IGCSE Biology Practice Test 3

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 of these is NOT a characteristic of all living organisms?

(A) Photosynthesis
(B) Respiration in every living cell
(C) Movement
(D) Growth

Q2. Which kingdom contains organisms with chitin cell walls that feed by external digestion?

(A) Plants
(B) Animals
(C) Fungi
(D) Protoctists

Q3. A dichotomous key asks: "Has wings? Yes → go to 2, No → go to 3." What is the purpose of such a key?

(A) To name a new species
(B) To identify an organism step by step
(C) To count population size
(D) To measure growth rate

Organisation of the organism

Q4. Which tissue is specialised for contraction?

(A) Epithelial tissue
(B) Nervous tissue
(C) Xylem tissue
(D) Muscle tissue

Q5. Which organ system transports hormones around the body?

(A) Nervous system
(B) Digestive system
(C) Respiratory system
(D) Circulatory system

Q6. Which cell structure controls the activities of the cell?

(A) Ribosome
(B) Nucleus
(C) Vacuole
(D) Mitochondrion

Movement into and out of cells

Q7. A dialysis bag containing starch solution is placed in water. Starch stays inside but water enters. What does this show?

(A) The bag is partially permeable
(B) Starch is actively transported
(C) Water is pumped by the bag
(D) Starch dissolves in water

Q8. Which change would slow osmosis into a cell?

(A) A larger surface area
(B) A thinner membrane
(C) A smaller difference in water concentration
(D) A higher temperature

Q9. How does oxygen enter a red blood cell in the lungs?

(A) By active transport against a concentration gradient
(B) By diffusion down a concentration gradient
(C) By osmosis through the vacuole
(D) By phagocytosis of air bubbles

Biological molecules

Q10. Which statement about proteins is correct?

(A) They are made from amino acids joined together
(B) They are made from fatty acids and glycerol in the liver
(C) They are made from glucose units only
(D) They are made from nucleotides only

Q11. A sample gives a purple colour with biuret solution. What is present?

(A) Starch
(B) Glucose
(C) Protein
(D) Vitamin C

Q12. Which carbohydrate is the storage molecule in plants?

(A) Glucose
(B) Cellulose
(C) Sucrose
(D) Starch

Enzymes

Q13. In an experiment, the rate of reaction stops rising when more substrate is added. What limits the rate?

(A) Too much water present
(B) Too little product formed during the reaction
(C) All active sites are occupied
(D) The enzyme has dissolved

Q14. Lipase breaks down fats into:

(A) Amino acids
(B) Fatty acids and glycerol
(C) Glucose units
(D) Peptides only

Q15. Which factor does NOT affect enzyme activity?

(A) Temperature
(B) pH
(C) Substrate concentration in the reaction mixture
(D) Colour of the reaction tube

Plant nutrition

Q16. Which limiting factor is most likely to restrict photosynthesis on a cloudy winter day?

(A) Light intensity
(B) Carbon dioxide concentration
(C) Soil nitrate level
(D) Leaf size

Q17. How does a leaf's thin shape help photosynthesis?

(A) It reduces water loss completely
(B) It gives a large surface area for light absorption
(C) It stores starch in the veins
(D) It prevents gas exchange

Q18. Which word equation describes photosynthesis?

(A) Carbon dioxide + water → glucose + oxygen
(B) Glucose + oxygen → carbon dioxide + water
(C) Glucose → ethanol + carbon dioxide
(D) Oxygen + water → glucose + carbon dioxide

Human nutrition

Q19. What is the role of hydrochloric acid in the stomach?

(A) To emulsify fats
(B) To absorb amino acids
(C) To kill pathogens and provide the optimum pH for pepsin
(D) To neutralise bile

Q20. After a meal rich in starch, which organ releases amylase into the small intestine?

(A) Liver
(B) Gall bladder
(C) Stomach lining
(D) Pancreas

Transport in plants

Q21. Which statement about xylem is correct?

