IGCSE Biology Practice Test 11

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 statement describes sensitivity in a living organism?

(A) It can detect and respond to changes in its surroundings
(B) It can make its own food using sunlight
(C) It can move from one place to another by swimming or walking
(D) It can break down food inside its cells

Q2. A student finds a small green organism with a cell wall and chloroplasts, but no true roots, stems or leaves. Which kingdom is it most likely to belong to?

(A) Animal
(B) Fungus
(C) Plant
(D) Prokaryote

Q3. Which feature is used to place an animal in the class Mammalia rather than in another vertebrate class?

(A) It lays eggs in water
(B) It breathes through moist skin
(C) It has scales covering its body and lays eggs on land
(D) It has hair and feeds its young on milk

Organisation of the organism

Q4. Which sequence correctly shows increasing levels of organisation in a multicellular organism?

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

Q5. Which structure is present in a plant cell but absent from an animal cell?

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

Q6. What is the function of the ribosome in a cell?

(A) Protein synthesis
(B) Aerobic respiration
(C) Storage of starch grains
(D) Control of substances entering the cell

Movement into and out of cells

Q7. A red blood cell is placed in pure water. What happens to the cell and why?

(A) It shrinks because water leaves by osmosis
(B) It stays the same size because water cannot cross the membrane
(C) It swells and may burst because water enters by osmosis
(D) It swells because dissolved salts diffuse into the cell

Q8. Which process requires energy from respiration and moves substances against a concentration gradient?

(A) Diffusion
(B) Osmosis
(C) Facilitated diffusion
(D) Active transport

Q9. How does increasing the surface area of a cell membrane affect the rate of diffusion into the cell?

(A) It has no effect on the rate
(B) It decreases the rate because molecules spread out
(C) It increases the rate only for large molecules
(D) It increases the rate because more molecules can cross at once

Biological molecules

Q10. Which test gives a brick-red precipitate when a sample is heated with Benedict's solution?

(A) Test for starch using iodine solution
(B) Test for reducing sugar
(C) Test for protein
(D) Test for fat

Q11. Which food substance is made from glycerol and fatty acids?

(A) Fat
(B) Starch
(C) Glucose
(D) Amino acid

Q12. A sample turns blue-black when iodine solution is added. What does this result show?

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

Enzymes

Q13. Why does an enzyme-catalysed reaction slow down sharply above the optimum temperature?

(A) The enzyme is denatured and its active site changes shape
(B) The substrate molecules stop moving altogether
(C) The enzyme is used up in the reaction
(D) The pH of the mixture falls to zero

Q14. Which enzyme breaks down starch into maltose in the mouth?

(A) Lipase
(B) Protease
(C) Amylase
(D) Catalase

Q15. An experiment measures the rate of an enzyme reaction at different pH values. The graph peaks at pH 7 and falls on both sides. What is pH 7 for this enzyme?

(A) The pH at which the enzyme is destroyed
(B) The pH at which the substrate runs out
(C) The pH at which no reaction occurs
(D) The optimum pH

Plant nutrition

Q16. Which two raw materials does a leaf need for photosynthesis?

(A) Oxygen and glucose, the products of photosynthesis
(B) Carbon dioxide and water
(C) Nitrates and oxygen
(D) Water and starch

Q17. Why are leaves of most plants thin and broad?

(A) To reduce water loss from the surface in dry conditions
(B) To give a large surface area for absorbing light
(C) To keep the leaf cool in strong sunlight
(D) To allow roots to grow more quickly

Q18. A plant kept in dim light is given more light, but its rate of photosynthesis soon stops rising. Which factor is now most likely limiting the rate?

(A) Carbon dioxide concentration
(B) The number of leaves on the plant
(C) The colour of the pot
(D) The age of the soil

Human nutrition

Q19. Where is bile produced, and what is its main role in digestion?

(A) Produced in the pancreas; it digests starch
(B) Produced in the stomach; it kills bacteria
(C) Produced in the liver; it emulsifies fats
(D) Produced in the gall bladder; it absorbs glucose

Q20. Which adaptation of the small intestine increases the absorption of digested food?

(A) A thick muscular wall for churning
(B) A short length to speed up movement through the digestive system
(C) A dry inner surface
(D) Villi with a large surface area and a rich blood supply

Q21. A diet lacking vitamin D over a long period is most likely to cause which condition in children?

