IGCSE Biology Practice Test 4

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. A newly discovered organism has no nucleus and a single circular chromosome. Which kingdom does it belong to?

(A) Animal with many specialised cells
(B) Plant
(C) Prokaryote
(D) Fungus

Q2. Which feature distinguishes mammals from other vertebrates?

(A) Laying eggs with shells
(B) Having hair and mammary glands
(C) Breathing through gills
(D) Having a three-chambered heart and scaly skin

Q3. Which pair belongs to the same class?

(A) Frog and lizard
(B) Shark and whale
(C) Spider and beetle
(D) Lizard and snake

Organisation of the organism

Q4. Which cell is specialised for carrying oxygen?

(A) Red blood cell
(B) White blood cell
(C) Guard cell
(D) Root hair cell

Q5. Ciliated cells line the airways. What is their job?

(A) Absorbing nutrients
(B) Moving mucus upwards
(C) Producing hormones
(D) Contracting the airway

Q6. Which organ contains the largest number of villi?

(A) Small intestine
(B) Stomach
(C) Large intestine
(D) Oesophagus

Movement into and out of cells

Q7. Why do cells need active transport in addition to diffusion?

(A) Diffusion is too fast for large molecules to use
(B) Diffusion needs energy from respiration
(C) Some substances must be taken up against a gradient
(D) Osmosis cannot move water at all

Q8. A cell placed in a solution of the same water concentration as its cytoplasm will:

(A) Burst immediately
(B) Shrink rapidly
(C) Gain salt by osmosis
(D) Stay the same size

Q9. Which process moves dissolved substances through a partially permeable membrane without energy?

(A) Active transport
(B) Translocation
(C) Transpiration
(D) Diffusion

Biological molecules

Q10. Which test result shows vitamin C is present?

(A) Benedict's solution stays blue after heating
(B) Iodine stays brown
(C) DCPIP solution loses its blue colour
(D) Biuret solution stays blue

Q11. Which molecule is formed from glycerol and three fatty acids?

(A) A fat
(B) A protein
(C) A starch molecule
(D) A DNA strand

Q12. Why is starch a good storage molecule?

(A) It dissolves easily and moves fast
(B) It is insoluble and does not affect water balance
(C) It is sweet and attracts animals
(D) It breaks down without enzymes

Enzymes

Q13. A protease from the stomach is placed in the small intestine at pH 8. What happens to its activity?

(A) It rises to a new optimum
(B) It stays exactly the same
(C) It is boosted by bile
(D) It falls because the enzyme is denatured

Q14. Which statement explains the lock-and-key model?

(A) Enzymes change shape to fit any substrate at all
(B) Substrates break enzymes apart
(C) Only a matching substrate fits the active site
(D) Products block the enzyme permanently

Q15. What happens to enzyme activity as temperature rises from 10 to 35 degrees Celsius?

(A) It increases until the optimum is approached
(B) It falls steadily from the start
(C) It stays constant throughout
(D) It stops at 20 degrees

Plant nutrition

Q16. A plant shows poor root growth and weak stems. Which deficiency is most likely?

(A) Magnesium deficiency
(B) Phosphate deficiency
(C) Nitrate deficiency
(D) Iron deficiency

Q17. Why do most leaves have stomata mainly on the lower surface?

(A) To reduce water loss from direct sunlight
(B) To prevent all gas exchange
(C) To keep the leaf cool at night
(D) To block insect damage

Q18. A variegated leaf is tested for starch after a day in light. Which part turns blue-black?

(A) The white parts only
(B) The veins only
(C) The edges only
(D) The green parts only

Human nutrition

Q19. Which vitamin deficiency causes scurvy?

(A) Vitamin A
(B) Vitamin C
(C) Vitamin D
(D) Vitamin B12

Q20. What is the main function of the large intestine?

(A) Protein digestion
(B) Fat emulsification
(C) Absorption of water and vitamins
(D) Production of bile

Q21. Peristalsis is best described as:

(A) Chewing food in the mouth
(B) Rhythmic muscle contractions moving food along the gut
(C) Absorption through villi
(D) Secretion of stomach acid

Transport in plants

Q22. Which tissue is found on the outside of a root and absorbs water?

