Higher Combined version — Higher Tier (★) included; Separate-only (◆) removed.

Q1. Describe TWO biotic and TWO abiotic factors that can affect the size of a population in an ecosystem.

[4 marks]

Q2. Describe a predator-prey cycle and explain why the two populations oscillate.

[3 marks]

Q3. What is meant by an adaptation? Give ONE structural, ONE behavioural and ONE physiological adaptation of an organism.

[3 marks]

Total: 10 marks

Q1 (4 marks)

Describe TWO biotic and TWO abiotic factors that can affect the size of a population in an…

• Biotic 1: predation — increased predation reduces prey population [1]
• Biotic 2: disease — pathogen spreads through population, reduces numbers [1]
• Abiotic 1: temperature — extreme cold reduces survival, reproduction [1]
• Abiotic 2: water availability — drought reduces food supply and survival [1]

Q2 (3 marks)

Describe a predator-prey cycle and explain why the two populations oscillate.

• Prey increases → predators have more food → predator numbers increase [1]
• More predators → more prey consumed → prey numbers fall [1]
• Fewer prey → predators decline (less food) → prey recover → cycle repeats [1]

Q3 (3 marks)

What is meant by an adaptation? Give ONE structural, ONE behavioural and ONE physiological…

• Adaptation: inherited characteristic improving survival/reproduction in a specific environment [1]
• Structural example: polar bear has thick fur for insulation [1]
• Behavioural: migration to warmer climates in winter / physiological: camel can lose 30% body mass in water without dying [1]