(A) It transports sugars in both directions
(B) It is made of living cells with cytoplasm
(C) It carries water only at night
(D) It consists of dead, hollow vessels

Q22. A leafy shoot loses mass fastest in hot, dry, windy conditions. Why?

(A) Photosynthesis stops in heat
(B) Roots absorb less water
(C) Transpiration rate is highest
(D) Stomata remain closed all day

Transport in animals

Q23. Which vessel has valves and thin walls?

(A) Vein
(B) Artery
(C) Capillary
(D) Aorta

Q24. What is the function of platelets?

(A) Carrying oxygen
(B) Forming blood clots
(C) Producing antibodies
(D) Transporting hormones

Diseases and immunity

Q25. Which pathogen is responsible for AIDS?

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

Q26. How do phagocytes destroy pathogens?

(A) By producing antibodies only in the blood
(B) By blocking blood vessels
(C) By engulfing and digesting them
(D) By raising body temperature

Q27. Which is an example of active immunity?

(A) Immunity after vaccination
(B) Antibodies passed in breast milk
(C) Antibodies injected during treatment
(D) Antibodies crossing the placenta

Gas exchange in humans

Q28. Which change occurs in the thorax during inhalation?

(A) Volume decreases and pressure rises
(B) Volume increases and pressure falls
(C) Volume and pressure stay constant
(D) Volume falls and pressure falls

Q29. What is the function of goblet cells in the airways?

(A) To produce mucus that traps dust and microbes
(B) To carry oxygen in blood
(C) To contract the diaphragm
(D) To absorb carbon dioxide

Q30. A student measures breathing rate before and after running. What is the expected result?

(A) Rate falls because lungs fill with oxygen
(B) Rate rises and never returns to resting level
(C) Rate stays exactly the same
(D) Rate rises then returns to resting level

Respiration

Q31. Which organelle is most abundant in a muscle cell that respires rapidly?

(A) Chloroplast in green plant cells
(B) Mitochondrion
(C) Vacuole
(D) Ribosome

Q32. What is the energy currency released by respiration used for?

(A) Photosynthesis only
(B) Digestion only
(C) Muscle contraction, active transport and cell division
(D) Storage as starch only

Q33. During vigorous exercise, oxygen debt is repaid by:

(A) Holding the breath
(B) Continued fast breathing to oxidise lactate
(C) Drinking water only
(D) Stopping respiration completely

Excretion in humans

Q34. What is the function of the loop of Henle in the kidney?

(A) Filtration of blood under high pressure in the glomerulus and capsule
(B) Storage of urine
(C) Reabsorption of water into the blood
(D) Production of urea

Q35. Why is the liver important in excretion?

(A) It filters blood directly into urine
(B) It stores excess water
(C) It produces bile pigments only
(D) It breaks down excess amino acids to urea

Q36. Which substance is selectively reabsorbed in the proximal tubule?

(A) All glucose and amino acids
(B) All urea and salts
(C) All water and no solutes at all
(D) All proteins and cells

Coordination and response

Q37. Which part of the eye focuses light onto the retina?

(A) Iris
(B) Lens
(C) Sclera
(D) Optic nerve

Q38. A reflex action is fast because:

(A) It uses hormones instead of nerves
(B) It involves conscious decision making
(C) It uses many relay neurones in the brain
(D) It has a short pathway through the spinal cord

Q39. Which hormone prepares the body for a "fight or flight" response?

(A) Adrenaline
(B) Insulin
(C) Thyroxine from the thyroid gland
(D) Oestrogen

Drugs

Q40. Which drug is a stimulant found in tea and coffee?

(A) Heroin
(B) Alcohol
(C) Caffeine
(D) Morphine

Q41. What is a depressant drug?

(A) A drug that slows down brain activity
(B) A drug that speeds up the heart permanently
(C) A drug that cures all infections
(D) A drug that replaces vitamins

Q42. Smoking during pregnancy is discouraged mainly because:

(A) It increases appetite greatly
(B) It improves blood flow to the fetus
(C) Carbon monoxide and nicotine can harm fetal growth
(D) It prevents morning sickness

Reproduction

Q43. Which part of the flower receives pollen during pollination?

