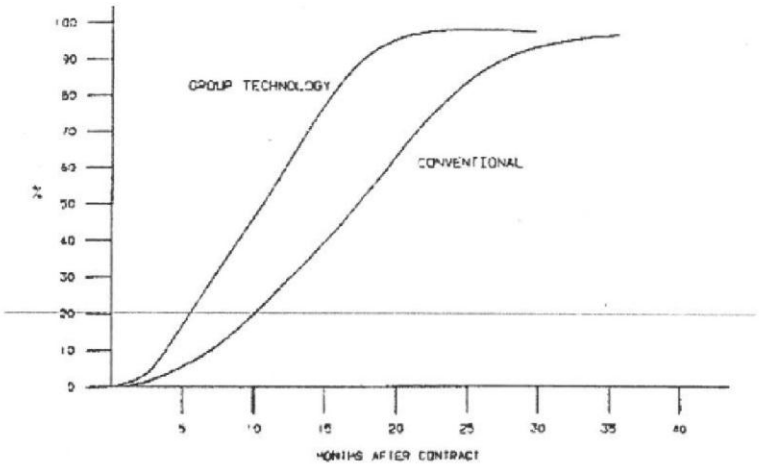

Figure 1 - Effect of Group Technology on the activity pace of a shipyard

a) Briefly, explain the definition of **Group Technology** in the ship production.

(5 marks)

b) From Figure 1, it shows the result of the analysis of several US and Japanese shipyards that **implement Group Technology**. Give your opinion how the implementation of Group technology **will influence the productivity** of the shipyard.

(10 marks)

c) Briefly, discuss the major **source of low productivity or high cost in shipbuilding** project.

(5 marks)

END OF QUESTION