IGCSE Biology Practice Test 14

60 original multiple-choice questions covering all 21 Cambridge IGCSE Biology 0610 topics. Choose one answer for each question. The full answer key is on the last page — worked explanations for every question are free on the test page at QuaidianPoint.com.

Name: _____ Class: _____ Score: _____ / 60

Characteristics and classification of living organisms

Q1. Which kingdom includes organisms that are multicellular, have no chloroplasts, and feed by absorbing nutrients from dead material?

(A) Plant
(B) Animal
(C) Prokaryote
(D) Fungus

Q2. A student observes an animal with feathers, a beak, and wings. Which class is it in?

(A) Mammal
(B) Bird
(C) Reptile
(D) Amphibian

Q3. Which life process is shown when a seedling grows taller over several weeks?

(A) Excretion
(B) Growth
(C) Sensitivity
(D) Respiration

Organisation of the organism

Q4. Which level of organisation is the heart an example of?

(A) An organ
(B) A tissue
(C) A cell
(D) An organ system

Q5. Which structure is found in both plant and animal cells?

(A) Chloroplast
(B) Cell wall
(C) Mitochondrion
(D) Large permanent vacuole

Q6. A red blood cell has no nucleus and a biconcave shape. How does this help its function?

(A) It allows the cell to divide rapidly
(B) It allows the cell to photosynthesise
(C) It allows the cell to fight pathogens
(D) It gives more space for haemoglobin and a large surface area for gas exchange

Movement into and out of cells

Q7. Which statement about osmosis is correct?

(A) It is the diffusion of any particle through a membrane
(B) It needs energy from respiration
(C) It moves solutes from low to high concentration
(D) It is the diffusion of water through a partially permeable membrane

Q8. A cell membrane is described as partially permeable. What does this mean?

(A) Nothing can pass through it
(B) Some substances can pass through it but others cannot
(C) All substances pass through it equally and freely at all times
(D) Only water can pass through it

Q9. Which change would slow down diffusion of a gas into a cell?

(A) Increasing the concentration gradient
(B) Decreasing the temperature
(C) Increasing the surface area
(D) Decreasing the diffusion distance

Biological molecules

Q10. Which molecule is a polysaccharide made only of glucose units?

(A) Protein
(B) Fat
(C) Starch
(D) DNA

Q11. Vitamin C is tested using DCPIP solution. What colour change shows vitamin C is present?

(A) Blue DCPIP becomes colourless
(B) Blue DCPIP becomes brick-red
(C) Brown iodine becomes blue-black
(D) Blue biuret becomes purple

Q12. Which statement about fats is correct?

(A) Fats contain nitrogen
(B) Fats are made of amino acids
(C) Fats are a concentrated energy store, insoluble in water
(D) Fats dissolve easily in water

Enzymes

Q13. At low temperature, an enzyme reaction is slow. What is the main reason?

(A) The enzyme is denatured
(B) The substrate is destroyed
(C) The pH becomes zero
(D) Molecules move slowly and collide with active sites less often

Q14. Which graph shape describes the effect of pH on enzyme activity?

(A) A curve rising to a peak at the optimum pH, then falling
(B) A straight line rising continuously
(C) A flat line with no change
(D) A curve falling continuously from pH 1

Q15. Trypsin is an enzyme that works in the small intestine. What is its optimum pH most likely to be?

(A) pH 2, strongly acidic like stomach acid
(B) Around pH 8, slightly alkaline
(C) pH 14, strongly alkaline
(D) pH 0, extremely acidic

Plant nutrition

Q16. A plant is grown with plenty of light and water but no carbon dioxide. What happens to photosynthesis?

(A) It cannot occur, because carbon dioxide is a raw material
(B) It continues using oxygen instead
(C) It continues at the same rate
(D) It produces starch from water alone

Q17. Which leaf adaptation reduces water loss while still allowing gas exchange?

(A) A very thick cuticle with no stomata at all on the leaf
(B) A large number of chloroplasts
(C) Stomata that can close when water is scarce
(D) A thin leaf with a huge surface

Q18. Magnesium deficiency in a plant first shows in older leaves. What symptom appears?

(A) Purple stems
(B) Wilting in bright light only
(C) Stunted roots with no other sign
(D) Yellowing between the veins

Human nutrition

Q19. Which enzyme is produced in the stomach and begins the digestion of protein?

(A) Amylase
(B) Lipase
(C) Maltase
(D) Pepsin

Q20. Peristalsis moves food along the gut. How does it work?

(A) Cilia sweep food along the wall
(B) Rings of muscle contract behind the food and relax in front of it
(C) Gravity pulls food downwards only
(D) Digestive juices push food along

Q21. Iron is an important mineral in the diet because it is needed to make which substance?

