



Multiple-Choice Questions

Q1. A plant kept in a dark room for several days becomes weak. Which process is most directly affected?

- A. Transpiration
- B. Photosynthesis
- C. Translocation
- D. Germination

Q2. A plant has yellow leaves and shows reduced growth. Which combination of mineral deficiencies could cause these symptoms?

- A. Magnesium and nitrate
- B. Potassium and calcium
- C. Phosphate and potassium
- D. Nitrate and water

Q3. A plant is placed in a hot, dry and windy environment. What happens to its rate of transpiration?

- A. It decreases
- B. It increases
- C. It stops completely
- D. It remains unchanged

Q4. Which metal can displace copper from copper sulphate solution?

- A. Silver
- B. Gold
- C. Zinc
- D. Copper

Q5. An iron nail is placed in copper sulphate solution. A reddish-brown deposit appears on the nail. What is the deposit?

- A. Iron
- B. Copper
- C. Zinc
- D. Iron oxide



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Q6. Which pair of conditions is necessary for rusting?

- A. Water and oxygen
- B. Nitrogen and sunlight
- C. Carbon dioxide and heat
- D. Hydrogen and nitrogen

Q7. An object has a mass of 200 g and a volume of 50 cm³. What is its density?

- A. 2 g/cm³
- B. 4 g/cm³
- C. 5 g/cm³
- D. 10 g/cm³

Q8. A sound has a high frequency. Which characteristic does it have?

- A. High pitch
- B. High amplitude
- C. Low pitch
- D. Low loudness

Q9. Two sound waves combine to produce a wave with a greater amplitude. This is an example of:

- A. Reflection
- B. Destructive interference
- C. Constructive interference
- D. Absorption

Q10. Which method of heat transfer occurs mainly through the movement of liquids and gases?

- A. Conduction
- B. Convection
- C. Radiation
- D. Reflection

Fill in the Blanks

Q11. The movement of food substances from leaves to other parts of a plant through the phloem is called _____.



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Q12. The tissue responsible for transporting water and dissolved mineral salts from roots to leaves is _____.

Q13. Water enters root hair cells from the soil by _____.

Q14. The opening and closing of stomata are controlled by _____ cells.

Q15. The reaction in which a more reactive metal replaces a less reactive metal from its compound is called a _____ reaction.

Q16. The chemical name of rust is hydrated _____ oxide.

Q17. A substance containing a useful metal compound from which a metal can be extracted is called an _____.

Q18. Density is calculated using the formula: Density = _____ $\div$ Volume.

Q19. The number of complete vibrations made per second is called _____.

Q20. When two waves combine and their amplitudes decrease, _____ interference occurs.

Complete the Tables

Q21. Complete the table on factors affecting transpiration.

Factor	Effect on transpiration
High temperature	
High humidity	
Strong wind	
Low light intensity	

Q22. Complete the following table using the reactivity series.

Metal	More or less reactive than iron?
Magnesium	
Copper	
Zinc	
Silver	

Q23. Complete the table about sound.

Property	What it determines
Amplitude	
Frequency	
Constructive interference	
Destructive interference	

Q24. Complete the table on heat transfer.

Method	Description	Example
Conduction		Heating a metal spoon
Convection		
Radiation		Heat from the Sun

Q25. A metal block has a mass of 360 g and a volume of 120 cm³.

- Calculate its density.
- State whether it will float or sink in water. Give a reason.

(Density of water = 1 g/cm³)

Q26. A rectangular object has a length of 8 cm, breadth of 5 cm and height of 3 cm. Its mass is 480 g.

- Calculate its volume.
- Calculate its density.

Q27. A sound source produces 450 vibrations in 5 seconds.

- Calculate its frequency.
- State the unit of frequency.
- What happens to the pitch if the frequency increases?

Q28. A student observes 15 complete waves on an oscilloscope in 0.05 seconds.

- Calculate the frequency of the sound wave.
- If the frequency becomes half, what happens to the pitch?

