(Discovery and development of drugs)

Q1.a)(2020)

bind fluorescent dye to mAbs

put (bound) fluorescent mAbs
on the slide (and rinse off)

mAbs will bind to Candida
albicans / pathogens and show
up under the microscope

Q1.b)(2020)

more Candida albicans /
pathogens will be engulfed /
killed by phagocytes / white
blood cells

therefore less damage to cells /
tissues / organs

Q1.c)(2020)

- given first to healthy volunteers
    - at (very) low dose
    - to test it is safe **or** to test for toxicity **or** to check for any side effects

- then to some patients (with the disease) **or** people with the disease
    - to test for the correct / optimum dose
    - to check for any side effects
    - to test for efficacy **or** to test if it works
    - in a double blind trial
    - where neither patients nor doctors know who has the mAbs and who has a placebo (or alternative treatment)

- reference to large trial **or** long duration **or** control variables

Q1.d)(2020)

any **one** from:

- (the body will) not reject the mAbs
  or (the body is) less likely to reject the mAbs
- mouse mAbs are (more likely to be) rejected
- the human lymphocytes have already responded to that infection / cancer cell so they are known to work against the disease

Q2.a)(2021)

any **two** from:

- sterilise equipment / surfaces (before use)
- (use) sterilised agar
- secure lid of the Petri dish with (adhesive) tape
- only lift lid of Petri dish a little (when setting up plate)
  or lift lid of Petri dish at an angle (when setting up plate)

Q2.b)(2021)

B

and

it kills the fewest bacteria
or
it has the smallest area where no bacteria were growing

Q2.c)(2021)

(correct measurement)
r = 1.1 (cm)
or
r = 11 (mm)

(recall of the equation)
πr^2

(calculation/substitution)
3.14×1.1^2
or
3.14×11^2

= 3.799(4) (from 3.14×1.1^2)
or
= 379.9(4) (from 3.14×11^2)

correct unit
(3.7994) cm^2
or
(379.94) mm^2

Q2.d)(2021)

any **one** from:

- repeat **and** calculate a mean
- repeat **and** eliminate anomalies
- use a control disc

- use different types of bacteria

Q3.(2023)

willow

Q4.a)(2023)

any **one** from:

- (berries are) easy to access / pick
- easier to extract chemical
- taking berries will not harm the plant

Q4.b)(2023)

(0.6 × 1.2 =) 0.72

(0.72 × 2 =) 1.44

1.44 × 1000

1440 (mg)

alternative route

(2 × 1.2 =) 2.4 (1)

(2.4 × 0.6 =) 1.44 (1)

1.44 × 1000 (1)

1440 (mg) (1)

Q4.c)(2023)

any **one** from:

- lack of chlorophyll
- lack of magnesium (ions)

Q4.d)(2023)

any **two** from:

- to check toxicity
- to check dosage
- to check its efficacy

Q4.e)(2023)

(writers / companies may get) financial gain

or

(competitor may suffer) financial loss

Q4.f)(2023)

have the claims peer reviewed

Q5.(2024)

testing the drugs on live tissues
in a laboratory