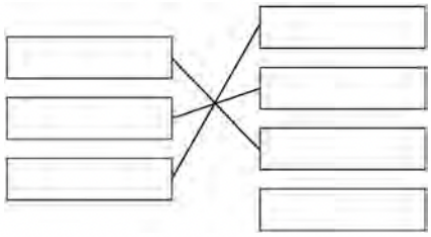
(Levels of organisation (food chains, food webs, predator–prey cycles))

Q1.a)(2018)



Q1.b)(2018)

$$\frac{10}{200} \times 100$$

5 / 5.0

Q1.c)(2018)

digestion

respiration

excretion

Q1.d)(2018)

fewer are eaten (by small fish)

Q2.a)(2019)

primary consumer

Q2.b)(2019)

any **one** from:
(Daphnia biomass smaller because)

- non-digestible parts (of algae) or lost in faeces
- not all absorbed
- lost in urine / urea
- used in respiration **or** lost as carbon dioxide / CO_2

- algae not all eaten **or** eaten by other organisms
- some algae decompose

Q2.c)(2019)

14

14 000

Q2.d)(2019)

(volume of pond =)
1.875
or 2.5 × 1.5 × 0.5

14 000 × 1.875

26250

2.625×10^4

Q2.e)(2019)

increased (growth / reproduction of) algae

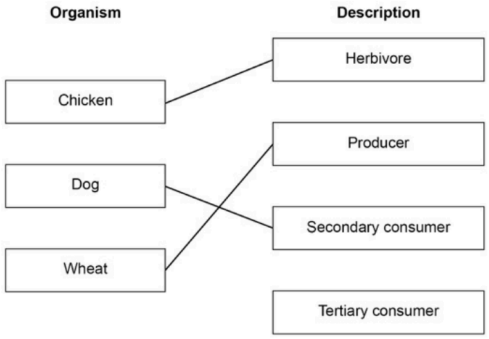
(more algae so) more food for Daphnia

Q2.f)(2019)

(Hydra have) less food

because (graph shows) fewer Daphnia (with more fertiliser)

Q3.(2020)



additional line from a box on the left negates the mark for that box

Q4.a)(2022)

abiotic

any **two** from:

- water
- oxygen / air (in soil)
- pH (of soil)
- minerals / ions
- temperature
- size of soil particles **or** texture / type of soil

biotic

any **two** from:

- food
- predators / consumers / carnivores
- disease / pathogens / bacteria / fungi

Q4.b)(2022)

- same concentration of chemical / **X** applied to the soil
- same volume / amount of chemical / **X** applied to the soil
- same size of area sampled – eg 1 m^2 or 0.25 m^2
- use of a quadrat
- same time between application and collecting worms
- same time allowed for collecting worms after application

- each sample area selected randomly
- method of achieving randomness – eg random coordinates

- (collect and) count worms in each of areas **A** and **B**

- at least 5 repeats in each of areas **A** and **B**
- calculate mean (per unit area) **or** total for each of areas **A** and **B**
- compare means / totals for areas **A** and **B**

Q5.(2023)

a community

Q6.a)(2023)

constant (from Jan) to Mar / (mid-)Apr

increases (from mid-)Apr to / and May

decreases from May / Jun to Dec

Q6.b)(2023)

B

Q6.c)(2023)

D (because) present only May to Sep

Q7.(2024)

any **three** from:

- (sun) light
- water
- ions / minerals / salts

- oxygen in the soil
- space