IGCSE Biology Practice Test 13

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 organism belongs to the kingdom Prokaryote?

(A) A mushroom
(B) A green alga
(C) A fern
(D) A bacterium

Q2. Which characteristic do all living organisms show?

(A) They all move from place to place
(B) They all carry out respiration
(C) They all photosynthesise
(D) They all have a backbone

Q3. What is the correct order of the classification ranks from largest to smallest?

(A) Kingdom, phylum, class, order, family, genus, species
(B) Species, genus, family, order, class, phylum, kingdom
(C) Kingdom, class, phylum, genus, family, order, species
(D) Phylum, kingdom, order, class, species, genus, family

Organisation of the organism

Q4. Which pair correctly matches an organelle with its function?

(A) Ribosome: aerobic respiration
(B) Vacuole: protein synthesis
(C) Cell membrane: controls substances entering and leaving the cell
(D) Nucleus: photosynthesis

Q5. Which tissue in a flowering plant is made of dead, hollow cells joined end to end?

(A) Xylem tissue
(B) Phloem tissue
(C) Epidermal tissue
(D) Mesophyll tissue

Q6. A ciliated epithelial cell in the airways has tiny hair-like projections. What is their function?

(A) To absorb nutrients from food
(B) To contract and move bones
(C) To sweep mucus and trapped particles upwards
(D) To produce antibodies against pathogens

Movement into and out of cells

Q7. Which factor increases the rate of diffusion of oxygen into a cell?

(A) A thicker cell membrane, giving a longer diffusion distance
(B) A smaller surface area
(C) A lower temperature
(D) A steeper concentration gradient

Q8. An animal cell is placed in a solution with the same solute concentration as its cytoplasm. What happens?

(A) The cell bursts
(B) There is no net movement of water, so the cell stays the same size
(C) The cell shrinks rapidly
(D) The cell swells until it bursts

Q9. Which process moves glucose from the ileum into the blood when glucose is already more concentrated in the blood?

(A) Osmosis
(B) Active transport
(C) Simple diffusion
(D) Transpiration

Biological molecules

Q10. Which elements are present in a protein but not in a carbohydrate?

(A) Nitrogen
(B) Carbon
(C) Hydrogen
(D) Oxygen

Q11. Which food test uses ethanol to show the presence of fat?

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

Q12. Amino acids are the building blocks of which type of molecule?

(A) Fat
(B) Starch, a carbohydrate storage molecule
(C) DNA
(D) Protein

Enzymes

Q13. A student investigates catalase breaking down hydrogen peroxide. The reaction is fastest at 37 degrees Celsius and much slower at 60 degrees Celsius. Why?

(A) Hydrogen peroxide evaporates at 60 degrees
(B) The substrate is used up faster at low temperature
(C) Catalase works only in the liver
(D) At 60 degrees the enzyme begins to denature

Q14. Which enzyme digests fats into fatty acids and glycerol?

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

Q15. What happens to an enzyme after it has catalysed a reaction?

(A) It remains unchanged and can be used again
(B) It is converted into the product
(C) It is broken down by the substrate
(D) It changes into a different enzyme

Plant nutrition

Q16. Why do plant leaves turn yellow when magnesium is lacking from the soil?

(A) Nitrate ions are needed to make proteins
(B) Phosphate ions are needed to make DNA
(C) Magnesium is needed to make chlorophyll
(D) Calcium ions are needed to form chlorophyll in the palisade cells of leaves

Q17. Why do plants need nitrate ions from the soil?

(A) To make amino acids and proteins
(B) To make chlorophyll directly in the leaves
(C) To open and close stomata
(D) To store energy as starch

Q18. A variegated leaf has green and white patches. After exposure to light, only the green patches test positive for starch. What does this prove?

(A) White patches store starch better
(B) Starch is made in the roots
(C) Chlorophyll is needed for photosynthesis
(D) Light is not needed for photosynthesis

Human nutrition

Q19. Which digestive juice contains hydrochloric acid?

(A) Saliva
(B) Pancreatic juice
(C) Bile
(D) Gastric juice

Q20. After absorption, amino acids and glucose from the ileum are carried first to which organ?

(A) The kidney
(B) The liver
(C) The heart
(D) The lung

Q21. Which deficiency disease is caused by a lack of vitamin C?

(A) Rickets
(B) Scurvy
(C) Anaemia
(D) Kwashiorkor

Transport in plants

Q22. Water enters a plant through root hair cells mainly by which process?

(A) Osmosis
(B) Active transport
(C) Translocation
(D) Photosynthesis

Q23. Which environmental change would reduce transpiration most?

