IGCSE Biology Practice Test 1

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 characteristic of living organisms involves the production of new individuals of the same kind?

(A) Excretion
(B) Reproduction
(C) Sensitivity to stimuli in the surroundings
(D) Nutrition

Q2. Which feature is shared by all five kingdoms?

(A) Cells with a nucleus and membrane-bound organelles
(B) Photosynthesis
(C) Multicellular bodies
(D) Cells surrounded by a membrane

Organisation of the organism

Q3. Which sequence lists levels of organisation from simplest to most complex?

(A) Cell, tissue, organ, organ system
(B) Tissue, cell, organ system, organ
(C) Organ, tissue, cell, organ system
(D) Cell, organ, tissue, organ system

Q4. Which structure is found in a plant cell but not in an animal cell?

(A) Nucleus
(B) Mitochondrion
(C) Chloroplast
(D) Cell membrane

Movement into and out of cells

Q5. Which process moves oxygen from the lungs into the blood?

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

Q6. A cell is placed in pure water and swells. What explains this?

(A) Water leaves by active transport
(B) Solutes diffuse out of the cell
(C) Water enters by osmosis
(D) The cell wall dissolves

Biological molecules

Q7. Which test gives a brick-red precipitate with a reducing sugar?

(A) Iodine test
(B) Biuret test
(C) Ethanol emulsion test
(D) Benedict's test

Q8. Which molecule is a monosaccharide?

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

Q9. What is the main function of fats in the body?

(A) Speeding up reactions as enzymes do
(B) Carrying oxygen
(C) Energy storage and insulation
(D) Building cell membranes only

Enzymes

Q10. Why does a high temperature denature an enzyme?

(A) It breaks the substrate apart
(B) It changes the shape of the active site
(C) It removes water from the cell by evaporation
(D) It increases the pH sharply

Q11. Which statement describes an enzyme?

(A) A biological catalyst that is not used up in the reaction
(B) A protein that is broken down during the reaction
(C) A substrate that speeds up digestion
(D) A hormone that controls blood sugar

Q12. Amylase works best at pH 7. What happens in very acidic conditions?

(A) The reaction speeds up steadily
(B) The substrate becomes an enzyme
(C) The enzyme is made in larger amounts
(D) The rate falls because the enzyme denatures

Plant nutrition

Q13. Which substances does a plant need for photosynthesis?

(A) Oxygen and glucose made by the plant
(B) Nitrogen and water
(C) Glucose and oxygen
(D) Carbon dioxide and water

Q14. Where in the leaf does most photosynthesis take place?

(A) Palisade mesophyll
(B) Upper epidermis cells without chloroplasts
(C) Lower epidermis
(D) Vascular bundle

Q15. Why do plants need magnesium ions?

(A) To make cell walls strong
(B) To build DNA in roots
(C) To make chlorophyll
(D) To open the stomata

Human nutrition

Q16. Where is bile produced in the human body?

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

Q17. What is the function of villi in the small intestine?

(A) To churn food with acid
(B) To produce digestive enzymes
(C) To increase the surface area for absorption
(D) To store digested food

Q18. Which enzyme digests protein in the stomach?

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

Transport in plants

Q19. Which tissue transports water from roots to leaves?

(A) Phloem
(B) Cambium
(C) Epidermis
(D) Xylem

Q20. Which tissue in a leaf vein carries sugars away from the leaf?

(A) Phloem
(B) Xylem vessels, which carry water and mineral ions upwards from the roots to the leaves
(C) Cambium
(D) Epidermis

Q21. Which factor increases the rate of transpiration most directly?

(A) Strong wind
(B) High humidity
(C) Low light intensity
(D) Cool temperature

Transport in animals

Q22. Which blood vessel carries blood away from the heart at high pressure?

(A) Vein
(B) Capillary
(C) Lymph vessel
(D) Artery

Q23. What is the function of the bicuspid valve?

(A) To stop blood entering the lungs
(B) To prevent backflow from ventricle to atrium
(C) To pump blood to the body
(D) To filter blood in the kidney

Q24. Which component of blood carries oxygen?

(A) Plasma
(B) Platelets
(C) Red blood cells
(D) White blood cells

Diseases and immunity

Q25. Which type of pathogen causes malaria?

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

Q26. How does vaccination give long-term protection?

(A) It kills all pathogens in the blood
(B) It replaces white blood cells
(C) It triggers memory cells for a faster second response
(D) It blocks pathogens from entering the body

Q27. Which defence is a chemical barrier against pathogens?

(A) Skin
(B) Stomach acid
(C) Mucus trapping particles
(D) Blood clotting

Gas exchange in humans

Q28. Which feature of alveoli speeds gas exchange?

(A) Thick walls with few capillaries
(B) Dry surfaces with slow blood flow
(C) A large total volume of air
(D) Thin walls and a rich blood supply

Q29. What happens to the diaphragm during inhalation?

(A) It relaxes and domes upwards
(B) It stops moving completely
(C) It pushes air out of the lungs
(D) It contracts and flattens

Q30. Which gas is at a higher concentration in exhaled air than in inhaled air?

(A) Nitrogen from the inhaled air
(B) Carbon dioxide
(C) Oxygen
(D) Argon

Respiration

Q31. Which equation summarises aerobic respiration?

