UNIVERSITY COLLEGE LONDON

EXAMINATION FOR INTERNAL STUDENTS

MODULE CODE	:	**GEOLGG07**
ASSESSMENT PATTERN	:	**GEOLGG07A**
MODULE NAME	:	**Melting and Volcanism**
DATE	:	**19 May 2016**
TIME	:	**10:00 am**
TIME ALLOWED	:	**2 hours 30 mins**

This paper is suitable for candidates who attended classes for this module in the following academic year(s):

2015/16

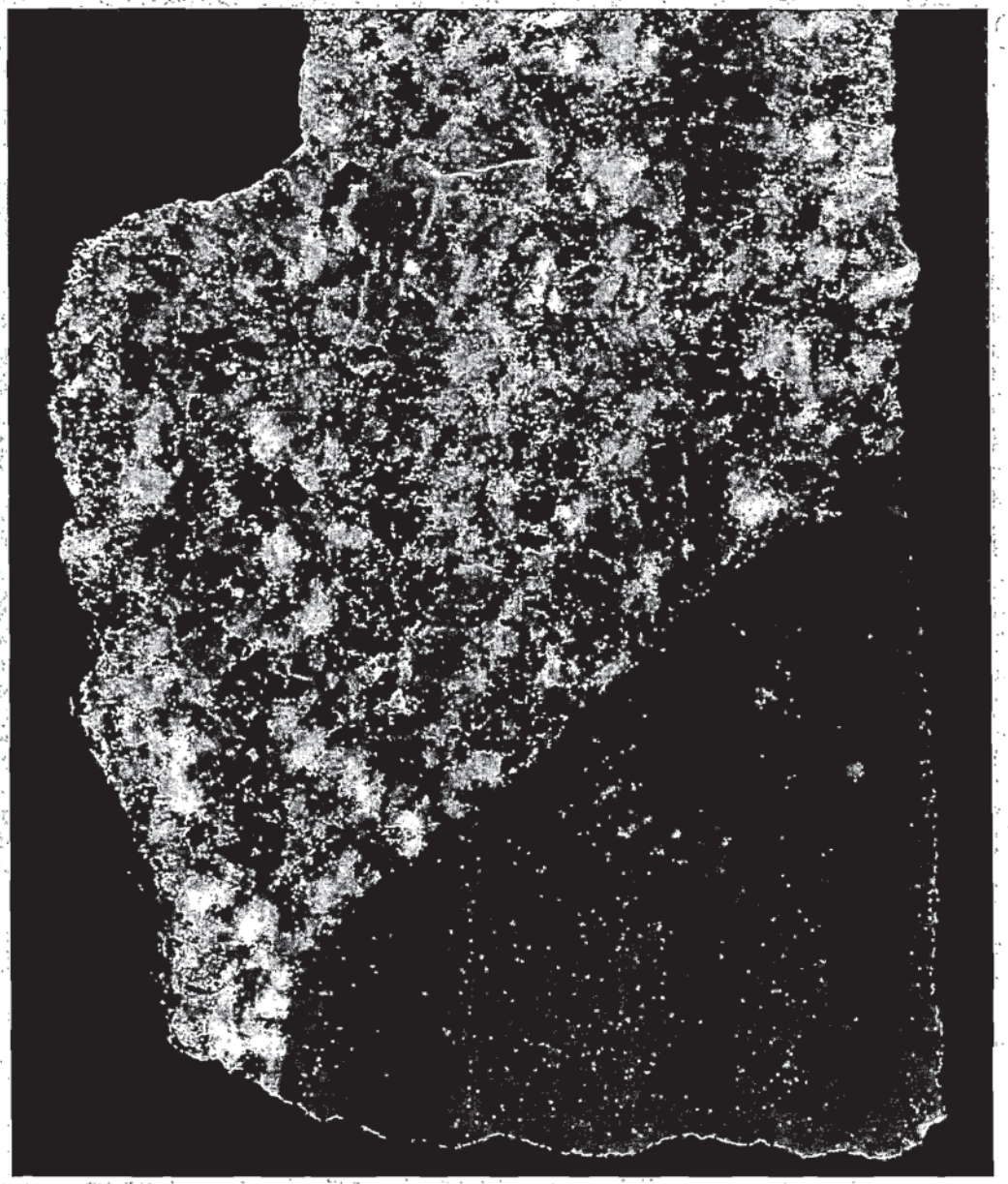
TURN OVER

GEOLM021_GG07 MELTING AND VOLCANISM

*Answer **three** questions. All questions carry equal marks. Where a question comprises more than one part (a, b, c etc.), all parts carry equal weight unless stated otherwise.*

1. The image below (and on the supplementary sheet 1) shows a hand specimen of a xenolith of basaltic composition in granite from Shap Fell. With reference to this sample, including, in each case, what further tests you might perform on the sample to elucidate these issues, discuss the theories of:

   (a) the origin of the granites. [35%]
   (b) the emplacement of granites. [35%]
   © the metosamatic alteration associated with granites. [30%]



Scale 1.1

TURN OVER

2. (a) Summarise the mineralogical and geochemical features of kimberlites including their apparent correlation with characteristic plate tectonic settings. [60%]

(b) Comment on their ability to provide our deepest samples of the Earth. [40%]

3. Write an essay on the origin, distribution and timing of large igneous provinces (LIPs) throughout Earth history.

4. (a) Describe the geology of the Sudbury Igneous Complex (SIC) and its associated giant ore deposit. [50%]

(b) Provide a detailed petrological model to explain the formation of the SIC. [50%]

5. (a) What evidence is there for an enriched deep mantle source? [60%]

(b) How would such a source be produced? [40%]

END OF PAPER