

**BIRKBECK COLLEGE
(University of London)**

BSc EXAMINATION

SCHOOL OF SCIENCE

Department of Earth and Planetary Sciences

TECTONIC GEOMORPHOLOGY (THEORY)

EASC066H6

15 Credits

Tuesday 26 May 2015

10.00- 13.00

INSTRUCTIONS

Answer TWO questions from section A and TWO questions from section B, using diagrams and examples to support your answers

Allow 1 hour for the two questions in section A

Allow 1 hour each for the two questions in section B

All questions carry equal marks

Use diagrams and examples to illustrate your answers.

SECTION A

1. Explain **TWO** of the following:

- a) How parallax may be used to map and study surface terrains;
- b) Orographic precipitation;
- c) Why there may be a difference in geothermal gradient between the top of a mountain and the valley bottom;
- d) How two relative dating methods can be used to investigate glacial retreat rates.

SECTION B

Answer TWO of the following questions:

- 2. Discuss the impacts of spatial and temporal differences in the effective thickness of the elastic plate (T_e) on rifted margins.
- 3. Explain why denser rocks may occupy higher elevations in a landscape.
- 4. Use critical wedge theory to explain how a shift to a cooler climate may lead to a fundamental change in the mean elevation and width of a mountain belt.
- 5. A river in equilibrium has predictable hydraulic scaling relationships. Explain how these and other indicators can be used to identify the segment of a river profile that is not in equilibrium due to active tectonics.