(A) Haemoglobin
(B) Insulin, a hormone controlling blood glucose
(C) Bile
(D) Cellulose

Transport in plants

Q22. Which statement about translocation in phloem is correct?

(A) It carries water upwards only
(B) It needs no energy
(C) It moves sugars and amino acids from sources to sinks
(D) It takes place in dead xylem vessels throughout the stem

Q23. A leafy shoot is placed in water with the stem cut underwater. Why is the stem cut underwater?

(A) To prevent air entering the xylem and blocking water uptake
(B) To kill bacteria on the stem
(C) To make the shoot heavier
(D) To stop photosynthesis in the stem

Q24. Which factor would increase the rate of water uptake by a plant?

(A) Closing all stomata
(B) Lowering the temperature sharply
(C) Increasing light intensity
(D) Raising the humidity to saturation

Transport in animals

Q25. What is the double circulation in mammals?

(A) Blood passes through the heart once per circuit
(B) Blood flows in both directions in the same vessel
(C) The heart beats twice for each breath
(D) Blood passes through the heart twice in one complete circuit of the body

Q26. Which blood vessel has the thinnest wall, only one cell thick?

(A) Artery, a thick-walled high-pressure vessel
(B) Capillary
(C) Vein
(D) Aorta

Q27. What happens to blood as it passes through the lungs?

(A) It loses oxygen and gains carbon dioxide
(B) It gains oxygen and loses carbon dioxide
(C) It gains urea and loses glucose
(D) It loses plasma and gains platelets

Diseases and immunity

Q28. Which pathogen causes tuberculosis?

(A) A bacterium
(B) A virus
(C) A fungus
(D) A protoctist

Q29. How do antibodies help to defend the body?

(A) They engulf bacteria directly
(B) They produce memory cells
(C) They bind to antigens on pathogens, marking them for destruction
(D) They block blood vessels to trap pathogens

Q30. Which control measure is most effective against the spread of malaria?

(A) Vaccinating against bacteria
(B) Boiling all drinking water
(C) Washing hands before meals
(D) Using insecticide-treated bed nets and draining standing water

Gas exchange in humans

Q31. Which gas is present in the highest percentage in inhaled air?

(A) Oxygen
(B) Carbon dioxide
(C) Water vapour
(D) Nitrogen

Q32. A person breathes out into limewater and it turns milky. What does this show?

(A) Exhaled air contains more oxygen
(B) Exhaled air contains carbon dioxide
(C) Exhaled air contains nitrogen
(D) Exhaled air contains no water vapour

Q33. Why is exhaled air warmer and more humid than inhaled air?

(A) It has passed over moist, warm surfaces in the airways and lungs
(B) It has been heated by the stomach
(C) It contains extra nitrogen from the blood
(D) It has lost all its oxygen

Respiration

Q34. Which process releases energy for cell division in a growing root tip?

(A) Photosynthesis
(B) Transpiration
(C) Respiration
(D) Diffusion

Q35. Anaerobic respiration in human muscle produces less energy per glucose molecule than aerobic respiration because of which fact?

(A) Glucose is only partly broken down to lactic acid
(B) No glucose is used at all
(C) Oxygen is stored in the muscle
(D) Lactic acid contains no energy

Q36. Yeast is used in baking because anaerobic respiration produces which gas?

(A) Oxygen
(B) Nitrogen, the most common gas in the air
(C) Carbon dioxide
(D) Hydrogen

Excretion in humans

Q37. Which substances are normally found in the filtrate in Bowman's capsule but not in urine?

(A) Urea and excess salts, which appear in urine
(B) Water and urea
(C) Salts and water
(D) Glucose and amino acids

Q38. The hormone ADH is released when blood water content falls. What is its effect on the kidney?

(A) It reduces filtration in the glomerulus
(B) It increases water reabsorption from the collecting duct
(C) It increases urea production in the liver
(D) It stops urine formation completely

Q39. Which organ removes excess amino acids and converts them for excretion?

(A) Kidney
(B) Liver
(C) Spleen
(D) Bladder

Coordination and response

Q40. Which part of the nervous system coordinates a reflex action without involving conscious thought?

(A) The spinal cord
(B) The cerebrum
(C) The cerebellum only
(D) The sensory receptor

Q41. In dim light, the pupil dilates. Which muscles bring this about?

(A) Ciliary muscles
(B) Circular muscles of the iris contract
(C) Radial muscles of the iris contract
(D) Muscles of the lens contract

Q42. A shoot bends towards light. Which hormone causes this response?

(A) Insulin
(B) Adrenaline
(C) Thyroxine
(D) Auxin

Drugs

Q43. Which statement about drug misuse is correct?

