

B4 Revision Questions

Higher only questions are in bold

Question 1 of 50

- How can you calculate population size using the capture-recapture technique?

Answer 1 of 50

- Population size = number in 1st sample x number in 2nd sample

number of marked animals in 2nd sample

Question 2 of 50

- What factors affect the distribution of organisms in a habitat?

Answer 2 of 50

- Presence of predators
- Availability of food
- Availability of water
- Soil type

Question 3 of 50

- What is biodiversity?

Answer 3 of 50

- The variety of species found in a habitat

Question 4 of 50

- **What is zonation of organisms in a habitat?**

Answer 4 of 50

- **Finding certain species in one area and not in others**

Question 5 of 50

- How does diversity differ in artificial and natural ecosystems?

Answer 5 of 50

- Natural ecosystems have a higher biodiversity – there are a larger number of different species found there.

Question 6 of 50

- **How can you map distribution of species using a transect line?**

Answer 6 of 50

- **Count the number of organisms (or estimate percentage cover for plants) along the line at regular intervals. Plot a kite diagram.**

Question 7 of 50

- Abiotic factors can affect distribution of organisms in a habitat. What are abiotic factors? Name two.

Answer 7 of 50

- Non-living factors
- e.g. water, light, pH

Question 8 of 50

- **Explain the use of isotopes to show the splitting of water by light energy in photosynthesis.**

Answer 8 of 50

- **Using isotopes proved that light splits water to produce the oxygen gas and not carbon dioxide as previously thought.**

Question 9 of 50

- What are the limiting factors for photosynthesis?

Answer 9 of 50

- Light intensity
- Carbon dioxide
- Temperature

Question 10 of 50

- Explain how light intensity affects the rate of photosynthesis.

Answer 10 of 50

- The higher the light intensity the higher the rate of photosynthesis up until a point when something else is the limiting factor. After this the rate stays the same as you increase light intensity.

Question 11 of 50

- **What is the difference between gaseous exchange in plants at night compared to in the day?**

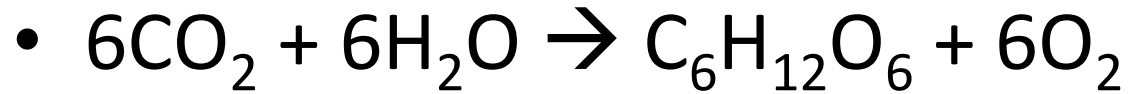
Answer 11 of 50

- **At night just respiration happens (O_2 into the plant and CO_2 out) but in the day this process continues as well as photosynthesis (CO_2 into the plant and O_2 out)**

Question 12 of 50

- What is the balanced symbol equation for photosynthesis?

Answer 12 of 50



Question 13 of 50

- **Describe the discovers of Greek scientists, Van Helmont and Priestly relating to photosynthesis.**

Answer 13 of 50

- **Greeks – plants gained mass from the soil**
- **Van Helmont – Growth of a plant is not just from minerals in soil**
- **Priestly – plants produce O₂**

Question 14 of 50

- Why do plants carry out respiration at all times?

Answer 14 of 50

- For energy (or else cells would die)

Question 15 of 50

- State three reasons plants grow faster in the summer rather than the winter.

Answer 15 of 50

- Increased light intensity
- Increased temperature
- Increased daylight hours

Question 16 of 50

- How are plants adapted to photosynthesise?

Answer 16 of 50

- Thin, transparent epidermis Palisade cells have lots of chloroplasts
- Air spaces speed up diffusion of gases
- Mesophyll cells =small + irregular large surface area

Question 17 of 50

- **Why are there different pigments in a plant that can absorb light? What are the names of these three pigments?**

Answer 17 of 50

- **Each pigment absorbs a different wavelength of light from the spectrum to use light energy most efficiently**
- **Chlorophyll**
- **Xanthophyll**
- **Carotene**

Question 18 of 50

- How are leaves adapted for efficient photosynthesis?

Answer 18 of 50

- Large surface area
- Thin – short diffusion distance for gases
- Chlorophyll
- Vascular bundles
- Stomata and guard cells

Question 19 of 50

- What are stomata and what are they for?

Answer 19 of 50

- Tiny pores/holes on the bottom of leaves.
- O_2 and CO_2 diffuse in and out of them and water evaporates out of them in transpiration.

Question 20 of 50

- What does chlorophyll do in chloroplasts?

Answer 20 of 50

- Absorbs light energy which is needed for photosynthesis

Question 21 of 50

- How do the reactants for photosynthesis get into the plant? What happens to the products?

Answer 21 of 50

- Water = in through roots
- CO_2 = in through stomata
- O_2 = leaves through stomata
- Glucose = used in respiration or converted into starch or other molecules

Question 22 of 50

- What is diffusion?