(A) Ovary
(B) Anther
(C) Filament
(D) Stigma

Q44. What is fertilisation in flowering plants?

(A) Transfer of pollen to a stigma
(B) Fusion of male and female gamete nuclei
(C) Growth of a seed into a plant
(D) Opening of a flower bud

Q45. Which advantage does sexual reproduction give a species?

(A) Offspring are identical to parents
(B) Reproduction is faster than asexual methods in plants
(C) Genetic variation helps adaptation to change
(D) Only one parent is ever needed

Inheritance

Q46. Which term describes the genetic makeup of an organism?

(A) Phenotype
(B) Genotype
(C) Allele
(D) Chromosome

Q47. A cross between two heterozygous plants (Aa x Aa) gives what ratio of dominant to recessive phenotypes?

(A) 3:1
(B) 1:1
(C) 1:2:1
(D) 9:3:3:1

Q48. When does a child show a recessive genetic disorder such as cystic fibrosis?

(A) When one parent passes on a dominant allele
(B) When the child eats a special diet
(C) When only the mother carries the recessive allele
(D) When the child inherits a recessive allele from both parents

Variation and selection

Q49. Which example shows variation caused by genes only?

(A) Body mass, which depends on both inherited factors and diet and activity levels
(B) Height
(C) Skin colour affected by sunlight
(D) Blood group

Q50. What is meant by natural selection?

(A) Organisms better adapted to their environment survive and reproduce more successfully
(B) Humans deliberately choosing parent organisms with useful features and breeding from them over many generations
(C) Random mutation in wild populations
(D) Cloning by tissue culture only

Q51. Why might a new species form after populations become isolated?

(A) Isolated groups stop mutating
(B) Isolated groups share all genes freely
(C) Different selection pressures lead to reproductive isolation
(D) Isolated groups lose all variation

Organisms and their environment

Q52. Which organism is a secondary consumer in a grass → rabbit → fox food chain?

(A) Grass
(B) Fox
(C) Rabbit
(D) Soil bacteria

Q53. In the nitrogen cycle, which bacteria convert ammonium compounds to nitrates?

(A) Denitrifying bacteria
(B) Nitrogen-fixing bacteria
(C) Nitrifying bacteria
(D) Decomposer fungi

Q54. Why is a quadrat used in ecological sampling?

(A) To catch fast animals
(B) To estimate population size and distribution
(C) To measure wind speed
(D) To test soil pH directly

Human influences on ecosystems

Q55. Which measure helps reduce deforestation?

(A) Clearing large areas of forest to create farmland for growing crops and grazing animals
(B) Burning wood for fuel
(C) Building roads through forests
(D) Replanting trees and protecting forest areas

Q56. What is the main cause of the enhanced greenhouse effect?

(A) Rising carbon dioxide and methane from human activity
(B) Increased oxygen from plants
(C) Decreased rainfall worldwide
(D) Cooling of the oceans

Q57. Which gas is released by burning fossil fuels and contributes to global warming?

(A) Carbon dioxide
(B) Oxygen, which is released by plants during photosynthesis in daylight
(C) Nitrogen
(D) Ozone

Biotechnology and genetic modification

Q58. Which organism is used in bread making to release carbon dioxide?

(A) Lactobacillus bacteria
(B) Penicillium fungus
(C) Rhizobium bacteria
(D) Yeast

Q59. What is a plasmid in genetic engineering?

(A) A human chromosome
(B) A small circular DNA molecule in bacteria
(C) An enzyme that cuts DNA
(D) A type of fermenter vessel

Q60. Which product is made using genetically modified bacteria?

(A) Bread dough
(B) Yoghurt culture
(C) Human insulin
(D) Cheese curd

Answer Key

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

Worked explanations for all 60 questions: quaidianpoint.com/igcse-biology-practice-test-3/