IGCSE Biology Practice Test 20

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 life process involves an increase in size and complexity over time?

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

Q2. Which kingdom includes multicellular organisms that photosynthesise and have cell walls of cellulose?

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

Q3. Which arthropod group has three body parts, six legs and usually wings?

(A) Crustaceans
(B) Insects
(C) Arachnids
(D) Myriapods

Organisation of the organism

Q4. Which structure controls the activities of a plant cell?

(A) Nucleus
(B) Vacuole
(C) Cell wall
(D) Chloroplast

Q5. Which tissue carries out photosynthesis in the stem of a young green plant?

(A) Cortex cells with chloroplasts
(B) Xylem
(C) Phloem
(D) Epidermis alone in this context, when the other conditions are taken into account

Q6. Which cell lacks a nucleus when mature and is adapted to transport sugars?

(A) Guard cell
(B) Palisade cell
(C) Root hair cell in this context, when the other conditions are taken into account
(D) Sieve tube element

Movement into and out of cells

Q7. Which term describes the movement of water across a partially permeable membrane?

(A) Diffusion of solutes
(B) Active transport
(C) Osmosis
(D) Translocation

Q8. Which change would increase the rate of active transport into a cell?

(A) Lowering the temperature sharply
(B) Increasing the supply of energy from respiration
(C) Removing all carrier proteins
(D) Reducing the number of mitochondria in this context, when the other conditions are taken into account

Q9. A cell with a high solute concentration is placed in pure water. What is the net movement of water?

(A) Out of the cell only
(B) Into the cell
(C) Equal in both directions at first
(D) No movement at all

Biological molecules

Q10. Which test result shows that a sample contains reducing sugar?

(A) Iodine stays brown
(B) Biuret stays blue
(C) Benedict's solution turns brick-red on heating
(D) Ethanol test stays clear in this context, when the other conditions are taken into account

Q11. Which polymer is made from amino acids?

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

Q12. Which substance is broken down to release energy in respiration?

(A) Glucose
(B) Cellulose
(C) Chlorophyll
(D) Haemoglobin

Enzymes

Q13. Which enzyme is produced by the pancreas to digest starch?

(A) Pepsin
(B) Lipase
(C) Trypsin in this context, when the other conditions are taken into account
(D) Amylase

Q14. Which statement describes an enzyme-substrate complex?

(A) Enzyme and product permanently joined in this context, when the other conditions are taken into account

(B) Two enzymes joined together

(C) Substrate bound to the active site before reaction

(D) Enzyme changed into substrate

Q15. Which condition is closest to the optimum for human amylase?

(A) pH 7 and 37 degrees Celsius

(B) pH 2 and 37 degrees Celsius

(C) pH 12 and 20 degrees Celsius

(D) pH 7 and 80 degrees Celsius

Plant nutrition

Q16. Which raw material for photosynthesis enters the leaf through stomata?

(A) Water

(B) Carbon dioxide

(C) Oxygen

(D) Glucose in this context, when the other conditions are taken into account

Q17. Which product of photosynthesis is stored as starch in leaves?

(A) Glucose

(B) Oxygen

(C) Water

(D) Carbon dioxide

Q18. Which factor would increase the rate of photosynthesis in a well-watered plant in dim light?

(A) Lowering carbon dioxide further

(B) Increasing light intensity

(C) Cooling the plant sharply

(D) Removing chlorophyll

Human nutrition

Q19. Which enzyme digests proteins in the small intestine after pepsin has acted?

(A) Amylase in this context, when the other conditions are taken into account

(B) Lipase

(C) Maltase

(D) Trypsin

Q20. Which vitamin is made in the skin when exposed to sunlight?

(A) Vitamin A

(B) Vitamin C

(C) Vitamin D

(D) Vitamin B12

Q21. Which food component helps prevent constipation?

(A) Saturated fat
(B) Added sugar
(C) Fibre
(D) Salt

Transport in plants

Q22. Which cells control the opening and closing of stomata?

(A) Guard cells
(B) Palisade cells
(C) Sieve cells
(D) Epidermal cells without chloroplasts

Q23. Which statement about water movement in a plant is correct?

(A) Water enters through leaves only
(B) Water moves from roots through xylem to leaves
(C) Water moves in phloem to roots only in this context, when the other conditions are taken into account
(D) Water is made in the stem

Q24. Which adaptation reduces transpiration in a desert plant?

(A) Large thin leaves in this context, when the other conditions are taken into account
(B) Many open stomata
(C) A thin cuticle
(D) A thick waxy cuticle and sunken stomata

Transport in animals

Q25. Which blood vessel carries blood from the heart to the body tissues?

(A) Vena cava, which returns deoxygenated blood from the body to the right atrium
(B) Aorta
(C) Pulmonary vein
(D) Pulmonary artery

Q26. Which part of the blood transports dissolved food, hormones and urea?

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

Q27. Which heart valve prevents backflow between the right atrium and right ventricle?

(A) Bicuspid valve
(B) Aortic valve
(C) Pulmonary valve in this context, when the other conditions are taken into account
(D) Tricuspid valve

Diseases and immunity

Q28. Which type of immunity is gained by a baby from antibodies in breast milk?

(A) Active natural immunity
(B) Active artificial immunity
(C) Passive natural immunity
(D) Passive artificial immunity only

Q29. Which control measure helps prevent the spread of malaria?

