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Level: SL IB in Biology  
Subject: Biology  
Topic: IB SL Biology  
Type: Topic Question

2002



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All International Baccalaureate IB Topic Questions SL Biology

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# BIOLOGY

# SL - IB

## Key skills

**Question 1.**

Which of the following applies to the process of evolution by natural selection?

- I. Changes in the phenotype of organisms in a population
- II. Selection pressures favouring certain alleles within a population
- III. Individuals with a certain genetic makeup will not pass on their genes
- IV. Changes in the allele frequencies within a population overtime

- A. II only
- B. I, II and III
- C. II and IV only
- D. I, II, III and IV



[1 mark]

**Question 2.**

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Which of the following processes generate genetic variation?

- I. Random assortment
- II. Mitosis
- III. DNA replication
- IV. Random fertilisation

- A. I and III only
- B. I and IV only
- C. I, III, and IV only
- D. I, II, III, and IV

[1 mark]

**Question 3.**

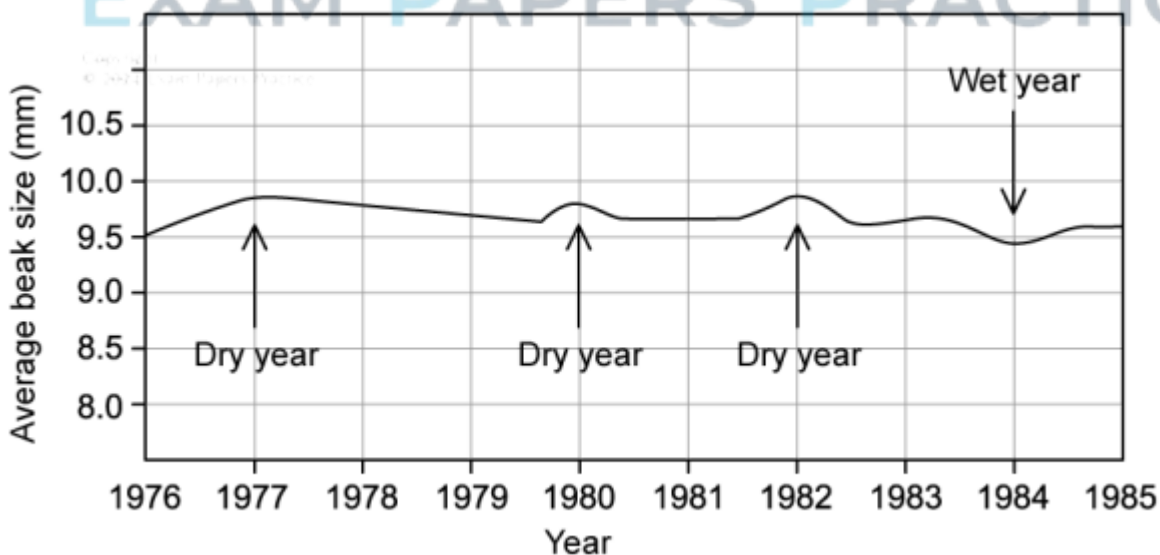
Which of the following must occur for natural selection to take place?

- A. Sexual reproduction.
- B. Genetic variation.
- C. The presence of predators.
- D. Advantageous characteristics.

[1 mark]

**Question 4.**

Research was carried out on beak size in the island-living finch species *Geospiza fortis*. *G. fortis* feeds on seeds, which are plentiful, small, and soft in the years when the weather is normal, but which become larger and tougher in drought years. Some of the research results are shown in the graph below.



Which of the following statements explains the results in the graph?

- A. Finches adapt to drought years by developing larger beaks, passing on the characteristic to their offspring, and leading to an increase in average beak size.
- B. Average finch beak size increases during years of drought and decreases during wet years.
- C. Average beak size increased from 9.5 mm in 1976 to 9.9 mm in 1977, before slowly decreasing to 9.7 mm by 1979.
- D. Finches with larger beaks have an advantage when competing for food in drought years, and are therefore more likely to survive and pass on their alleles, leading to an increase in average beak size.

[1 mark]