(A) Scurvy
(B) Anaemia
(C) Night blindness
(D) Rickets

Transport in plants

Q22. Which tissue carries water from the roots to the leaves of a plant?

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

Q23. In a plant stem, where is phloem found relative to xylem in a vascular bundle?

(A) On the outer side of the bundle, towards the outside of the stem
(B) In the centre of the pith, surrounded on all sides by cortex cells and ground tissue
(C) Below the xylem, towards the centre
(D) Only in the roots, never in the stem

Q24. On a hot, windy day, what happens to the rate of transpiration compared with a cool, still day?

(A) It falls because stomata close permanently
(B) It stays the same in all conditions
(C) It rises because water vapour is removed faster
(D) It falls because the plant absorbs less light

Transport in animals

Q25. Which blood vessel carries oxygenated blood from the lungs to the heart?

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

Q26. Why does the left ventricle of the heart have a thicker wall than the right ventricle?

(A) It pumps blood only to the lungs
(B) It receives blood from the vena cava
(C) It must pump blood around the whole body
(D) It beats faster than the right ventricle

Q27. Which component of blood carries oxygen to respiring tissues?

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

Diseases and immunity

Q28. Which disease is caused by a virus and spread by coughing and sneezing?

(A) Cholera, a bacterial disease spread through contaminated water supplies
(B) Influenza
(C) Malaria
(D) Athlete's foot

Q29. How does vaccination give long-term protection against a disease?

(A) It kills all bacteria in the body at once
(B) It triggers memory cells that respond quickly if the pathogen returns
(C) It supplies ready-made antibodies for life
(D) It blocks the pathogen from entering the skin

Gas exchange in humans

Q30. Which feature of the alveoli helps gas exchange to happen quickly?

(A) A very thin wall, one cell thick, with a large surface area
(B) A thick wall lined with cartilage rings
(C) A dry surface that prevents water loss
(D) A muscular wall that pumps air in and out

Q31. During inhalation, what happens to the diaphragm and the volume of the chest cavity?

(A) The diaphragm relaxes and the volume decreases
(B) The diaphragm relaxes and the volume increases
(C) The diaphragm contracts and the volume increases
(D) The diaphragm contracts and the volume decreases

Respiration

Q32. During vigorous exercise, why does the rate of aerobic respiration in muscle cells increase?

(A) To store more glucose as glycogen in the liver for later use during rest
(B) To remove lactic acid from the blood
(C) To cool the body down
(D) To release more energy for muscle contraction

Q33. After vigorous exercise, a runner feels a sharp ache in her leg muscles. What has built up in the muscles?

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

Excretion in humans

Q34. Which organ removes urea from the blood and forms urine?

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

Q35. Where in the kidney does ultrafiltration take place?

(A) In the glomerulus and Bowman's capsule
(B) In the bladder wall
(C) In the ureter
(D) In the loop of Henle only, where water is reabsorbed

Q36. A person drinks very little water on a hot day. How does the kidney respond?

(A) It produces a large volume of dilute urine
(B) It stops filtering the blood completely
(C) It reabsorbs more water and produces a small volume of concentrated urine
(D) It excretes extra urea in dilute urine

Coordination and response

Q37. In a reflex action, which structure carries impulses from the receptor to the central nervous system?

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

Q38. Which hormone is released when blood glucose concentration rises after a meal?

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

Q39. A bright light is shone into a person's eye. What happens to the pupil, and why?

(A) It dilates to let in more light
(B) It stays the same size
(C) It closes completely to block light
(D) It constricts to reduce the amount of light entering

Drugs

Q40. Which effect does alcohol have on the nervous system?

(A) It speeds up reaction times
(B) It depresses the nervous system and slows reactions
(C) It improves coordination and judgement
(D) It increases the rate of nerve impulses permanently

Q41. Smoking tobacco increases the risk of lung cancer mainly because cigarette smoke contains which substance?

(A) Nicotine only, without any other smoke chemicals
(B) Tar with carcinogens
(C) Oxygen
(D) Water vapour

Q42. Why is heroin described as an addictive drug?

(A) Repeated use leads to dependence and withdrawal symptoms without it
(B) A single dose permanently damages the liver
(C) It can only be taken by injection
(D) It prevents all other drugs from working

Reproduction

Q43. In flowering plants, where are the male gametes produced?

