FEDERAL UNIVERSITY OF TECHNOLOGY MINNA

(School of Environmental Technology)

DEPARTMENT OF SURVEYING AND GEOINFORMATICS

First Semester Examinations 2019/2020 Session

SVG 313 Hydrographic Surveying I

Instruction: Answer any **four** questions Time Allowed: 2 Hours 30 Minutes

Q.1 (a) State the purpose of Hydrographic Surveying

(b) State the purpose of the following hydro-activities:

(i) Water Level Measurement
(ii) Bathymetric Measurement
(iii) Velocity Measurement
(iv) Discharge Measurement
(v) Salinity Measurement
(vi) Sediment Transport Measurement

Q.2 (a) Describe three methods of Position fixing at sea.

(b) Describe with aid of diagram(s) how the profile of the bed of a tidal river, approximately 100m wide and having a minimum depth of 5m, may be determined.

Q.3 A, B and C are three stations on a coastline used to fix the position of a buoy, P, at sea, which lies on the opposite side of AC to B. AB = 482m, BC = 344m. The seaward angle <ABC = 143° 30', and angles APB and BPC are found to be 45° 36' and 40° 48'respectively. Find dimensions AP, BP and CP.

Q.4 (a) What is Sounding in Hydrographic Surveying?

(b) State and Explain the factors to be considered prior to any sounding operation.

(c) With diagram describe the method calibration of an Echo Sounder.

Q.5 (a) What is a Sounding Datum?

(b) Describe in detail with diagram(s) the transfer of Datum when Chart Datum is close to the Area of Survey.

(c) It is desired to determine the Datum at the New gauge; the following height values were obtained from tidal observations at both the Established gauge and the New gauge:

Water Level	HW	LW	HW	LW	HW	LW	HW	LW
Established Gauge	-	1.0	21.5	6.8	30.4	10.8	20.1	4.8
New Gauge	-	4.5	19.2	8.9	32.7	12.2	18.8	8.8

In a tabular form or otherwise compute the height of Sounding Datum above zero of the new gauge where the true mean (tide) level at springs at the Established gauge is not known. Note that the tide is semi-diurnal.

HW – High Water

LW – Low Water.