



# TECHNICAL UNIVERSITY OF MOMBASA

---

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

**UNIVERSITY EXAMINATION FOR:**

**DIPLOMA IN NAUTICAL SCIENCE**

**ANS 2202 : CELESTIAL NAVIGATION I**

**END OF SEMESTER EXAMINATION**

**SERIES: DECEMBER 2016**

**TIME: 2 HOURS**

**DATE:** Pick Date Dec 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.**

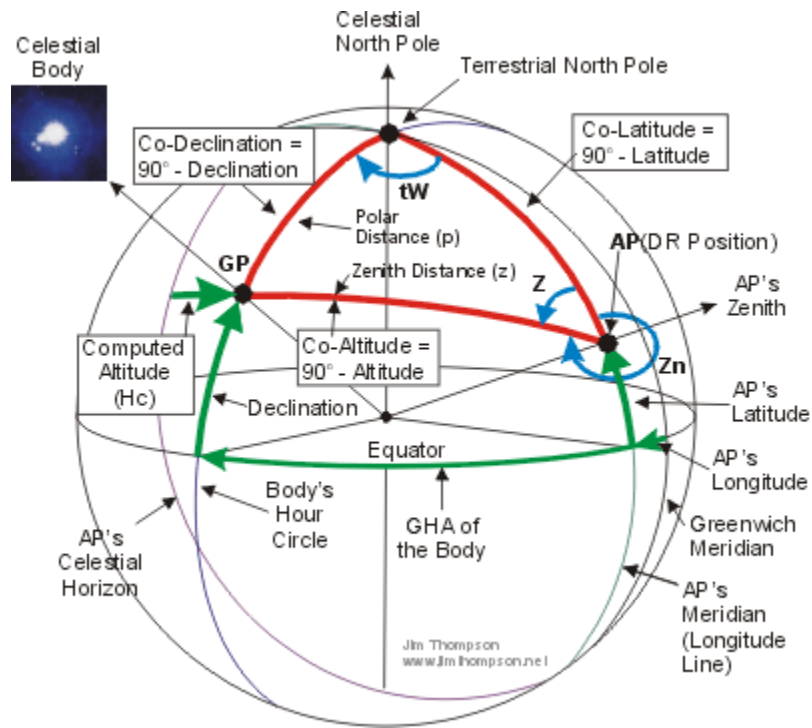
---

## **Question ONE**

- a) Define the following terms:
- i. North celestial pole (2 Marks)
  - ii. South celestial pole (2 Marks)
  - iii. Celestial equator: (2 Marks)
  - iv. Ecliptic (2 Marks)
  - v. Declination (2 Marks)
- b) Using an appropriate diagram, illustrate the terminologies above in **QUESTION ONE (a)** (10 Marks)

## Question TWO

Using the diagram, discuss position fixing and spherical trigonometry of the position of the Celestial body to the observer. **(20 Marks)**



## Question THREE

Using the illustration below discuss the horizon coordinate system as based on the observer's position **(20 Marks)**