(A) Glucose + oxygen → carbon dioxide + water + energy
(B) Glucose → lactic acid + energy
(C) Glucose + carbon dioxide → oxygen + water
(D) Glucose + water → oxygen + energy

Q32. Where in the cell does most aerobic respiration take place?

(A) Nucleus
(B) Ribosome
(C) Mitochondrion
(D) Chloroplast found in plant leaf cells

Q33. What product of anaerobic respiration in muscle causes cramp?

(A) Ethanol
(B) Lactic acid
(C) Carbon dioxide
(D) Glucose

Excretion in humans

Q34. Which organ produces urea?

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

Q35. In which part of the kidney is blood filtered?

(A) Loop of Henle deep in the kidney medulla
(B) Collecting duct
(C) Glomerulus and Bowman's capsule
(D) Ureter

Q36. Which substance is normally absent from urine?

(A) Urea
(B) Water and dissolved salts
(C) Salts
(D) Glucose

Coordination and response

Q37. Which neurone carries impulses from a receptor to the central nervous system?

(A) Motor neurone
(B) Relay neurone
(C) Sensory neurone
(D) Effector neurone

Q38. What is the effector in a reflex arc for the knee-jerk response?

(A) Spinal cord
(B) Leg muscle
(C) Skin receptor
(D) Brain

Q39. Which hormone lowers blood glucose concentration?

(A) Adrenaline
(B) Glucagon
(C) Oestrogen
(D) Insulin

Drugs

Q40. Which effect is caused by nicotine in tobacco smoke?

(A) Narrowing of blood vessels and higher heart rate
(B) Increased oxygen carried by blood
(C) Stronger cilia action in airways
(D) Reduced risk of lung disease

Q41. Why is alcohol harmful to a developing fetus?

(A) It supplies extra energy to the fetus
(B) It can damage the developing brain and organs
(C) It increases oxygen delivery
(D) It prevents infection of the fetus

Q42. What is meant by drug misuse?

(A) Using a drug in a way that harms health or social life
(B) Taking a prescribed drug exactly as directed
(C) Refusing all medicines when ill
(D) Taking vitamins with food

Reproduction

Q43. Which process in sexual reproduction halves the chromosome number?

(A) Fertilisation
(B) Mitosis
(C) Meiosis
(D) Pollination

Q44. In a flower, where are male gametes produced?

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

Q45. Which statement is true of asexual reproduction?

(A) It requires two parents
(B) It produces genetically varied offspring
(C) It involves fusion of gametes
(D) It produces genetically identical offspring

Inheritance

Q46. What does the term homozygous mean for a particular gene?

(A) Two different alleles for the gene
(B) Only one allele for the gene
(C) Two identical alleles for the gene
(D) Two alleles for different genes carried on the same chromosome

Q47. A heterozygous tall plant (Tt) is crossed with a short plant (tt). What proportion of offspring will be short?

(A) Half
(B) One quarter
(C) Three quarters
(D) All

Q48. Which genotype shows a recessive trait?

(A) AA
(B) aa
(C) Aa
(D) AB

Variation and selection

Q49. Which variation is caused only by the environment?

(A) Blood group
(B) Eye colour
(C) Natural hair colour inherited from parents
(D) A scar from an injury

Q50. What is natural selection?

(A) Humans choosing animals to breed
(B) Random change in chromosome number
(C) Better-adapted organisms surviving and reproducing more
(D) Migration of species to new areas

Q51. Which is an example of continuous variation?

(A) Height in humans
(B) Blood group in humans
(C) Ability to roll the tongue
(D) Flower colour in peas

Organisms and their environment

Q52. In a food chain, what is the original source of energy?

(A) Decomposers
(B) The Sun
(C) Herbivores
(D) Soil minerals

Q53. Why does a food chain rarely have more than five trophic levels?

(A) Energy is lost at each transfer
(B) Top predators eat too little
(C) Producers run out of sunlight
(D) Decomposers remove all biomass

Q54. Which organisms return nutrients to the soil?

(A) Herbivores that feed on producers
(B) Carnivores
(C) Producers
(D) Decomposers

Human influences on ecosystems

Q55. How does deforestation contribute to global warming?

(A) It increases oxygen production
(B) It reduces carbon dioxide uptake by trees
(C) It cools the soil surface
(D) It increases rainfall locally

Q56. What is eutrophication?

(A) Drying out of a lake in summer
(B) Freezing of surface water
(C) Nutrient enrichment causing algal blooms and oxygen loss
(D) Acid rain damaging forest soil

Q57. Which gas is mainly responsible for acid rain from burning fossil fuels?

(A) Methane
(B) Sulfur dioxide
(C) Ozone
(D) Nitrogen gas in the atmosphere

Biotechnology and genetic modification

Q58. What is genetic modification?

(A) Selecting the best plants by eye
(B) Cross-breeding two varieties
(C) Changing the genetic material of an organism
(D) Cloning an organism by cuttings

Q59. Why are bacteria used to produce human insulin?

(A) They grow slowly in fermenters
(B) They cannot copy human genes
(C) They need no nutrients to grow
(D) They reproduce rapidly and can express the human gene

Q60. Which is a benefit of genetically modified crops?

(A) Higher yields or pest resistance
(B) Greater need for pesticides always
(C) Reduced genetic diversity in wild species
(D) Slower growth in all conditions

Answer Key

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

Worked explanations for all 60 questions: quaidianpoint.com/igcse-biology-practice-test-1/