TECHNICAL UNIVERSITY OF MOMBASA

# FACULTY OF APPLIED AND HEALTH SCIENCES <br> DEPARTMENT OF PURE \& APPLIED SCIENCES <br> UNIVERSITY EXAMINATION FOR: <br> DIPLOMA IN NAUTICAL SCIENCE <br> ENE 2340:OCEAN NAVIGATION I <br> 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 question ONE (Compulsory) and any other TWO questions.
Do not write on the question paper.

Question ONE
a. Use the following words to complete the paragraph

Meteorological Offices, Radio-Room, Direction Finder, Route, Echo Sounder, Speed Log, Readings, Gyro-Compass, Autopilot, Course, Stars, Magnetic Compass, Piloting, Celestial Bodies, Gyroscopic Compass, Spherical Hyperbolas, North Pole, Seamanship, Dead Reckoning, Short Range, Conducting, Inertial Navigation
i). Once clear of port and congested coastal waters, the captain of a modem liner sets his $\qquad$ and leaves the $\qquad$ to hold it.
ii). In $\qquad$ , the ship is conducted without the use of celestial observations, while the ship is in sight of land.
iii). Navigation is the art $\qquad$ of a ship from one place to another.
iv). The calculation for determining the ship's position by using the courses steered and distances run is called $\qquad$ _.
v). The Sun, Moon, planets and the stars are $\qquad$ .
b. Define the following through representation in ana diagram (10 Marks)
i). Actual height
ii). Charted Height
iii).MHWS
iv). Chart Datum
v). Height of Tide

## Question TWO

A ship sails due East from the following position $\left(25^{0} 00^{\prime} \mathrm{N}, 25^{0} 00^{\prime} \mathrm{E}\right)$. Find:
a. The distance run by the ship if the Longitude changed by $10^{\circ}$ ( 10 Marks)
b. 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

Explain and discuss the illustrated phenomena of Revolving Storms


## Question FOUR

A ship sailed from position A ( $\left.10^{0} 37^{\prime} \mathrm{N}, 089^{0} 56^{\prime} \mathrm{E}\right)$ to a Final position $\mathrm{B}\left(40^{0} 37^{\prime} \mathrm{N}, 055^{\circ} 22^{\prime} \mathrm{E}\right)$. Calculate the Distance; Initial \& Final Courses (20 Marks)

## Question FIVE

A ship in position $\left(40^{0} 15^{\prime} \mathrm{N}, 18^{0} 10^{\prime} \mathrm{W}\right)$ set sail at 0800 Hrs on a true course of $132^{\circ} \mathrm{T}$ at a speed of 15 Knots . At 0840 Hrs The ship altered course as follows:

| Time | True Course |
| :--- | :--- |
| 0840 Hrs | $246^{\circ} \mathrm{T}$ |
| 0956 Hrs | $302^{\circ} \mathrm{T}$ |
| 1032 Hrs | $010^{\circ} \mathrm{T}$ |


| 1144 Hrs | $090^{\circ} \mathrm{T}$ |
| :--- | :--- |

Find the DR position at Noon (1200) (20 Marks)

