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

Q1. Explain why removing a keystone predator can have wide-ranging ecosystem effects.

[3 marks]

Q2. Explain why only ~10% of energy transfers from one trophic level to the next.

[3 marks]

★ HIGHER TIER

Q3. ★ Grassland data: grass = 40,000 kg, rabbits = 4,000 kg, foxes = 200 kg. (a) Calculate transfer efficiency rabbit → fox. (b) Suggest why foxes are much rarer than rabbits.

[3 marks]

Total: 9 marks

Q1 (3 marks)

Explain why removing a keystone predator can have wide-ranging ecosystem effects.

- Prey species increase without predation pressure [1]
- Prey may overgraze/over-consume producers → collapse of vegetation [1]
- Other species depending on the same resources also affected — cascade through food web [1]

Q2 (3 marks)

Explain why only ~10% of energy transfers from one trophic level to the next.

- Energy lost through respiration (heat) [1]
- Energy used for movement and other metabolic processes [1]
- Energy lost in undigested waste (faeces) — not available to next level [1]

Q3 (3 marks) [★ HT]

★ Grassland data: grass = 40,000 kg, rabbits = 4,000 kg, foxes = 200 kg. (a) Calculate tra…

- (a) (200 ÷ 4000) × 100 = 5% [1]
- (b) Very little energy reaches fox level — 90%+ lost at each step [1]
- Less biomass can be supported at higher trophic levels [1]