(A) Vaccinating against bacteria
(B) Drinking boiled water only
(C) Avoiding all outdoor activity
(D) Using insecticide-treated bed nets

Q30. Which statement about pathogens is correct?

(A) All bacteria cause disease
(B) All fungi are harmful
(C) A pathogen is a disease-causing organism
(D) Viruses are larger than bacteria

Gas exchange in humans

Q31. Which change in the alveoli helps oxygen diffuse into the blood quickly?

(A) A thick alveolar wall
(B) A steep concentration gradient maintained by blood flow
(C) A small total surface area
(D) Dry alveolar surfaces

Q32. During inhalation, which muscles contract?

(A) Diaphragm and external intercostal muscles
(B) Diaphragm only, with ribs relaxing
(C) Internal intercostal muscles only
(D) Abdominal muscles only

Q33. Which statement about exhaled air is correct?

(A) It contains no oxygen
(B) It contains more carbon dioxide and water vapour than inhaled air
(C) It contains more nitrogen than inhaled air
(D) It is cooler and drier than inhaled air

Respiration

Q34. Which process in cells uses oxygen and glucose?

(A) Photosynthesis
(B) Digestion
(C) Transpiration
(D) Aerobic respiration

Q35. Which energy-requiring process in a root uses energy from respiration?

(A) Active uptake of mineral ions
(B) Diffusion of oxygen
(C) Osmosis of water
(D) Transpiration pull

Q36. Which product builds up in muscle during anaerobic respiration and is later removed using oxygen?

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

Excretion in humans

Q37. Which organ produces urea from excess amino acids?

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

Q38. Which substance is filtered out of the blood at the glomerulus but then reabsorbed?

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

Q39. Which waste product is removed from the body in sweat?

(A) Large amounts of protein
(B) Glucose in large amounts
(C) Faeces
(D) Excess salts and water

Coordination and response

Q40. Which effector produces movement in a reflex action?

(A) Receptor
(B) Muscle
(C) Sensory neurone
(D) Relay neurone

Q41. Which hormone is released when blood glucose falls below normal?

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

Q42. Which plant response is growth of roots downwards under gravity?

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

Drugs

Q43. Which substance in tobacco smoke damages the lining of airways and increases mucus?

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

Q44. Which statement about drug addiction is correct?

(A) The user feels a strong need to keep taking the drug
(B) The user can stop at any time without effects
(C) The drug has no effect on the brain
(D) Tolerance never develops

Q45. Which drug is commonly used to treat bacterial infections?

(A) Antibiotic
(B) Antiviral for all cases
(C) Painkiller alone for cure
(D) Vaccine as treatment

Reproduction

Q46. Which part of a flower produces pollen?

(A) Stigma, the sticky surface that receives pollen during pollination
(B) Ovary
(C) Anther
(D) Style

Q47. Which structure in a seed provides food for the developing embryo?

(A) Testa
(B) Cotyledon or endosperm
(C) Micropyle
(D) Plumule alone

Inheritance

Q48. In humans, which combination of sex chromosomes produces a female?

(A) XY, the combination carried by a male and passed on through sperm cells
(B) YY
(C) X only
(D) XX

Q49. Which genotype shows a recessive phenotype for a single gene?

(A) AA in this context, when the other conditions are taken into account
(B) Aa
(C) aa
(D) AB

Variation and selection

Q50. Which feature shows discontinuous variation in humans?

(A) Weight
(B) Blood group
(C) Height
(D) Skin shade range

Q51. Which process in meiosis contributes to variation?

(A) Crossing over between homologous chromosomes
(B) Identical division of cells
(C) Cloning of gametes
(D) Fusion of identical cells

Organisms and their environment

Q52. Which term describes the place where an organism lives?

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

Q53. Which sequence is a correct food chain?

(A) Fox to rabbit to grass in this context, when the other conditions are taken into account
(B) Rabbit to grass to fox
(C) Grass to fox to rabbit
(D) Grass to rabbit to fox

Q54. Which process in the carbon cycle removes carbon dioxide from the air?

(A) Photosynthesis
(B) Respiration
(C) Combustion
(D) Decomposition

Human influences on ecosystems

Q55. Which farming practice can lead to eutrophication?

(A) Crop rotation
(B) Excess fertiliser washing into waterways
(C) Hedgerow planting
(D) Organic mulching only

Q56. Which species is most at risk when a habitat is fragmented by roads?

(A) A widespread generalist species
(B) A migratory bird flying overhead
(C) A small specialist species with a limited range
(D) A fast-breeding weed species

Q57. Which conservation method protects species in their natural habitat?

(A) Captive breeding only
(B) In-situ conservation such as a national park
(C) Seed banks only
(D) Removing all predators permanently

Biotechnology and genetic modification

Q58. Which product is made in a fermenter by the fungus Aspergillus for use in food production?

(A) Citric acid
(B) Insulin
(C) Ethanol only
(D) Penicillin only

Q59. Which statement about genetic modification of plants is correct?

(A) It always involves cross-pollination only
(B) It changes the whole genome randomly
(C) It adds or changes a specific gene for a desired trait
(D) It makes plants unable to reproduce

Q60. Which condition must be maintained in a fermenter for aerobic microorganisms?

(A) No oxygen at all
(B) Freezing temperatures
(C) No stirring of the culture
(D) A steady supply of oxygen and nutrients

Answer Key

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

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

Worked explanations for all 60 questions: quaidianpoint.com/igcse-biology-practice-test-20/