Answer 22 of 50

- RANDOM, NET movement of particles from an area of high to low concentration

Question 23 of 50

- What is osmosis?

Answer 23 of 50

- Movement of water particles from where THEY are in high to low concentration ACROSS A PARTIALLY-PERMEABLE MEMBRANE

Question 24 of 50

- What is turgor pressure and why do plants need it?

Answer 24 of 50

- The pressure exerted on the cytoplasm and cell membrane and cell wall from the water in the vacuole. Plants need it for support.

Question 25 of 50

- What happens to animal cells if they have too much or too little water?

Answer 25 of 50

- Too much water inside them = LYSIS
- Too little water inside them = CRENATION

Question 26 of 50

- How can you increase the rate of diffusion of a substance?

Answer 26 of 50

- Increase the temperature, increase the concentration gradient, increase the surface area

Question 27 of 50

- What is a turgid cell?

Answer 27 of 50

- A plant cell which is well supported from the turgor pressure produced by lots of water in the vacuole

Question 28 of 50

- What is a flaccid cell?

Answer 28 of 50

- A plant cell that has too little water so less turgor pressure produced by water in the vacuole.

Question 29 of 50

- **What is a plasmolysed cell?**

Answer 29 of 50

- **A plant cell that is so flaccid that the lack of turgor pressure means the cell membrane comes away from the cell wall.**

Question 30 of 50

- What conditions increase transpiration?

Answer 30 of 50

- Increased light intensity
- Increased temperature
- Increased wind
- Decreased humidity

Question 31 of 50

- What is transpiration?

Answer 31 of 50

- Water evaporating and leaving leaves via stomata

Question 32 of 50

- What is the function of xylem vessels?

Answer 32 of 50

- To transport water AND minerals around the plant
- (do NOT say 'nutrients')

Question 33 of 50

- What is the function of phloem vessels?

Answer 33 of 50

- To transport sugars/glucose/sucrose around the plant

Question 34 of 50

- **How is transpiration reduced?**

Answer 34 of 50

- **By the guard cells being flaccid and closing the stomata so water cannot be released from the plant**

Question 35 of 50

- **What is lignin?**

Answer 35 of 50

- **A substance found in the cell walls of xylem vessel cells which keeps them rigid**

Question 36 of 50

- How are minerals taken in by plants?

Answer 36 of 50

- By ACTIVE TRANSPORT
- This needs energy and takes minerals from low to high concentration.

Question 37 of 50

- Why do plants need nitrates?

Answer 37 of 50

- To make proteins
- For cell growth
- So they don't get poor growth and yellow leaves

Question 38 of 50

- Which minerals are found in fertilisers?

Answer 38 of 50

- Nitrates
- Phosphates
- Potassium
- Magnesium

Question 39 of 50

- How can you increase the mineral content of soil?

Answer 39 of 50

- Use fertiliser

Question 40 of 50

- Why do plants need potassium?

Answer 40 of 50

- To make enzymes used in respiration and photosynthesis
- So they don't have discoloured leaves and poor fruit/flower growth

Question 41 of 50

- Why do plants need phosphates?

Answer 41 of 50

- For respiration (energy)
- Growth (esp roots)
- To make DNA and cell membranes
- So they don't have discoloured leaves and poor root growth

Question 42 of 50

- Why do plants need magnesium compounds?

Answer 42 of 50

- For photosynthesis and making chlorophyll
- So they don't get yellow leaves

Question 43 of 50

- What is a saprophyte?

Answer 43 of 50

- An organism that feeds on detritus by releasing enzymes to digest the compounds in the dead organism

Question 44 of 50

- Name three factors that affect the rate of decay

Answer 44 of 50

- Temperature
- Water
- Oxygen

Question 45 of 50

- What are detritivores and how do they affect decay?

Answer 45 of 50

- Feed on detritus (dead things) and increase the surface area to speed up decay by decomposers

Question 46 of 50

- What methods are used in intensive farming to increase productivity?

Answer 46 of 50

- Fertilisers
- Pesticides
- Hydroponics
- Battery farming - Keeping animals indoors and close together

Question 47 of 50

- What methods are used in organic farming?

Answer 47 of 50

- Biological control
- Manure instead of fertilisers
- Animals outdoors with no artificial hormones or antibiotics

Question 48 of 50

- What are the advantages and disadvantages of hydroponics?

Answer 48 of 50

- Advantages: control mineral supply, better control of disease
- Disadvantages: fertilisers need to be bought, tall plants need to be supported

Question 49 of 50

- What are the advantages and disadvantages of pesticides?

Answer 49 of 50

- Advantages: increases crop yield as supplies more minerals for healthy growth of plants
- Disadvantages: bioaccumulation – can kill other animals

Question 50 of 50

- What is 'biological control'?

Answer 50 of 50

- Organic farmers use natural predators of pests to kill them instead of pesticides