



Myfuture CBC Revision

general science - Grade 10

Question Paper

1. Which of the following best describes a weak acid compared to a strong acid?

- A. Weak acids are always solid; strong acids are always liquids
- B. Weak acids turn blue litmus blue; strong acids turn red litmus blue
- C. Weak acids react violently with water; strong acids do not react with water
- D. Weak acids partially ionise in water; strong acids completely ionise

2. Which structure closes over the windpipe when we swallow to prevent food entering the lungs?

- A. Larynx
- B. Epiglottis
- C. Trachea
- D. Pharynx

3. Why is it easier to open a door by pushing at the handle rather than near the hinge?

- A. Because the handle reduces the door's weight
- B. Because pushing at the handle gives a larger moment due to greater distance from the hinge
- C. Because the hinge makes the door frictionless
- D. Because the air pressure is lower at the handle

4. Where on a leaf does most gas exchange (oxygen and carbon dioxide) with the air occur?

- A. Flower petals
- B. Root hairs
- C. Xylem vessels
- D. Stomata on the leaf surface

5. Which rule helps predict the direction of force on a current-carrying wire in a magnetic field (motor effect)?

- A. Ohm's law
- B. Fleming's left-hand rule
- C. Lenz's law
- D. Fleming's right-hand rule

6. Which gas is taken in and used by plants during photosynthesis?

- A. Oxygen
- B. Methane
- C. Nitrogen
- D. Carbon dioxide

7. Which explanation best summarizes the pressure-flow (mass flow) hypothesis for phloem transport?

- A. Mineral salts move passively from soil to leaves through phloem
- B. Phloem cells pump sugars using cilia to move sap
- C. Sugars are actively loaded into phloem at sources raising osmotic pressure, water enters,
- D. Water evaporating from leaves pulls sap upward through phloem vessels

8. A coil connected to a sensitive galvanometer shows a deflection when a bar magnet is moved towards the coil. The deflection reverses when the magnet is pulled away. This demonstrates

- A. That the galvanometer has a built-in magnet
- B. That the coil becomes a permanent magnet
- C. That motion of magnet has no effect on the coil
- D. Electromagnetic induction and change in direction of induced current

9. Which unit is used to measure magnetic field (magnetic flux density) in the SI system?

- A. Tesla (T)
- B. Volt (V)
- C. Ampere (A)
- D. Weber (Wb)

10. Which microorganism is the cause of malaria?

- A. A protozoan (Plasmodium)
- B. A bacterium (Vibrio)
- C. A fungus (Aspergillus)
- D. A virus (Influenza)

11. Which statement about stomata is true for most plants during the day?

- A. Stomata generally open in daylight to allow gas exchange for photosynthesis
- B. Stomata are only found on roots and not on leaves
- C. Stomata always remain closed during the day to conserve water
- D. Stomata function to absorb mineral salts from the air

12. How do magnetic field lines outside a bar magnet run?

- A. From the south pole to the north pole through the air
- B. Randomly with no particular direction
- C. In closed loops only inside the magnet and not outside
- D. From the north pole to the south pole through the air

13. Why might two different metals react at different rates with the same acid?

- A. Because one metal may have a different reactivity and activation energy for the reaction
- B. Because acids cannot react with metals at room temperature
- C. Because acids behave differently with different colours of metal
- D. Because the metal with larger pieces always reacts slower

14. Eddy currents induced in the metal body of a kettle when placed on a changing magnetic field cause

- A. Increase in magnetic field strength without heating
- B. Heating and energy loss due to resistance
- C. Mechanical rotation of the kettle
- D. Cooling of the metal by removing heat

15. Which feature of xylem vessels helps them resist collapse under the tension from transpiration pull?

- A. Thin cellulose-only walls
- B. Lignified cell walls
- C. Living cytoplasm and nucleus
- D. Presence of stomata

16. A compass needle points towards the Earth's magnetic north because

- A. The needle is aligned with the Earth's magnetic field
- B. The Earth's gravity pulls the needle northwards
- C. The compass is attracted to the geographic North Pole
- D. The Sun's rays push the needle toward north

17. Tuberculosis (TB), a common respiratory disease in Kenya, is caused by which type of organism?

- A. A virus
- B. A bacterium
- C. A fungus
- D. A protozoan

18. What is cavitation (embolism) in xylem vessels?

- A. Growth of new root hairs to absorb water
- B. Deposition of starch in xylem walls
- C. Increase in sap sugar concentration during transpiration
- D. Formation of air bubbles that break the water column, interrupting water flow

19. Why do very large cells tend to divide rather than just grow bigger?

- A. Because DNA disappears when cells get large
- B. Because cell walls prevent growth
- C. Because a large cell has a low surface area to volume ratio, reducing efficient exchange of
- D. Because large cells always have more mitochondria

