



# TECHNICAL UNIVERSITY OF MOMBASA

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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 question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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## **Question ONE**

- a) Define the following:
- i. Celestial body. **(2 Marks)**
  - ii. Celestial Sphere **(2 Marks)**
  - iii. Fix. **(2 Marks)**
  - iv. Position Line **(2 Marks)**
  - v. Actual position: **(2 Marks)**
- b) With appropriate illustrations describe the Celestial Coordinate System **(10 Marks)**

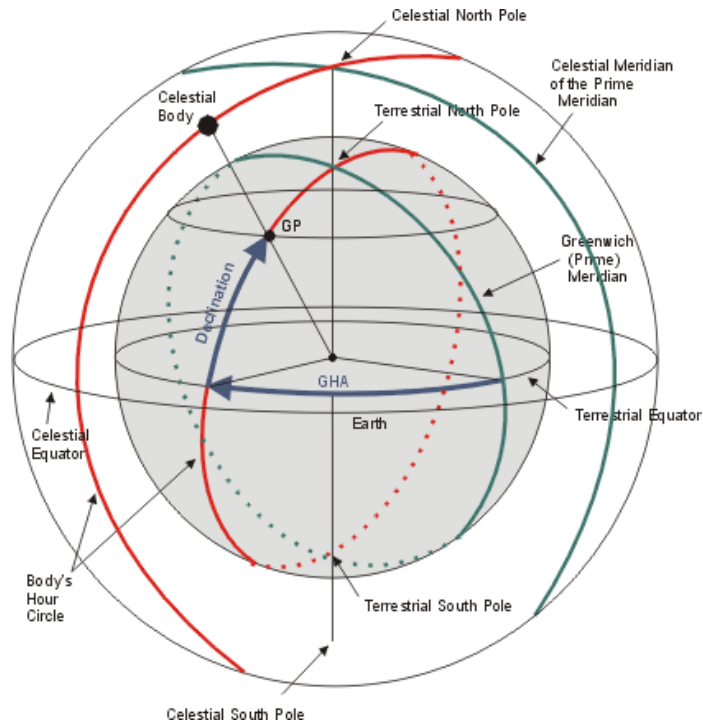
## **Question TWO**

Using an appropriate diagram discuss the following: **(20 Marks)**

- a) Zenith
- b) Nadir
- c) Horizon
- d) Altitude
- e) Azimuth

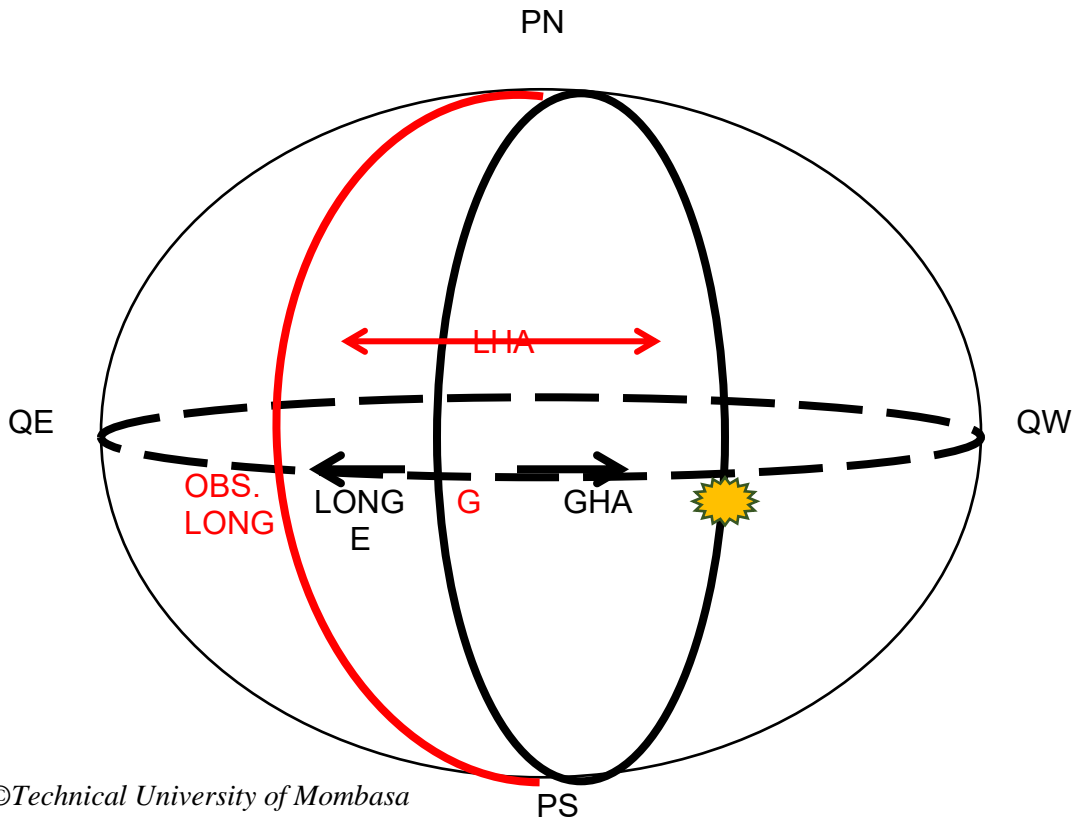
**Question THREE**

Using the diagram below and the assumed position of the Celestial Body, define and discuss the terminologies indicated. (20 Marks)



**Question FOUR**

Using the figure below describe the measurement of the **LHA E** and **W** (20 Marks)



## **Question FIVE**

Discuss the 5 essential pieces of data for reducing a celestial sight

**(20 Marks)**