IGCSE Biology Practice Test 15

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 is shown when a plant root grows downwards in response to gravity?

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

Q2. Which organism is a protoctist?

(A) A yeast cell, a single-celled fungus used in baking
(B) A moss plant
(C) A mushroom
(D) Amoeba, a single-celled organism with a nucleus

Organisation of the organism

Q3. Which cell is specialised for carrying water in plants?

(A) Guard cell
(B) Palisade cell
(C) Root hair cell, which absorbs water from soil
(D) Xylem vessel cell

Q4. Which tissue type covers the surfaces of organs in animals?

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

Movement into and out of cells

Q5. In which situation does active transport occur in the human gut?

(A) Glucose is absorbed from the ileum into blood against a concentration gradient
(B) Water moves into the blood by osmosis
(C) Oxygen diffuses into gut cells
(D) Carbon dioxide diffuses out of gut cells into the blood during respiration in the tissues

Q6. A potato strip gains mass in pure water but loses mass in a strong sugar solution. What explains both results?

(A) Active transport of sugar into the cells from the surrounding solution
(B) Diffusion of starch out of the cells
(C) Osmosis: water enters in pure water and leaves in the sugar solution
(D) Respiration using up the potato tissue

Biological molecules

Q7. Which simple sugar is the main product of photosynthesis?

(A) Glucose
(B) Maltose
(C) Lactose
(D) Sucrose only

Q8. Which statement correctly describes the structure of DNA?

(A) A single chain of amino acids
(B) A chain of fatty acids and glycerol forming a fat molecule
(C) A double helix of nucleotides with base pairing
(D) A branched chain of glucose units

Q9. Which nutrient provides the body with amino acids for growth and repair?

(A) Fat
(B) Vitamin C
(C) Water
(D) Protein

Enzymes

Q10. An enzyme and its substrate are mixed, and the reaction rate is measured. Adding more enzyme increases the rate. Why?

(A) The substrate becomes more concentrated in the mixture over time
(B) More active sites are available for substrate molecules
(C) The temperature rises automatically
(D) The pH changes to the optimum

Q11. Which enzyme is present in washing powder to break down protein stains, and why does it work in warm water?

(A) Lipase, because it works best when cold
(B) Protease, because warm water is near its optimum temperature
(C) Amylase, because it digests starch stains only
(D) Catalase, because it breaks down hydrogen peroxide in cells

Q12. The active site of an enzyme is best described as which of the following?

(A) The region where the substrate binds and the reaction occurs
(B) The part of the enzyme that is used up in the reaction completely
(C) The product formed by the reaction
(D) The whole surface of the enzyme molecule

Plant nutrition

Q13. Which process in a leaf uses light energy to split water molecules?

(A) Respiration
(B) Transpiration
(C) The light-dependent stage of photosynthesis
(D) Active transport in the phloem, moving sugars

Q14. A plant with nitrate deficiency is most likely to show which symptom?

(A) Yellow leaves only in bright light conditions
(B) Thick, dark green leaves
(C) Rapid growth with weak stems
(D) Poor growth and pale, yellowish leaves

Q15. Why is chlorophyll important for photosynthesis?

(A) It stores glucose as starch in the chloroplast
(B) It carries water to the leaf
(C) It opens the stomata
(D) It absorbs light energy for the reactions

Human nutrition

Q16. Which organ produces trypsin and lipase for digestion in the small intestine?

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

Q17. What is the main function of fibre in the diet?

(A) To add bulk and help food move through the gut, preventing constipation
(B) To provide the main energy source for the body during hard activity every day
(C) To build new muscle tissue
(D) To carry oxygen in the blood

Q18. A balanced diet for a teenager differs from that for a small child mainly because of which factor?

(A) Teenagers need no vitamins at all in their diet, unlike children
(B) Children need no protein
(C) Energy and nutrient needs change with age, size and activity
(D) Teenagers need only fats

Transport in plants

Q19. Which adaptation helps a root hair cell absorb water efficiently?

(A) A long, thin extension giving a large surface area
(B) A thick waterproof cuticle
(C) A large number of chloroplasts
(D) A rigid cell wall with no permeability to water at all

Q20. What is the transpiration stream?

(A) The flow of sugars in the phloem
(B) The flow of water vapour out of stomata only, not through the xylem at all
(C) The continuous flow of water from roots, through xylem, to leaves
(D) The flow of mineral ions in the soil

Q21. A potometer measures water uptake by a leafy shoot. If the shoot is placed in bright light, what happens to the bubble movement?

