

UACE BIOLOGY TESTS 2023

EVOLUTION

Duration: 1 h 30 mins

Attempt any three questions.

1. a) Describe the role of isolation in formation of new species. 14 marks
b) Describe how feedback regulates population size. 06 marks

2. Suggest explanations for each of the following.
a) The high prevalence of sickle cell anaemia in areas infested with malaria. 08 marks
b) the development of industrial melanism in peppered moths (*Biston betularia*) in Great Britain in the mid 1800s. 06 marks
c) A pest sprayed with a pesticide may flourish afterwards. 06 marks

3. (a) What is meant by the term genetic equilibrium? 05 marks
(b) Discuss the factors that may upset genetic equilibrium. 15 marks

4. (a) Distinguish between genetic load and genetic drift. 04 marks
(b) How does abnormal haemoglobin arise in the human population? 10 marks
(c) Using a suitable example; explain the term heterozygous advantage. 06 marks

5. Give an account of the evidence of evolution based on:
(a) Cell biology. 04 marks
(b) Paleontology 06 marks
(c) Comparative embryology 04 marks
(d) Geographical distribution 06 marks

END