(A) Phloem
(B) Xylem
(C) Epidermis with root hairs
(D) Cambium layer in the stem

Q23. Translocation differs from transpiration because translocation:

(A) Moves water only upwards
(B) Loses water vapour to air through stomata
(C) Involves only dead xylem vessels
(D) Moves sugars in phloem to sinks

Q24. Which factor would decrease water uptake by a leafy shoot in a potometer?

(A) High humidity around the leaves
(B) Bright light on the leaves
(C) Strong wind across the leaves all day
(D) Warm air around the leaves

Transport in animals

Q25. Why is the left ventricle wall thicker than the right?

(A) It pumps blood to the lungs only at rest
(B) It pumps blood around the whole body
(C) It receives blood from the lungs
(D) It contains more valves

Q26. Which blood cells produce antibodies?

(A) Red blood cells
(B) Platelets
(C) Plasma cells only in bone
(D) Lymphocytes

Q27. What is tissue fluid?

(A) Plasma that has leaked from capillaries bathing cells
(B) Blood inside arteries
(C) Lymph inside lymph nodes
(D) Fluid inside the bladder

Diseases and immunity

Q28. Why is cholera more common where sewage mixes with drinking water?

(A) Mosquitoes breed faster there
(B) Cold weather preserves bacteria
(C) Bacteria spread directly through contaminated water
(D) People drink less water there

Q29. Which body defence is described as mechanical?

(A) Skin acting as a barrier
(B) Antibody production
(C) Stomach acid killing bacteria in the gut
(D) Phagocytosis in blood

Gas exchange in humans

Q30. During gas exchange, oxygen moves from alveoli to blood because:

(A) Blood actively pumps oxygen in
(B) Alveoli contract to push gas out
(C) Oxygen concentration is higher in alveoli than in blood
(D) Carbon dioxide pushes oxygen across

Q31. Which feature increases the rate of gas exchange in the lungs?

(A) Thick alveolar walls
(B) Slow blood flow only
(C) Small total lung volume
(D) A very large alveolar surface area

Respiration

Q32. A respirometer shows oxygen uptake falls when a poison blocks mitochondria. What does this prove?

(A) Mitochondria store oxygen gas
(B) Aerobic respiration needs mitochondria
(C) Anaerobic respiration uses oxygen
(D) Photosynthesis occurs in mitochondria of leaf cells

Q33. Which product is common to both aerobic and anaerobic respiration in yeast?

(A) Lactic acid
(B) Oxygen
(C) Carbon dioxide
(D) Ethanol in both cases

Excretion in humans

Q34. Which process in the kidney removes urea from blood?

(A) Selective reabsorption
(B) Ultrafiltration
(C) Active transport of glucose
(D) Secretion of bile

Q35. Why does the kidney reabsorb glucose?

(A) Glucose is a valuable energy source worth keeping
(B) Glucose is toxic in the bladder
(C) Glucose cannot pass the filter
(D) Glucose is needed to make urine

Q36. Which organ excretes carbon dioxide and water vapour?

(A) Kidney
(B) Skin only
(C) Liver
(D) Lung

Coordination and response

Q37. Which sequence is correct for a simple reflex?

(A) Effector, motor neurone, CNS, sensory neurone, receptor
(B) Receptor, CNS, sensory neurone, effector
(C) Sensory neurone, motor neurone, effector
(D) Receptor, sensory neurone, CNS, motor neurone, effector

Q38. What is the role of the cornea?

(A) Refracting light into the eye
(B) Detecting colour
(C) Carrying impulses to the brain
(D) Controlling pupil size

Q39. In dim light, the pupil dilates because:

(A) Radial muscles relax fully in dim light
(B) The lens thickens
(C) Radial muscles of the iris contract
(D) The retina shrinks

Drugs

Q40. Which statement about alcohol is correct?

(A) It improves reaction time
(B) It slows reactions and impairs judgement
(C) It increases oxygen in blood
(D) It strengthens the liver

Q41. Why is heroin dangerous even in small doses?

(A) It causes instant blindness
(B) It dissolves red blood cells
(C) It can depress breathing to fatal levels
(D) It blocks all digestion

Q42. Which of these is a legal drug that can still harm health?

(A) Heroin
(B) Tobacco
(C) Cocaine
(D) LSD

Reproduction

Q43. Which structure in the male reproductive system produces sperm?

(A) Prostate gland
(B) Sperm duct
(C) Urethra
(D) Testis

Q44. What is the function of the amniotic fluid?

