



QUESTION WORKBOOK

Measuring biodiversity: richness, evenness and the index that catches both

Classification, biodiversity and conservation · Unit B18

AQA 3.4.6, 3.4.7 · OCR A 4.2.1 · Edexcel A Topic 4 (biodiversity and natural resources)
CAIE 18.2

6 questions · 23 marks

NAVY SCREEN EDITION

SECTION B · Standard, 3 to 5 marks

- B1** A farmer is offered a payment to take a strip six metres wide out of production around every field and to replant the hedgerows removed in the 1970s. Evaluate this scheme as a way of raising biodiversity on the farm. [5]

- B2** A student samples the ground beetles of a woodland floor and records four species, with 40, 25, 20 and 15 individuals. Using $D = 1 - \sum (n \div N)^2$, calculate Simpson's index of diversity, and state whether a higher value of this form means a more or a less diverse community. [4]

- B3** A grassland plot is sampled and five plant species are recorded, with 60, 20, 10, 6 and 4 individuals. Using $d = N(N - 1) \div \sum n(n - 1)$, calculate the index of diversity for the plot. These counts are idealised. [4]

B4 Explain why two communities containing exactly the same number of species can have very different values of an index of diversity. [4]

B5 Describe how the genetic diversity of a population can be measured, giving more than one method. [3]

B6 A student places six quadrats in a meadow and calculates an index of diversity from her counts. Suggest two reasons her index may not describe the meadow, and suggest what she should do about each. [3]
