

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.

April 2014

MTMG44

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

UNIVERSITY OF READING

Hydrology and global environmental change (MTMG44)

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. “Everything we know about the hydrological cycle is conditioned by what we can measure”
 - (a) Explain how the components of the water balance can be measured at the catchment scale, using ground-based observations
[30 marks]
 - (b) Evaluate the contribution of remote sensing to the estimation of the catchment water balance
[20 marks]

2.
 - (a) Describe the mechanisms of streamflow development in a typical catchment in southern England, and their relative importance.
[30 marks]
 - (b) Why does a given input of rainfall not always produce the same hydrological response in a given catchment?
[20 marks]

3.
 - (a) What are the main issues in the development and application of a hydrological model?
[20 marks]
 - (b) Explain how a hydrological model can be used to assess the effects of past and future land use change on hydrological regimes.
[20 marks]

- (c) What are the main uncertainties in the use of a model to assess these effects?

[10 marks]

(End of Question Paper)