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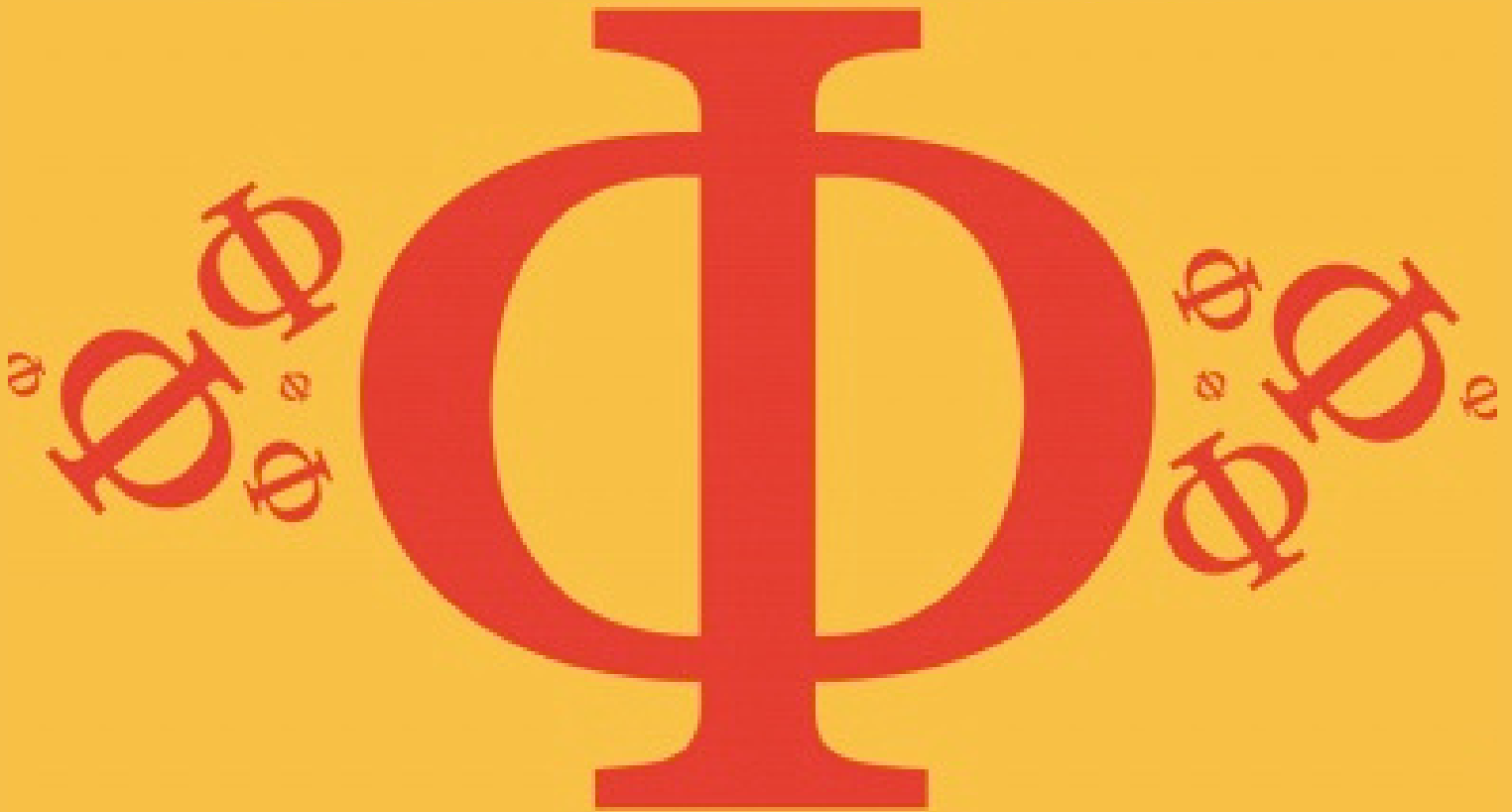
Detailed mark scheme

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5.1 Evolution & Natural Selection

Easy



BIOLOGY

IB HL

5.1 Evolution & Natural Selection

Question Paper

Course	DP IB Biology
Section	5. Evolution & Biodiversity
Topic	5.1 Evolution & Natural Selection
Difficulty	Easy

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Time allowed: 10
Score: /5
Percentage: /100

Question 1

Which of the following statements correctly explains the process of natural selection?

- I. Some species produce small numbers of young and provide higher levels of parental care
- II. Advantageous alleles increase an individual's chance of surviving and reproducing
- III. Individuals that change to suit their environment pass their alleles on to offspring
- IV. Advantageous alleles increase in frequency in the population

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

[1 mark]

Question 2

Scientists use theories to explain observed phenomena. Which of the following combinations of observed phenomenon and explanation shows how scientists developed the theory that explains antibiotic resistance in bacteria?

	Observed phenomenon	Explanation
A.	Resistance to an antibiotic appears soon after an antibiotic is first used	Bacteria respond to a new antibiotic by developing resistance
B.	Resistance to an antibiotic appears soon after an antibiotic is first used	Bacteria with alleles that provide resistance to the antibiotic survive treatment and pass on their alleles
C.	Bacteria with alleles that provide resistance to the antibiotic survive treatment and pass on their alleles	The frequency of resistant alleles increases in a bacterial population
D.	Antibiotic resistance in bacteria is on the increase in hospitals	Patients in hospitals are more susceptible to infection than the general population.

[1 mark]

Question 3

What is speciation?

- A. The process of separating organisms into species groups.
- B. The absence of gene flow between two populations.
- C. The development of new species from existing species over time.
- D. The exposure of two separate populations to different environmental conditions.

[1 mark]

Question 4

Which of the following statements about selective breeding is correct?

- A. Certain alleles are more likely to be passed on to offspring because they are advantageous and aid survival in an organism's environment
- B. All of the offspring of the first generation are bred together to produce the second generation
- C. Selective breeding is a recently developed technique
- D. Crop varieties currently used by humans have been selectively bred from wild varieties

[1 mark]

Question 5

Which process does **not** generate heritable variation in a population?

- A. Mutation
- B. Mitosis
- C. Metaphase I of meiosis
- D. Fertilisation

[1 mark]