



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN NAUTICAL SCIENCE

ENE 2340: OCEAN NAVIGATION I

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

DATE: Pick Date May 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt any **THREE** questions.

Do not write on the question paper.

Question ONE

Find the time before noon where the Master of MV Tudor (whose draught is 6.2m) can pass over a shoal of HELGOLAND with a clearance of 1m. The charted Depth is 5.3m (20 Marks)

Question TWO

A ship sails due East from the following position ($25^{\circ} 00' N$, $25^{\circ} 00' E$). Find:

- The distance run by the ship if the Longitude changed by 10° (10 Marks)
- The final Position of the Ship if the ship sailed further east for two hours with a navigational speed of 10 Knots (10 Marks)

Question THREE

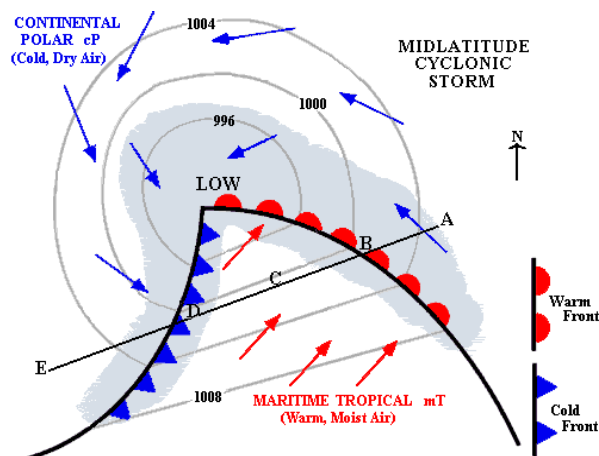
A lighthouse at Folkestone has a charted height of 70m. Find its actual height above sea level at 1142 GMT (20 Marks)

0448	0.9
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0957	6.5
1716	1.0
2214	6.7

Question FOUR

- Discuss the FOUR (4) conditions for a Tropical Cyclogenesis (8 Marks)
- Using the diagram below, explain the formation of a Mid Latitude Cyclone (12 Marks)



Question FIVE

A ship in position ($40^{\circ} 15' N$, $18^{\circ} 10' W$) set sail at 0800Hrs on a true course of $132^{\circ} T$ at a speed of 15 Knots. At 0840 Hrs The ship altered course as follows:

Time	True Course
0840 Hrs	$246^{\circ} T$
0956 Hrs	$297^{\circ} G$
1032 Hrs	$010^{\circ} T$
1144 Hrs	$085^{\circ} G$

- Find the true Course at 0956Hrs and 1144 Hrs if the GE was $5^{\circ} L$ (10 Marks)
- If the Variation was $3^{\circ} E$ and Deviation $5^{\circ} W$ find the Compass Course at 1144 Hrs (4 Marks)
- At 1032Hrs, the Current was 3 Knots, 330° , find the Course to Steer. (6 marks)