(A) The bubble stops moving
(B) The bubble moves backwards, away from the shoot, as water is lost
(C) The bubble moves more slowly
(D) The bubble moves faster, showing greater water uptake

Transport in animals

Q22. Which sequence shows the correct path of blood through the heart, starting at the vena cava?

(A) Right atrium, left ventricle, lungs, left atrium, right ventricle
(B) Right atrium, right ventricle, lungs, left atrium, left ventricle
(C) Left atrium, left ventricle, lungs, right atrium, right ventricle
(D) Right ventricle, right atrium, lungs, left ventricle, left atrium

Q23. Why is blood in the pulmonary artery deoxygenated even though it is an artery?

(A) It has passed through the liver
(B) It is travelling from the heart to the lungs to collect oxygen
(C) It has lost oxygen in the muscles
(D) It contains no red blood cells

Q24. Which component of blood transports dissolved glucose, amino acids and hormones?

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

Diseases and immunity

Q25. Which method of controlling disease spread involves killing pathogens on surfaces and instruments?

(A) Vaccination
(B) Quarantine only, isolating infected patients
(C) Sterilisation and disinfection
(D) Passive immunity

Q26. A person recovers from measles and is then immune for life. Which cells provide this long-term immunity?

(A) Red blood cells
(B) Platelets
(C) Muscle cells
(D) Memory cells

Q27. Which statement about the immune response is correct?

(A) All pathogens are destroyed by stomach acid alone
(B) Antibodies are made by red blood cells
(C) Phagocytes produce antibodies
(D) Lymphocytes produce antibodies specific to an antigen

Gas exchange in humans

Q28. Which feature of the lungs increases the rate of diffusion of oxygen into the blood?

(A) A thick wall around each alveolus
(B) A rich capillary network around each alveolus
(C) A dry inner surface
(D) A single large air sac

Q29. During vigorous exercise, which change in breathing is observed?

(A) Breathing becomes deeper and faster
(B) Breathing stops between breaths
(C) Breathing becomes shallower and slower
(D) Only the rate changes, not the depth

Q30. The diaphragm and intercostal muscles work together during inhalation to do what?

(A) Decrease the volume of the thorax
(B) Compress the lungs directly
(C) Increase the volume of the thorax and lower air pressure inside
(D) Close the trachea temporarily

Respiration

Q31. Which word equation describes anaerobic respiration in yeast?

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

Q32. A germinating seed is kept in a sealed flask with soda lime to absorb carbon dioxide. A thermometer shows a temperature rise. What does this demonstrate?

(A) Photosynthesis in the seeds
(B) Transpiration from the seeds
(C) Respiration in the seeds releases energy as heat
(D) Fermentation producing ethanol

Q33. Which statement compares aerobic and anaerobic respiration in mammals correctly?

(A) Aerobic respiration produces lactic acid
(B) Anaerobic respiration produces more energy
(C) Aerobic respiration takes place without mitochondria
(D) Aerobic respiration uses oxygen and releases more energy per glucose molecule

Excretion in humans

Q34. Which waste product is excreted in sweat as well as in urine?

(A) Carbon dioxide
(B) Urea and salts
(C) Glucose
(D) Bile pigments

Q35. In a kidney nephron, where does selective reabsorption mainly take place?

(A) In the glomerulus
(B) In the tubule, especially the first convoluted part
(C) In the bladder
(D) In the ureter

Q36. A urine sample from a healthy person is tested. Which substance should not be present?

(A) Glucose
(B) Urea, a waste product found in urine
(C) Water
(D) Salts

Coordination and response

Q37. Which neurone carries impulses from the central nervous system to an effector?

(A) Sensory neurone
(B) Relay neurone
(C) Motor neurone
(D) Receptor cell

Q38. A person steps on a sharp object and pulls their foot away at once. Which feature makes this response fast?

(A) The impulse travels to the brain for a decision first
(B) The response is learned over time
(C) Hormones carry the signal
(D) The reflex arc is short and does not involve conscious thought

Q39. Which plant response is shown when roots grow towards water?

(A) Phototropism
(B) Geotropism
(C) Thigmotropism
(D) Hydrotropism

Drugs

Q40. Which drug is a stimulant that increases alertness and heart rate?

