# UNIVERSITY COLLEGE LONDON

## EXAMINATION FOR INTERNAL STUDENTS

MODULE CODE : **GEOLGG17**

ASSESSMENT PATTERN : **GEOLGG17A**

MODULE NAME : **Palaeoceanography**

DATE : **11-May-15**

TIME : **10:00**

TIME ALLOWED : **2 Hours 30 Minutes**




**TURN OVER**

## GEOLM018_GEOLGG17 PALAEOCEANOGRAPHY

*Answer **THREE** questions. All questions carry equal marks. For multi-part questions the weighting of marks is given in brackets.*

1. a) What processes cause and influence surface-ocean circulation? [40%]

   b) Describe deep water formation in the modern ocean and the "thermohaline conveyor belt" [60%]

2. Describe how ONE of the groups below are used as indicators of palaeoceanographic change:
   - planktonic foraminifera;
   - benthic foraminifera;
   - calcareous nannofossils.

3. a) Discuss the modern distribution of siliceous deep sea sediments [20%]

   b) How and why has the distribution of deep sea sediments (calcareous, siliceous, glaciomarine, terrigenous, red clays) changed during the Cenozoic (last 65 million years)? [80%]

4. Marine palaeo-temperatures can be estimated using a variety of proxies. Outline the basis of any TWO such proxies [50% for each] and show how they have been used to understand aspects of past climates.

5. Discuss the palaeoceanographic, palaeoclimatic and biotic changes that occurred during TWO of the following intervals [50% for each] and include the evidence for this change and possible causal mechanisms:
   - Cretaceous oceanic anoxic events;
   - the Cretaceous/Paleogene boundary;
   - the Paleocene/Eocene boundary;
   - the Eocene/Oligocene transition;
   - Heinrich events during the last glacial.

**END OF PAPER**