Level: HL IB in Biology
Subject: Biology
Topic: IB HL Biology
Type: Mark Scheme

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XVIII

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All International Baccalaureate IB Topic Questions HL Biology

BIOLOGY

HL - IB

Key skills

Answer 1

The correct answer is C because a population is all of the organisms of the same species living in an area at any one time.

A, B, and D all refer to groups of organisms of more than one species. A describes an ecosystem, while D describes a community.

Answer 2

The correct answer is A because statement I is the only correct statement.

B, C, and D all contain statements II, III, or both.

Random samples cannot be achieved by throwing a quadrat as this can be affected by throwing ability. A random number generator must be used.

Quadrats can be of any size to incorporate any size of organism; their use is, however, limited to sessile organisms (organisms that are fixed in place eg. by attachment to the ground via a stalk or foot).
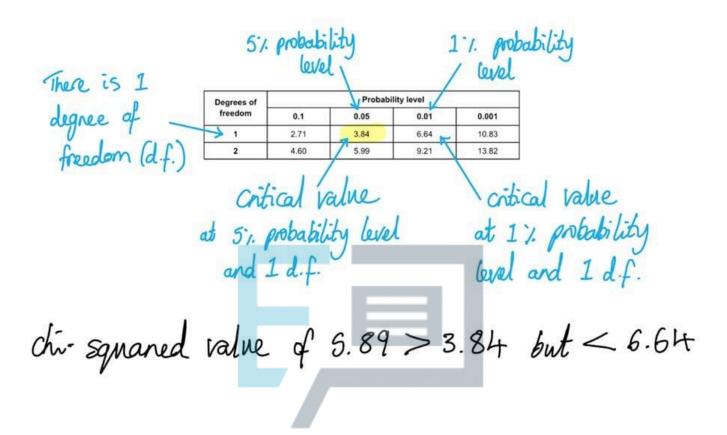
Answer 3

The correct answer is C because the chi-squared value is larger than the critical value at a probability level of 0.05, or 5%.

For A to be correct the chi-squared value would need to be smaller than the critical value at the 5% probability level.

B could be the explanation for the conclusion reached in statement C, but the chi-squared test alone does not provide the evidence to reach this conclusion.

D is incorrect because the chi-squared value is smaller than the critical value at a probability level of 0.01, or 1%.

5% probability level

1% probability level

There is 1 degree of freedom (d.f.)

Degrees of freedom	Probability level			
	0.1	0.05	0.01	0.001
1	2.71	3.84	6.64	10.83
2	4.60	5.99	9.21	13.82

Critical value at 5% probability level and 1 d.f.

Critical value at 1% probability level and 1 d.f.

chi-squared value of $5.89 > 3.84$ but < 6.64