

Candidates are admitted to the examination room ten minutes before the start of the examination. On admission to the examination room, you are permitted to acquaint yourself with the instructions below and to read the question paper.

Do not write anything until the invigilator informs you that you may start the examination. You will be given five minutes at the end of the examination to complete the front of any answer books used.

January/April 2013

**Answer Book
Data Sheet**

**Any bilingual English language dictionary permitted
Only Casio-fx83 calculators are permitted**

Final Examination for MSc

Course in Applied Meteorology
Course in Atmosphere, Oceans and Climate
Course in Data Assimilation and Inverse Modelling in Geosciences
Course in Applied Meteorology and Climate with Management

MTMG44

Hydrology and global environmental change

Two hours

Answer **ANY TWO** questions

The marks for the individual components of each question are given in [] brackets.
The total mark for the paper is 100.

1.
 - a) Describe the key components of the catchment water balance [10]
 - b) Explain how each of these components can be measured at the catchment scale [20]
 - c) Discuss the relative accuracy to which the different components can be measured, giving examples [20]

2.
 - a) What are the mechanisms by which river flows are generated? [20]
 - b) Compare and contrast their relative importance in temperate and semi-arid catchments, giving examples. [30]

3.
 - a) Describe what factors might cause a trend over time in river flows in a catchment. Give examples. [25]
 - b) What techniques would you seek to test the importance of these factors in causing the trend? [25]

[End of Question paper]