(A) In the ovary
(B) In the stigma
(C) In the anther
(D) In the sepal

Q44. Which statement about fertilisation in humans is correct?

(A) It takes place in the uterus
(B) It produces a diploid zygote from two haploid gametes
(C) It takes place in the ovary
(D) It produces four haploid cells at once

Q45. Which method of asexual reproduction in plants involves a new plant growing from a stem that bends down and touches the soil?

(A) Binary fission
(B) Spore formation
(C) Seed dispersal
(D) Layering

Inheritance

Q46. In a monohybrid cross between two heterozygous parents (Tt x Tt), what proportion of the offspring is expected to show the recessive trait?

(A) All of them
(B) Three quarters
(C) One half
(D) One quarter

Q47. What is meant by a dominant allele?

(A) An allele that is expressed even when only one copy is present
(B) An allele that only shows its effect when two identical copies are inherited together
(C) A complete set of chromosomes
(D) A cell produced by meiosis

Q48. A child has blood group O, while both parents have blood group A. What can be concluded about the parents?

(A) Both parents must be homozygous for group A
(B) The child inherited a new mutation
(C) Both parents carry a recessive O allele
(D) Blood group is not inherited

Variation and selection

Q49. Which type of variation is caused only by the environment and cannot be inherited?

(A) A scar gained from an injury
(B) Eye colour
(C) Blood group
(D) The shape of an earlobe, which is inherited from parents

Q50. How does natural selection lead to antibiotic resistance in bacteria?

(A) Antibiotics teach bacteria to make new genes
(B) All bacteria mutate in the same way when exposed
(C) Resistant bacteria survive, reproduce and pass on their resistance genes
(D) Antibiotics directly change the bacterial chromosome

Q51. Which statement best describes continuous variation?

(A) It shows only two or three distinct phenotypes
(B) It is controlled by a single gene only
(C) It is unaffected by the environment
(D) It shows a range of values with no clear categories

Organisms and their environment

Q52. In a food web, which organisms are always the producers?

(A) Herbivores, which eat plants for energy
(B) Green plants
(C) Decomposers
(D) Carnivores

Q53. Why is only a small proportion of energy passed from one trophic level to the next?

(A) Energy is destroyed during feeding
(B) Much energy is lost in respiration, movement, excretion and egestion
(C) Producers store no energy at all
(D) Herbivores eat only a tiny fraction of plants

Q54. Which pyramid always has the same shape, with the producer bar widest at the base?

(A) Pyramid of energy
(B) Pyramid of numbers for a tree food chain
(C) Pyramid of biomass for a tree food chain
(D) Pyramid of numbers for a parasite food chain

Human influences on ecosystems

Q55. How does untreated sewage entering a river most directly harm aquatic life?

(A) It cools the water sharply
(B) It adds oxygen to the water
(C) Bacteria decomposing it use up dissolved oxygen
(D) It makes the water clearer

Q56. Which gas, released by burning fossil fuels, is the main contributor to the enhanced greenhouse effect?

(A) Oxygen
(B) Nitrogen, which makes up most of the atmosphere
(C) Hydrogen
(D) Carbon dioxide

Q57. Deforestation for farming is most likely to have which immediate effect on the local environment?

(A) Increased rainfall every day
(B) More habitats for forest species
(C) Greater soil fertility for decades
(D) Loss of habitats and increased soil erosion

Biotechnology and genetic modification

Q58. In genetic modification, what is a plasmid used for in bacteria?

(A) To kill the bacteria after modification
(B) To carry a foreign gene into the bacterial cell
(C) To supply oxygen for respiration
(D) To digest the bacterial chromosome

Q59. Why is insulin produced by genetically modified bacteria useful in medicine?

(A) It is human insulin, made in large amounts without using animal tissue
(B) It works only in patients with type 1 diabetes for one day
(C) It replaces the need for any blood glucose testing
(D) It cures diabetes permanently after one dose

Q60. Which concern is commonly raised about genetically modified crops?

(A) They always produce less food than unmodified crops
(B) They cannot be grown outside a laboratory
(C) Modified genes might spread to wild relatives
(D) They contain no DNA at all

Answer Key

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

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

Worked explanations for all 60 questions: quaidianpoint.com/igcse-biology-practice-test-11/