Q29. Define Transpiration

Q30. Define Translocation

Q31. Define Displacement reaction

Q32. Define Density



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Q33. Define Constructive interference

Q34.. Complete the table about photosynthesis.

Raw materials	Conditions required	Products
_____	Light and chlorophyll	_____
_____	_____	_____

Q35. A gardener notices that a plant kept in a dry room wilts faster than a plant kept in a humid room.

- a) Explain why the plant in the dry room loses water faster.
- b) State how wilting affects the support provided by plant cells.

Q36. A student places a magnesium strip in copper sulphate solution.

- a) Predict whether a reaction will occur.
- b) Name the metal that will be deposited.
- c) Explain your answer using the reactivity series.

Q37. A farmer observes that plants growing in soil with insufficient nitrate have poor growth.

Explain why nitrate is important for plant growth and identify the substance that plants use nitrate ions to make.

Q38. A student uses noise-cancelling headphones while travelling on a noisy bus.

- a) Name the type of interference used to reduce unwanted sound.
- b) Explain how this interference reduces the loudness of the noise.

Q39. A metal spoon and a wooden spoon are placed in a cup of hot water. After a few minutes, the metal spoon feels hotter.

- a) Name the method of heat transfer occurring through the metal spoon.
- b) Explain why the metal spoon becomes hotter than the wooden spoon.



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Q40. A student investigates the effect of light intensity on photosynthesis using an aquatic plant.

- a) Name the gas released during photosynthesis.
- b) Explain how the student could measure the rate of photosynthesis.
- c) State one factor, other than light intensity, that should be kept constant.

Q41. A plant absorbs water through its roots and transports it to the leaves.

- a) Name the tissue that transports water.
- b) Describe the pathway of water from the root hair cell to the leaf mesophyll cells.
- c) Explain how evaporation from the leaves helps water move upwards through the plant.

Q42. An iron object is painted before being used outdoors.

- a) Explain why painting prevents rusting.
- b) Name the two substances required for rusting.
- c) Suggest one other method of preventing rusting.

Q43. A student carries out the following reactions:

- Experiment A: Zinc + copper sulphate
- Experiment B: Copper + zinc sulphate

- a) Write the word equation for Experiment A.
- b) State the observation expected in Experiment A.
- c) Explain why no reaction occurs in Experiment B.

Q44. A student is given two sound waves displayed on an oscilloscope.

- Wave A has a larger amplitude than Wave B.
- Both waves have the same frequency.

- a) Which sound is louder?
- b) Which sound has the higher pitch?
- c) Explain your answers.

Q45. A plant is kept in a greenhouse where the temperature increases significantly.



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- a) Explain how increased temperature can affect transpiration.
- b) Explain why very high temperatures may eventually reduce photosynthesis.
- c) State one other environmental factor that affects transpiration.

Q46. A metal object has a mass of 150 g. When placed in a measuring cylinder, the water level rises from 40 cm³ to 65 cm³.

- a) Calculate the volume of the object.
- b) Calculate its density.
- c) Explain whether the object will float or sink in water.

Q47. During a thermite reaction, aluminium reacts with iron oxide to produce aluminium oxide and iron.

- a) Write the balanced chemical equation.
- b) Identify the more reactive metal.
- c) Explain why the reaction releases a large amount of heat.

Q48. Two sound waves meet at a particular point. The amplitude of the resultant wave is smaller than the amplitude of either original wave.

- a) Name the type of interference.
- b) Explain what happens when the two waves meet.
- c) State one practical use of this phenomenon.

Q49. A student observes that a plant's leaves become limp after several days without watering.

- a) What happens to the water content of the plant cells?
- b) Define the term flaccid.
- c) Explain why the plant loses its upright support.

Q50. A farmer notices that the rate of transpiration is higher on a sunny, windy day than on a cool, humid day.

Explain how the following factors affect transpiration:

- a) Temperature
- b) Wind speed
- c) Relative humidity