IGCSE Biology Practice Test 18

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 making more organisms of the same kind?

(A) Movement
(B) Excretion
(C) Sensitivity in this context, when the other conditions are taken into account
(D) Reproduction

Q2. Which group contains organisms with jointed legs and a hard exoskeleton?

(A) Molluscs
(B) Annelids
(C) Arthropods
(D) Cnidarians in this context, when the other conditions are taken into account

Q3. Which feature identifies an organism as a mammal?

(A) Hair and mammary glands
(B) Feathers and a beak
(C) Scales and gills
(D) A moist skin and no legs

Organisation of the organism

Q4. Which specialised cell carries oxygen in human blood?

(A) Ciliated cell
(B) Red blood cell
(C) Root hair cell in this context, when the other conditions are taken into account
(D) Palisade cell

Q5. Which example shows an organ system?

(A) Digestive system
(B) Muscle tissue
(C) A single liver cell
(D) A chloroplast

Q6. Which cell is adapted for absorbing water in a plant root?

(A) Guard cell
(B) Root hair cell
(C) Xylem vessel cell
(D) Epidermal cell of a leaf

Movement into and out of cells

Q7. Which statement about active transport is correct?

(A) It needs no energy
(B) It only moves water
(C) It moves particles down a gradient in this context, when the other conditions are taken into account
(D) It uses energy to move particles against a gradient

Q8. Which term describes a solution with the same solute concentration as cell cytoplasm?

(A) Dilute solution
(B) Concentrated solution
(C) Isotonic solution
(D) Saturated solution

Q9. A plant cell in a concentrated sugar solution becomes plasmolysed. What has happened?

(A) The vacuole has burst
(B) The cell wall has dissolved
(C) Water has left the cell and the membrane has pulled away from the wall
(D) Water has entered and the cell is turgid in this context, when the other conditions are taken into account

Biological molecules

Q10. Which molecule is formed when two glucose molecules join together?

(A) Maltose
(B) Starch, a large polysaccharide stored in plant cells for later use as an energy reserve
(C) Sucrose
(D) Cellulose

Q11. Which test identifies the presence of lipids in a food sample?

(A) Iodine test
(B) Emulsion test with ethanol
(C) Benedict's test in this context, when the other conditions are taken into account
(D) Biuret test

Q12. Which sugar is a disaccharide made from glucose and fructose?

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

Enzymes

Q13. Which factor affects enzyme activity by changing the shape of the active site?

(A) Substrate concentration only
(B) Temperature and pH
(C) Product colour
(D) Light intensity

Q14. Which statement is true of enzymes in a reaction?

(A) They remain unchanged at the end of the reaction
(B) They are converted into products
(C) They increase the energy of products in this context, when the other conditions are taken into account
(D) They work on any substrate

Q15. At low substrate concentration, why does increasing substrate concentration increase the reaction rate?

(A) Enzymes denature more slowly
(B) More enzyme molecules are made in this context, when the other conditions are taken into account
(C) The pH becomes optimal
(D) More active sites become occupied

Plant nutrition

Q16. Which ion is needed for healthy plant growth and protein synthesis, and is often added as fertiliser?

(A) Magnesium ion
(B) Calcium ion
(C) Nitrate ion
(D) Chloride ion

Q17. At which part of a leaf does most photosynthesis take place?

(A) Upper epidermis, the transparent layer that protects the leaf surface from damage
(B) Lower epidermis
(C) Spongy mesophyll
(D) Palisade mesophyll

Q18. Which structure in a leaf controls gas exchange and water loss?

(A) Midrib
(B) Cuticle alone in this context, when the other conditions are taken into account
(C) Stoma with guard cells
(D) Vein network

Human nutrition

Q19. Which nutrient provides the most energy per gram?

(A) Protein
(B) Fat
(C) Carbohydrate
(D) Fibre

Q20. Which food group is needed for growth and repair of body tissues?

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

Q21. Which organ stores bile and releases it into the duodenum?

(A) Liver
(B) Gall bladder
(C) Pancreas in this context, when the other conditions are taken into account
(D) Appendix

Transport in plants

Q22. Which process moves water up a plant stem in the xylem?

(A) Translocation
(B) Active transport only
(C) Diffusion of sugars
(D) Transpiration pull

Q23. A leafy shoot in a potometer shows faster water uptake on a windy day. Why?

(A) Wind increases transpiration, raising water uptake
(B) Wind closes the stomata
(C) Wind cools the roots
(D) Wind increases photosynthesis only in this context, when the other conditions are taken into account

Q24. Which statement about phloem is correct?

(A) It carries water upwards only
(B) It is made of dead hollow tubes
(C) It carries sugars both up and down the plant
(D) It is found only in roots

Transport in animals

Q25. Which blood component helps blood to clot at a wound?

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

Q26. Which vessel returns blood from the body to the right atrium?

(A) Vena cava
(B) Pulmonary vein
(C) Coronary artery
(D) Hepatic vein only

Q27. What is the function of the bicuspid valve in the heart?

(A) It stops blood entering the aorta
(B) It separates the two ventricles
(C) It pumps blood to the lungs
(D) It prevents backflow from ventricle to atrium on the left side

Diseases and immunity

Q28. Which pathogen causes malaria?

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

Q29. How does passive immunity differ from active immunity?

(A) It lasts longer
(B) It requires memory cells
(C) It involves vaccination
(D) Ready-made antibodies are given and protection is short-lived

Gas exchange in humans

Q30. Which muscle relaxes during exhalation to reduce chest volume?

(A) External intercostal muscle
(B) Diaphragm
(C) Abdominal muscle only
(D) Internal intercostal muscle

Q31. Which gas is at the highest concentration in inhaled air compared with exhaled air?