(A) To cushion and protect the fetus
(B) To digest nutrients for the fetus
(C) To produce hormones only
(D) To supply oxygen directly

Q45. Which method spreads a plant without seeds and keeps the parent's traits?

(A) Taking stem cuttings
(B) Cross-pollination
(C) Self-pollination
(D) Growing from pollen alone

Inheritance

Q46. A man with genotype XY has a child. Which parent determines the child's sex?

(A) The mother only, through the egg cell alone
(B) Neither parent, by chance alone
(C) The environment after birth
(D) The father, through the X or Y sperm

Q47. What is meant by a heterozygous genotype?

(A) Two identical alleles for a gene
(B) Two different alleles for a gene
(C) No alleles for a gene
(D) Three alleles for a gene

Q48. Which process creates new combinations of alleles in gametes?

(A) Mitosis only
(B) Fertilisation only
(C) Meiosis, including independent assortment
(D) Cloning

Variation and selection

Q49. Which statement best defines evolution?

(A) Change in allele frequencies in a population over time
(B) Sudden change in one individual
(C) Migration of animals each season
(D) Growth of an individual organism

Q50. A population of insects is sprayed with insecticide. Most die, but a few survive and breed. What is this?

(A) Artificial selection only by human breeders
(B) Genetic engineering
(C) Natural selection for resistance
(D) Asexual reproduction

Q51. Which type of variation is usually controlled by a single gene?

(A) Height
(B) Discontinuous variation
(C) Body mass
(D) Skin colour shade in different populations

Organisms and their environment

Q52. Which term describes all the interacting living and non-living factors in an area?

(A) Population
(B) Community
(C) Habitat
(D) Ecosystem

Q53. Why do pyramids of energy always narrow upwards?

(A) Producers are eaten first
(B) Consumers reproduce slowly
(C) Energy is always gained at each level of the pyramid
(D) Energy is lost as heat and waste at each level

Q54. In a food web, a hawk eats both rabbits and mice. What happens if rabbits decline?

(A) The hawk must starve completely without rabbits
(B) The hawk may eat more mice instead
(C) Mice populations must fall too
(D) Grass biomass must fall

Human influences on ecosystems

Q55. Which action reduces the carbon footprint of transport?

(A) Using public transport or cycling
(B) Flying more often
(C) Burning more petrol
(D) Driving alone for short trips every day

Q56. What is habitat destruction?

(A) Seasonal migration of animals
(B) Natural ageing of trees
(C) Loss of the place where an organism lives
(D) Growth of a new forest

Q57. Why is deforestation a problem for biodiversity?

(A) It creates more farmland only
(B) It removes habitats and food sources for many species
(C) It increases soil fertility forever
(D) It cools the climate locally

Biotechnology and genetic modification

Q58. Which enzyme is used to cut DNA at specific points in genetic engineering?

(A) Restriction enzyme
(B) Amylase
(C) Lipase
(D) Protease that digests proteins

Q59. What is a fermenter?

(A) A microscope for bacteria
(B) A filter for pure water
(C) A vessel for growing microorganisms under controlled conditions
(D) A freezer for storing genes

Q60. Which is a benefit of using bacteria to make medicines?

(A) Bacteria work only at freezing temperatures
(B) Bacteria need no food source
(C) Bacteria produce identical human proteins slowly
(D) Bacteria can produce large amounts quickly and cheaply

Answer Key

Q1: C	Q11: A	Q21: B	Q31: D	Q41: C	Q51: B
Q2: B	Q12: B	Q22: C	Q32: B	Q42: B	Q52: D
Q3: D	Q13: D	Q23: D	Q33: C	Q43: D	Q53: D
Q4: A	Q14: C	Q24: A	Q34: B	Q44: A	Q54: B
Q5: B	Q15: A	Q25: B	Q35: A	Q45: A	Q55: A
Q6: A	Q16: B	Q26: D	Q36: D	Q46: D	Q56: C
Q7: C	Q17: A	Q27: A	Q37: D	Q47: B	Q57: B
Q8: D	Q18: D	Q28: C	Q38: A	Q48: C	Q58: A
Q9: D	Q19: B	Q29: A	Q39: C	Q49: A	Q59: C
Q10: C	Q20: C	Q30: C	Q40: B	Q50: C	Q60: D

Worked explanations for all 60 questions: quaidianpoint.com/igcse-biology-practice-test-4/