

(Plant disease and plant defences)

Q1.a)(2020)

mechanical

Q1.b)(2020)

any **one** from:

- to deter herbivores
- to prevent animals damaging it

Q1.c)(2020)

chemical

Q1.d)(2020)

any **two** from :

- lack of magnesium (ions) (1)

(so) not enough chlorophyll
for (efficient) photosynthesis
(1)

(so) not enough glucose to
make proteins for growth
or not enough glucose to
release energy for growth (1)

- infection by pathogen /
bacteria / virus / fungus (1)

(so) leaves become
discoloured / yellow so less
photosynthesis (1)

(so) not enough glucose to
make proteins for growth
or not enough glucose to
release energy for growth (1)

- infected by aphids (1)

(which) remove sugars from
phloem (1)

(so) not enough glucose to
make proteins for growth
or not enough glucose to
release energy for growth (1)

- lack of (available) light (1)

(so) chlorophyll breaks down
(1)

(so) not enough glucose to
make proteins for growth
or not enough glucose to
release energy for growth (1)

Q1.e)(2020)

(bacteria) obtain glucose / sugar
(from the plant)

(glucose used) for respiration
or (glucose used) for making
other named substances

Q1.f)(2020)

(gorse plant) obtains nitrate
(ions)

needed for amino acids /
proteins

Q1.g)(2020)

willow bark

Q2.(2022)

Thick, waxy layer on leaf surface		✓
Berries that are poisonous	✓	
Bark on trees that falls off		✓

all three rows correct = **2** marks
two rows correct = **1** mark
one row correct = **0** marks

Q3.a)(2022)

(it looks like the hornet so)
predators / animals are tricked /
deceived (by the colouring) **and**
so avoid eating it

Q3.b)(2022)

- less absorption of water
 - less water so lower rate of photosynthesis
 - so less glucose produced
 - for respiration / energy release
 - so less cellulose produced so fewer cells walls / cells made
 - so fewer amino acids produced to make new proteins
 - cells lose turgidity
- less absorption of (named) ions / minerals
 - fewer nitrates so fewer proteins made for growth
 - fewer magnesium ions so less chlorophyll produced
 - so lower rate of photosynthesis
- damage to phloem
 - less transport of sugars to root cells
 - for respiration / energy release
- damage to xylem
 - less water transported (to cells)
 - fewer nitrates reach cells
 - so fewer proteins made for growth
 - fewer magnesium ions reach cells
 - so less chlorophyll produced
 - less magnesium / chlorophyll so lower rate of photosynthesis
- less anchorage

Q3.c)(2022)

Infection and Response

<http://www.pcfgstudy.com>

genetic material / DNA /
chromosomes is doubled /
replicated / copied / duplicated

the (replicated) chromosomes
are pulled / moved apart

cytoplasm divides into two
(cells)

or

cell membrane divides to form
two cells

the set of chromosomes in each
new cell are identical (to one
another)

Q3.d)(2022)

differentiation