(A) Increasing temperature
(B) Increasing wind speed
(C) Increasing humidity
(D) Increasing light intensity

Q24. In a cross-section of a stem, where is the phloem found relative to the xylem?

(A) Inside the xylem ring
(B) Scattered through the pith in the centre of the stem
(C) Only in the roots
(D) Outside the xylem, nearer the surface

Transport in animals

Q25. Which vessel carries blood at the highest pressure in the body?

(A) Vena cava
(B) Pulmonary vein
(C) Capillary
(D) Aorta

Q26. Why do arteries have thick, elastic walls?

(A) To allow exchange of gases
(B) To withstand high pressure and smooth out the pulse
(C) To prevent backflow with valves, as in veins, under low pressure
(D) To carry blood at low pressure

Q27. What is the function of platelets in blood?

(A) To help blood clot at a wound
(B) To carry oxygen
(C) To fight pathogens
(D) To carry dissolved food

Diseases and immunity

Q28. Which disease is caused by a virus and spread by droplets in the air?

(A) Cholera
(B) Tuberculosis
(C) Influenza
(D) Malaria

Q29. Which statement describes passive immunity?

(A) Antibodies are received ready-made, for example across the placenta
(B) The body makes memory cells after infection
(C) Vaccination triggers a long-term response
(D) White blood cells engulf the pathogen

Q30. HIV weakens the immune system by attacking which cells?

(A) Red blood cells
(B) Platelets
(C) Lymphocytes
(D) Nerve cells

Gas exchange in humans

Q31. What is the main function of the mucus and cilia lining the airways?

(A) To absorb oxygen quickly
(B) To warm the air only
(C) To produce antibodies
(D) To trap dust and microbes and move them away from the lungs

Q32. During exhalation, the intercostal muscles relax and the diaphragm relaxes. What happens to air pressure in the lungs?

(A) It falls below atmospheric pressure
(B) It rises above atmospheric pressure, so air flows out
(C) It stays equal to atmospheric pressure
(D) It falls to zero

Q33. Which adaptation of alveoli gives them a very large total surface area?

(A) A thick muscular wall around each air sac
(B) Millions of tiny air sacs
(C) Rings of cartilage
(D) A coating of mucus

Respiration

Q34. Which of these uses of energy released in respiration occurs in plants?

(A) Active uptake of mineral ions by roots
(B) Contraction of heart muscle
(C) Movement of a sperm cell
(D) Maintenance of body temperature in birds

Q35. A muscle cell respires anaerobically for a short time, then oxygen becomes available again. What happens to the lactic acid?

(A) It is stored permanently in the muscle
(B) It is converted to glucose in the lungs
(C) It is oxidised in the liver, using oxygen
(D) It is excreted in sweat

Q36. Which statement is true for both aerobic and anaerobic respiration?

(A) Both need oxygen
(B) Both release the same amount of energy per glucose molecule
(C) Both produce carbon dioxide
(D) Both release energy from glucose

Excretion in humans

Q37. Urea is formed in which organ, and from what?

(A) Kidney, from excess water filtered from blood
(B) Bladder, from urine
(C) Pancreas, from glucose
(D) Liver, from excess amino acids

Q38. Which vessel carries blood away from the kidney after filtration?

(A) Renal artery
(B) Renal vein
(C) Ureter
(D) Hepatic vein

Q39. Why is the bladder able to store urine until it is released?

(A) Its muscular wall can stretch and its sphincter stays closed
(B) The kidneys stop making urine at night
(C) Urine is reabsorbed into the blood from the bladder
(D) The ureter blocks the bladder outlet

Coordination and response

Q40. In the eye, which structure changes shape to focus light on the retina?

(A) The pupil
(B) The cornea only
(C) The lens
(D) The iris

Q41. A person with diabetes mellitus does not produce enough insulin. What happens to their blood glucose after a meal?

(A) It rises higher than normal and stays high longer
(B) It falls to zero
(C) It remains exactly constant
(D) It is converted to fat at once

Q42. Which hormone is released by the adrenal glands in a frightening situation?

(A) Insulin
(B) Thyroxine, a hormone controlling metabolic rate
(C) Adrenaline
(D) Glucagon

Drugs

Q43. Carbon monoxide in cigarette smoke harms the body because it does which of the following?

(A) Causes immediate addiction
(B) Coats the airways with tar
(C) Paralyses the cilia permanently
(D) Binds to haemoglobin, reducing oxygen transport

Q44. Drinking alcohol during pregnancy is risky mainly because alcohol can do what?

(A) Prevent the mother digesting food
(B) Cross the placenta and damage the developing baby
(C) Stop the baby breathing after birth only
(D) Cause the mother to produce less milk permanently

Q45. Why is it important to finish a full course of prescribed antibiotics?