(A) Alcohol, a depressant drug in drinks
(B) Caffeine
(C) Heroin
(D) Insulin

Q41. Why does long-term smoking increase the risk of emphysema?

(A) Smoke damages alveoli walls, reducing surface area for gas exchange
(B) Smoke increases the number of alveoli
(C) Smoke thickens the diaphragm
(D) Smoke adds oxygen to the blood

Q42. Which statement about alcohol and driving is correct?

(A) Alcohol improves reaction time
(B) Alcohol has no effect on judgement
(C) Alcohol slows reactions and impairs judgement, increasing accident risk
(D) Alcohol only affects the liver, not the brain

Reproduction

Q43. Which structure protects a developing human embryo and contains amniotic fluid?

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

Q44. In flowering plants, which process transfers pollen from an anther to a stigma?

(A) Fertilisation
(B) Germination
(C) Pollination
(D) Dispersal

Q45. Which advantage does seed dispersal give to a plant species?

(A) It produces genetically identical offspring
(B) It prevents all competition
(C) It stops pollination occurring
(D) It reduces competition between parent and offspring and colonises new areas

Inheritance

Q46. A gene has two alleles, B for brown eyes and b for blue eyes, with B dominant. What is the phenotype of a Bb individual?

(A) Blue eyes
(B) Brown eyes
(C) Green eyes
(D) No eye colour

Q47. Which diagram is used to predict the genotypes of offspring from a cross?

(A) A food web
(B) A Punnett square
(C) A pyramid of energy
(D) A pedigree chart only

Q48. Cystic fibrosis is caused by a recessive allele. Two carrier parents have a child. What is the chance the child has cystic fibrosis?

(A) 1 in 4
(B) 1 in 2
(C) 3 in 4
(D) 4 in 4

Variation and selection

Q49. Which statement about variation in a population is correct?

(A) All variation is caused by the environment
(B) All variation is inherited
(C) Variation arises from genes, environment, or both
(D) Variation prevents natural selection

Q50. A population of moths changes colour over generations after pollution darkens tree bark. Which process explains this?

(A) Artificial selection
(B) Genetic engineering
(C) Asexual reproduction
(D) Natural selection

Q51. Which of these traits shows discontinuous variation?

(A) Height in humans
(B) Leaf length in a plant, varying continuously
(C) Mass of a seed
(D) Ability to roll the tongue

Organisms and their environment

Q52. Which term describes all the living and non-living parts of an area interacting together?

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

Q53. In the carbon cycle, which process removes carbon dioxide from the atmosphere?

(A) Photosynthesis
(B) Respiration, which releases carbon dioxide
(C) Combustion
(D) Decomposition

Q54. Which organisms in a food chain are secondary consumers?

(A) Producers, green plants at the base of a food chain
(B) Herbivores
(C) Carnivores that eat herbivores
(D) Decomposers

Human influences on ecosystems

Q55. Which human activity is a major cause of habitat loss for rainforest species?

(A) Clearing forest for agriculture and timber
(B) Creating national parks
(C) Breeding programmes in zoos, away from the wild
(D) Recycling waste paper

Q56. Which gas is released from fertilisers and contributes to the greenhouse effect?

(A) Oxygen
(B) Nitrogen gas, which makes up most of the air
(C) Nitrous oxide
(D) Hydrogen

Q57. Sustainable development means which of the following?

(A) Using resources as fast as possible
(B) Meeting only present needs with no regard for the future
(C) Banning all use of natural resources
(D) Meeting present needs without reducing the ability of future generations to meet theirs

Biotechnology and genetic modification

Q58. Which enzyme is used to cut DNA at specific sites during genetic modification?

(A) Amylase, an enzyme that digests starch
(B) Restriction enzyme
(C) Lipase
(D) Catalase

Q59. Why are bacteria useful for producing human proteins such as insulin?

(A) They have no DNA of their own
(B) They reproduce rapidly and can express the inserted human gene
(C) They need no nutrients to grow
(D) They produce antibodies against insulin

Q60. Which statement describes a genetically modified organism?

(A) An organism whose genetic material has been changed by adding, removing or altering a gene
(B) An organism grown only by selective breeding
(C) An organism with no genetic material
(D) An organism that reproduces only asexually

Answer Key

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

Worked explanations for all 60 questions: quaidianpoint.com/igcse-biology-practice-test-15/