TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN NAUTICAL SCIENCE

ANS 2201 : ELECTRONIC NAVIGATION SYS & MARINE INSTRUMENTS

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.

Question ONE

  a) Define the following terms   **(10 Marks)**
      i.   Navigation
      ii.   C/A code
      iii.   Loran C
      iv.   Hyperbolic Navigation
      v.   S/A
  b) Discuss the effect of Selective Availability to GPS position accuracy   **(10 Marks)**

Question TWO

Discuss with appropriate illustrations the composition of the GPS, as a system   **(20 Marks)**
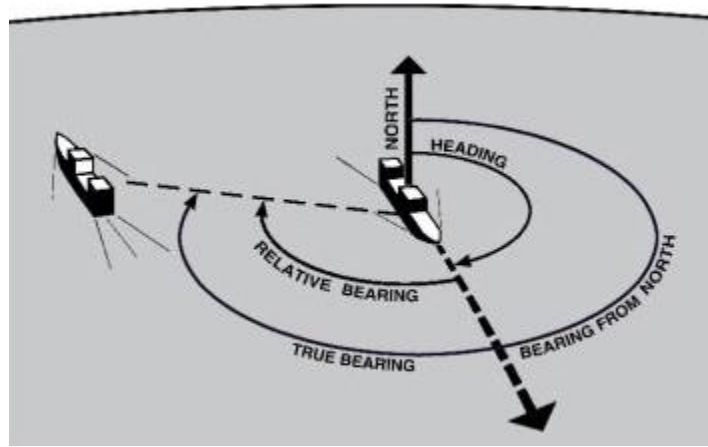
Question THREE

Discuss in details the following coordinate concepts

i.	Latitude (Lat.)	**(5 Marks)**
ii.	Difference of latitude (DLat.)	**(5 Marks)**
iii.	The middle or mid-latitude (Lm)	**(5 Marks)**
iv.	Great-circle distance	**(5 Marks)**

Question FOUR

Using the illustration below, discuss the concept of bearing and directions. **(20 Marks)**

Question FIVE

Discuss in brief the following navigation

a) Dead reckoning (DR) **(5 marks)**
b) Celestial navigation **(5marks)**
c) Radar navigation. **(5 marks)**
d) Satellite navigation **(5 marks)**