(A) To make the tablets taste better
(B) To kill all the bacteria and reduce the chance of resistant strains surviving
(C) To prevent the immune system working
(D) To ensure the virus is also killed

Reproduction

Q46. Which process in sexual reproduction restores the diploid chromosome number?

(A) Fertilisation
(B) Meiosis
(C) Mitosis
(D) Pollination, the transfer of pollen to a stigma

Q47. Which statement about asexual reproduction is correct?

(A) It needs two parents
(B) It involves meiosis and fertilisation
(C) It produces genetically varied offspring
(D) It produces offspring genetically identical to the parent

Inheritance

Q48. A pea plant with genotype AA is crossed with one of genotype aa. What are the genotypes of all the offspring?

(A) AA only
(B) aa only
(C) AA and aa in equal numbers
(D) Aa only

Q49. Which statement about sex determination in humans is correct?

(A) The egg determines the sex of the child
(B) The sperm determines the sex, because it may carry X or Y
(C) Both parents contribute a Y chromosome to a son
(D) Sex is determined by the environment after birth

Variation and selection

Q50. Which source of genetic variation occurs when chromosomes exchange sections during meiosis?

(A) Crossing over
(B) Mitosis
(C) Cloning
(D) Fertilisation only

Q51. Selective breeding of cattle for high milk yield is an example of which process?

(A) Natural selection
(B) Mutation
(C) Artificial selection
(D) Genetic modification

Organisms and their environment

Q52. Which statement describes a community?

(A) All the populations of different species living together in a habitat
(B) A single species living in one area
(C) Only the producers in an ecosystem
(D) The non-living factors of a habitat

Q53. A food chain is: grass → rabbit → fox. What is the trophic level of the rabbit?

(A) Producer
(B) Decomposer
(C) Primary consumer
(D) Secondary consumer

Q54. Why do food chains rarely have more than five trophic levels?

(A) Producers run out of sunlight
(B) Consumers stop eating after five levels
(C) Decomposers break the chain
(D) Too little energy remains after successive losses

Human influences on ecosystems

Q55. Which human activity increases the amount of methane in the atmosphere?

(A) Planting new forests, which absorb carbon dioxide
(B) Keeping large numbers of cattle
(C) Recycling paper
(D) Using solar panels

Q56. What is the main cause of acid rain?

(A) Carbon dioxide from respiration
(B) Sulfur dioxide and nitrogen oxides from burning fossil fuels
(C) Oxygen released by plants
(D) Water vapour from oceans

Q57. A species becomes extinct when its habitat is destroyed. Which conservation measure directly protects its remaining habitat?

(A) Creating a protected nature reserve
(B) Keeping the species in a zoo only
(C) Breeding it in captivity only
(D) Storing its seeds in a bank only, away from the habitat

Biotechnology and genetic modification

Q58. Which product is made using yeast in a fermenter?

(A) Cheese only, made with bacterial cultures
(B) Yoghurt only
(C) Bread and alcoholic drinks
(D) Insulin only

Q59. A plant is modified with a gene for resistance to insect pests. What is a possible environmental benefit?

(A) The plant needs no light
(B) The plant grows without soil in water alone
(C) The plant produces no pollen
(D) Less insecticide spraying is needed

Q60. Which stage comes first when genetically modifying a bacterium to produce a human protein?

(A) The modified bacteria are grown in a fermenter
(B) The protein is purified from the culture
(C) The human gene is isolated and inserted into a plasmid
(D) The bacteria are grown in soil and left to produce the protein naturally over many weeks

Answer Key

Q1: D	Q11: C	Q21: B	Q31: D	Q41: A	Q51: C
Q2: B	Q12: D	Q22: A	Q32: B	Q42: C	Q52: A
Q3: A	Q13: D	Q23: C	Q33: B	Q43: D	Q53: C
Q4: C	Q14: B	Q24: D	Q34: A	Q44: B	Q54: D

Q5: A	Q15: A	Q25: D	Q35: C	Q45: B	Q55: B
Q6: C	Q16: C	Q26: B	Q36: D	Q46: A	Q56: B
Q7: D	Q17: A	Q27: A	Q37: D	Q47: D	Q57: A
Q8: B	Q18: C	Q28: C	Q38: B	Q48: D	Q58: C
Q9: B	Q19: D	Q29: A	Q39: A	Q49: B	Q59: D
Q10: A	Q20: B	Q30: C	Q40: C	Q50: A	Q60: C

Worked explanations for all 60 questions: quaidianpoint.com/igcse-biology-practice-test-13/