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

Respiration

Q32. Which statement about anaerobic respiration in humans is correct?

(A) Glucose is broken down without oxygen to lactic acid
(B) Glucose is fully broken down to water
(C) Much more energy is released than aerobically
(D) Oxygen is produced as a product

Q33. Which organ system increases its activity most during prolonged exercise?

(A) Circulatory and respiratory systems working together
(B) Digestive system alone
(C) Excretory system alone
(D) Reproductive system

Excretion in humans

Q34. Which waste product is excreted by the lungs?

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

Q35. Which part of the nephron is a tangled knot of capillaries?

(A) Collecting duct
(B) Glomerulus
(C) Loop of Henle
(D) Ureter

Q36. A person drinks very little water on a hot day. What urine is expected?

(A) Large volume, dilute
(B) Large volume, concentrated in this context, when the other conditions are taken into account
(C) No urine at all
(D) Small volume, concentrated

Coordination and response

Q37. Which structure in the eye detects light and produces impulses?

(A) Lens, which changes shape to focus light onto the back of the eye
(B) Cornea
(C) Retina
(D) Iris

Q38. Which part of the brain coordinates balance and fine movement?

(A) Cerebrum
(B) Cerebellum
(C) Medulla
(D) Hypothalamus

Q39. In bright light, what happens to the pupil of the eye?

(A) It constricts to reduce light entering
(B) It dilates to admit more light
(C) It changes colour
(D) It moves to the side

Drugs

Q40. Which chemical in cigarette smoke reduces oxygen transport in blood?

(A) Nicotine
(B) Tar
(C) Oxygen
(D) Carbon monoxide

Q41. Which effect is associated with excessive alcohol consumption over many years?

(A) Improved liver function
(B) Stronger reaction times
(C) Better social judgement
(D) Liver damage

Q42. Why should a full course of antibiotics be completed even if symptoms improve?

(A) To kill all bacteria and reduce resistant strains surviving
(B) To build immunity to viruses
(C) To replace damaged antibodies
(D) To increase the dose gradually

Reproduction

Q43. Which process in plants involves transfer of pollen from anther to stigma?

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

Q44. Which hormone triggers the development of secondary sexual characteristics in males at puberty?

(A) Oestrogen
(B) Insulin
(C) Testosterone
(D) Progesterone in this context, when the other conditions are taken into account

Q45. Where does implantation of an embryo normally occur?

(A) In the ovary
(B) In the lining of the uterus
(C) In the oviduct wall
(D) In the cervix

Inheritance

Q46. Which term describes different versions of the same gene?

(A) Alleles
(B) Chromosomes
(C) Genotypes
(D) Phenotypes

Q47. Which condition is caused by an extra chromosome 21 in humans?

(A) Sickle cell anaemia
(B) Cystic fibrosis
(C) Down syndrome
(D) Haemophilia

Q48. A pure-breeding tall plant (TT) is crossed with a short plant (tt). What proportion of offspring is expected to be tall?

(A) None, because the recessive allele always prevents the tall allele from being expressed
(B) One quarter
(C) Three quarters
(D) All of them

Variation and selection

Q49. Which statement about mutations is correct?

(A) They are always harmful
(B) They are caused only by humans
(C) They are random changes in genes or chromosomes
(D) They never affect offspring

Q50. Which example best illustrates adaptation by natural selection?

(A) A plant wilting in drought
(B) A person learning a skill
(C) A muscle growing with exercise
(D) Antibiotic-resistant bacteria increasing after antibiotic use

Q51. Which type of selection occurs when humans breed cows for higher milk yield?

(A) Natural selection
(B) Artificial selection
(C) Random selection
(D) Environmental selection

Organisms and their environment

Q52. Which organism occupies the second trophic level in a grass to rabbit to fox food chain?

(A) Rabbit
(B) Grass
(C) Fox
(D) Decomposer

Q53. Which process in the nitrogen cycle converts nitrogen gas into compounds plants can use?

(A) Nitrogen fixation by bacteria
(B) Denitrification
(C) Photosynthesis
(D) Decomposition alone

Q54. Which factor is a biotic factor in an ecosystem?

(A) Soil pH
(B) Rainfall
(C) Temperature
(D) Predation

Human influences on ecosystems

Q55. Which human activity increases the risk of flooding in lowland areas?

(A) Planting trees on slopes
(B) Building flood defences
(C) Deforestation on hillsides
(D) Creating nature reserves

Q56. Which pollutant from untreated sewage can cause eutrophication in rivers?

(A) Carbon monoxide
(B) Nitrate
(C) Sulfur dioxide
(D) Methane gas

Q57. Which strategy supports sustainable use of a forest?

(A) Clear-felling the whole forest at once
(B) Replanting trees at least as fast as they are felled
(C) Removing all dead wood permanently
(D) Introducing invasive species

Biotechnology and genetic modification

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

(A) Lipase
(B) Amylase
(C) Restriction enzyme
(D) Protease

Q59. Which use of biotechnology produces a food product by fermentation?

(A) Making insulin in bacteria
(B) Producing a herbicide-resistant crop
(C) Sequencing a genome
(D) Making yoghurt with bacteria

Q60. Why are fermenters kept sterile in biotechnology?

(A) To prevent contamination by unwanted microorganisms that would compete or spoil the product
(B) To keep the temperature and pH constant so that the microorganisms inside grow at their fastest possible rate
(C) They must be grown in soil
(D) They produce animal insulin only

Answer Key

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

Q10: A	Q20: A	Q30: B	Q40: D	Q50: D	Q60: A

Worked explanations for all 60 questions: quaidianpoint.com/igcse-biology-practice-test-18/