(A) All drugs are harmful in any dose
(B) Misuse means using any medicine at all
(C) Prescribed drugs can never be misused
(D) Misuse includes taking a drug in a way or amount that harms health

Q44. Heroin slows down the nervous system. Which group of drugs does it belong to?

(A) Stimulants
(B) Depressants
(C) Antibiotics
(D) Painkillers only

Q45. Smoking during pregnancy increases the risk of which outcome?

(A) Low birth weight of the baby
(B) Extra fingers on the baby
(C) The baby being born with teeth
(D) The mother producing no milk at all

Reproduction

Q46. In a flowering plant, fertilisation occurs when a pollen nucleus fuses with which cell?

(A) A sepal cell
(B) A stigma cell, where pollen first lands
(C) The egg cell in the ovule
(D) A petal cell

Q47. Which structure in the human female produces eggs?

(A) The ovary
(B) The uterus
(C) The cervix
(D) The oviduct

Q48. A gardener takes cuttings from a plant to grow new plants. What is the genetic relationship between the cuttings and the parent?

(A) They are genetically unrelated to the parent plant
(B) They share half their genes with the parent
(C) They are genetically identical to the parent
(D) They have twice as many chromosomes

Inheritance

Q49. What is the phenotype of an organism?

(A) The genes it carries
(B) The chromosomes in its cells
(C) The alleles on one chromosome
(D) The observable characteristics resulting from its genes and environment

Q50. A heterozygous tall plant (Tt) is crossed with a short plant (tt). What proportion of offspring is expected to be short?

(A) None
(B) One half
(C) Three quarters
(D) All

Q51. Which type of reproduction produces offspring with new combinations of alleles?

(A) Binary fission
(B) Sexual reproduction
(C) Budding
(D) Vegetative propagation

Variation and selection

Q52. A mutation in a gene can lead to which outcome?

(A) A change in the protein made from that gene
(B) An exact copy of the original gene with no change
(C) No change in any cell
(D) A doubling of all chromosomes

Q53. In an environment that becomes colder, which individuals are most likely to survive by natural selection?

(A) Those with the thinnest fur, losing heat quickly
(B) Those that reproduce slowest
(C) Those best adapted to cold conditions
(D) Those that arrived most recently

Q54. Which example shows variation caused by both genes and environment?

(A) Blood group
(B) Tongue rolling ability
(C) Number of fingers
(D) Body mass

Organisms and their environment

Q55. Which process returns carbon dioxide to the atmosphere from dead organisms?

(A) Photosynthesis
(B) Feeding by herbivores, which eat producers
(C) Growth of producers
(D) Respiration by decomposers

Q56. In a food web, removing the top predator is most likely to cause which change?

(A) Producers to disappear at once
(B) Herbivore numbers to rise, then producer numbers to fall
(C) All other species to increase equally
(D) Decomposers to stop working

Human influences on ecosystems

Q57. Which practice helps to conserve fish stocks in the oceans?

(A) Setting catch quotas and protected areas
(B) Fishing during breeding seasons only, when stocks are low
(C) Using finer nets to catch young fish
(D) Increasing the size of fishing fleets

Q58. Burning forests to clear land for cattle adds to global warming in two ways. Which pair is correct?

(A) It removes oxygen and adds nitrogen
(B) It adds water vapour and removes soil
(C) It releases carbon dioxide and removes trees that would absorb it
(D) It releases methane and removes rainfall

Biotechnology and genetic modification

Q59. Penicillin is produced by which organism in a fermenter?

(A) A fungus
(B) A bacterium
(C) A virus
(D) A green alga

Q60. Which statement is a possible risk of using genetically modified organisms?

(A) They always cost more to grow
(B) They never survive outside a laboratory
(C) A modified trait could affect non-target species in the ecosystem
(D) They contain no genes at all

Answer Key

Q1: D	Q11: A	Q21: A	Q31: D	Q41: C	Q51: B
Q2: B	Q12: C	Q22: C	Q32: B	Q42: D	Q52: A
Q3: B	Q13: D	Q23: A	Q33: A	Q43: D	Q53: C
Q4: A	Q14: A	Q24: C	Q34: C	Q44: B	Q54: D
Q5: C	Q15: B	Q25: D	Q35: A	Q45: A	Q55: D
Q6: D	Q16: A	Q26: B	Q36: C	Q46: C	Q56: B
Q7: D	Q17: C	Q27: B	Q37: D	Q47: A	Q57: A

Q8: B	Q18: D	Q28: A	Q38: B	Q48: C	Q58: C
Q9: B	Q19: D	Q29: C	Q39: B	Q49: D	Q59: A
Q10: C	Q20: B	Q30: D	Q40: A	Q50: B	Q60: C

Worked explanations for all 60 questions: quaidianpoint.com/igcse-biology-practice-test-14/