



**UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF
MARINE ENGINEERING TECHNOLOGY**

**FINAL EXAMINATION
JANUARY 2016 SEMESTER**

COURSE CODE : LED 30802
COURSE NAME : NAVIGATION EQUIPMENT & SYSTEM
PROGRAMME NAME : DIPLOMA OF ENGINEERING TECHNOLOGY IN
(FOR MPU: PROGRAMME LEVEL) ELECTRICAL AND ELECTRONIC (MARINE)
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 TWO (2) questions.
5. Please write your answers on the answer booklet provided.
6. Answer all questions in English language ONLY.

THERE ARE 5 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

SECTION A (Total: 60 marks)

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

Question 1

- (a) Briefly explain the Global Positioning System (GPS).
(5 marks)
- (b) Describe the principle of Space Segment in Global Positioning System (GPS).
(5 marks)
- (c) Describe the principle of Control Segment in Global Positioning System (GPS).
(5 marks)
- (d) Briefly explain the operation of GPS Satellite.
(5 marks)

Question 2

- (a) Briefly explain the Echo Sounder system.
(5 marks)
- (b) Justify and describe THREE (3) uses of Echo Sounder.
(6 marks)
- (c) Briefly explain the principle of sound wave in Echo Sounder.
(5 marks)
- (d) Describe the Velocity Error of Echo Sounder.
(4 marks)

Question 3

- (a) Briefly explain the Speed Log system.
(4 marks)
- (b) Describe the principle of Impeller Speed Log.
(6 marks)
- (c) Describe the principle of Electro Magnetic Speed Log.
(6 marks)
- (d) Justify FOUR (4) environmental factors affecting the accuracy of Speed Log.
(4 marks)

SECTION B (Total: 40 marks)

INSTRUCTION: Answer TWO (2) questions.
Please use the answer booklet provided.

Question 4

- (a) Briefly explain the Radar system. (5 marks)
- (b) Describe the principle of pulse Radar. (5 marks)
- (c) Describe why Radar used high frequencies band. (5 marks)
- (d) Briefly explain the Magnetron in Radar system. (5 marks)

Question 5

- (a) Briefly explain the principle of compass. (5 marks)
- (b) Describe the Magnetic compass. (5 marks)
- (c) Describe the Gyro compass. (5 marks)
- (d) Briefly explain the operation of Optical Gyroscope (5 marks)

Question 6

- (a) Briefly explain the Navigation Satellite Timing and Ranging (NAVSTAR) GPS.
(5 marks)
- (b) Justify the FOUR (4) uses of GPS.
(4 marks)
- (c) Briefly describe the Number of Visible Satellites.
(5 marks)
- (d) Briefly describe the Satellite Dilution of Precision (DOP).
(6 marks)

END OF QUESTION