



UNIVERSITI KUALA LUMPUR
MALAYSIAN INSTITUTE OF MARINE ENGINEERING TECHNOLOGY

FINAL EXAMINATION
JANUARY 2017 SEMESTER

COURSE CODE : LOB10203

COURSE NAME : OCEANOGRAPHY

PROGRAMME NAME : BACHELOR OF MARITIME OPERATIONS (HONS)
(FOR MPU: PROGRAMME LEVEL) BACHELOR OF ENGINEERING TECHNOLOGY (HONS)
IN NAVAL ARCHITECTURE & SHIPBUILDING

DATE : 12/07/2017 WED

TIME : 2.00 PM - 05.00 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.
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THERE ARE 3 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)

INSTRUCTION: Answer ALL questions.

Please use the answer sheet provided.

Question 1

- (a) Briefly, define the lithosphere. (4 marks)
- (b) Describe the details evidence of continent fit together to support continental drift theory. (8 marks)
- (c) Compared the characteristics, tectonic processes for three-sub type of convergent plate boundaries with an example. (8 marks)

Question 2

- (a) Explain the following terminology related to tides: (8 marks)
- i. Apogee
 - ii. Diurnal
 - iii. Semidiurnal
 - iv. Tidal bulges
- (b) On 16 October 2016, at Kuala Batu Pahat, Johor, the high tide was 3.1 meters at 0955 hours. The succeeding time was 1654 hours where the height is 0.2 meters. Determine the height of tide in at 1200 hours. (12 marks)

SECTION B (Total: 60 marks)

INSTRUCTION: Answer THREE question ONLY.

Please use the answer booklet provided.

Question 3

The atmosphere and ocean act as one interdependence system that influence the winds and currents and affecting the weather system.

- (a) Discuss the condition and impact if earth is non-spinning. (8 marks)
- (b) Explain with an example how Coriolis Effect causes moving objects on Earth to follow curved paths. (12 marks)

Question 4

Bathymetric charts are typically produce to support safety of surface or sub-surface navigation, and usually show seafloor relief or terrain as contour lines and selected depths and typically provide surface navigational information.

- (a) Describe the development of bathymetric techniques. (4 marks)
- (b) Examine the major features of passive continental margin with example. (12 marks)
- (c) Differentiate between submarine canyon and ocean trench. (4 marks)

Question 5

Surface of oceans dominated by current systems. Currents transfer heat from warmer to cooler area.

- (a) Define Ekman Spiral. (4 marks)
- (b) Compare and contrast western boundary currents to eastern boundary currents. (8 marks)
- (c) Explain wind circulation over Southern Pacific that change current pattern during ENSO event. (8 marks)

Question 6

- (a) Discuss the mathematical relationship between celerity (speed), wavelength and wave period for deep-water wave and shallow water wave. (12 marks)
- (b) Describe a storm surge and explain the causes and impact of storm surge. (4 marks)
- (c) Explain the condition at (b) using Beaufort Wind Scale and the state of the sea. (4 marks)

END OF EXAMINATION PAPER