20. Guttation differs from transpiration because guttation is caused by:

- A. Root pressure forcing water out of leaf margins at night
- B. Evaporation from mesophyll surfaces during daytime
- C. Active secretion of water by stomata
- D. Wind removing boundary layer moisture

21. In a simple food chain from a Kenyan grassland, which organism is most likely a primary consumer?

- A. Grasshopper
- B. Lion
- C. Decomposer fungus
- D. Acacia tree

22. Why does breathing rate increase during physical exercise?

- A. Because cells need more oxygen and produce more carbon dioxide
- B. Because body temperature falls
- C. Because lungs become smaller
- D. Because bones need more oxygen

23. Which simple action helps reduce spread of many respiratory infections in schools and at home?

- A. Closing windows to keep rooms warm
- B. Sharing drinking cups
- C. Avoiding handwashing
- D. Covering the mouth and nose when coughing or sneezing

24. Which organelle is the site of most ATP production in a eukaryotic cell?

- A. Golgi apparatus
- B. Ribosome
- C. Endoplasmic reticulum
- D. Mitochondrion

25. Which body system transports oxygen from the lungs to the rest of the body?

- A. Circulatory system
- B. Digestive system
- C. Skeletal system
- D. Nervous system

26. Which sequence shows the correct order from smallest to largest level of biological organization?

- A. Cell Tissue Organ Organ system
- B. Tissue Cell Organ Organ system
- C. Organ Cell Tissue Organ system
- D. Organ system Organ Tissue Cell

27. Which factor does NOT affect the resistance of a wire used in an electromagnet?

- A. Cross-sectional area of the wire
- B. Material (type of metal)
- C. Length of the wire
- D. Number of turns of the wire when wrapped tight

28. Which cell structure contains chlorophyll and carries out photosynthesis in plant cells?

- A. Chloroplast
- B. Vacuole
- C. Mitochondrion
- D. Lysosome

29. Which of the following is a correct statement from the cell theory?

- A. All cells arise from pre-existing cells
- B. Cells can form spontaneously from non-living matter
- C. All cells have a nucleus
- D. All organisms are made of only one cell

30. When a magnet is pushed faster into a coil of wire, the induced current in the coil will

- A. Increase in magnitude
- B. Change direction randomly
- C. Remain the same
- D. Decrease in magnitude

31. Algae in freshwater lakes are important because they:

- A. Produce oxygen through photosynthesis and form the base of the food web
- B. Cause soil erosion on lake shores
- C. Stop sunlight from reaching beach sand
- D. Consume large fish as their main food

32. Which process allows oxygen to move from air into leaf cells without the use of energy?

- A. Diffusion
- B. Osmosis
- C. Endocytosis
- D. Active transport

33. Which of these best describes a population in biology?

- A. A group of ecosystems linked together
- B. All living and non-living things in a forest
- C. All the individuals of the same species living in a particular area
- D. All the members of different species living in an area

34. In a school experiment, which observation indicates carbon dioxide is being produced during respiration of a small animal or germinating seeds?

- A. Light is produced
- B. Water warms up a lot
- C. Leaves droop
- D. Limewater turns milky

35. A transformer can step up or step down voltage because

- A. It increases current without affecting voltage
- B. It uses permanent magnets to amplify voltage
- C. It changes chemical energy into electrical energy
- D. It changes the number of turns in primary and secondary coils, altering induced emf

36. Which gas is commonly released when an acid reacts with a carbonate such as calcium carbonate (e.g., chalk)?

- A. Nitrogen
- B. Carbon dioxide
- C. Oxygen
- D. Hydrogen

37. Which of the following is an example of Lenz's law at work in everyday life?

- A. A falling magnet through a copper tube slowing down noticeably
- B. A compass aligning with Earth's field
- C. A solar panel producing electricity in sunlight
- D. An electrical heater warming a room

38. How would you most accurately measure the rate of a reaction that produces a gas, in a school practical?

- A. Weighing the gas produced directly on the balance
- B. Measuring the colour of the gas with the eye
- C. Timing how long the gas smells in the room
- D. Collecting and measuring the volume of gas using a gas syringe

39. In phloem translocation, movement from a 'source' to a 'sink' means movement from:

- A. A region where sugars are produced or released to a region where they are used or
- B. Root hairs to soil particles
- C. Stem cortex to leaf cuticle
- D. Leaves to roots only by xylem

40. For an object to be in rotational equilibrium about a pivot, the sum of the clockwise moments must be:

- A. Zero only
- B. Less than the anticlockwise moments
- C. Greater than the anticlockwise moments
- D. Equal to the sum of the anticlockwise moments

41. Which household substance is a weak acid commonly used in Kenyan kitchens?

- A. Sodium bicarbonate (baking soda)
- B. Vinegar (acetic acid)
- C. Sodium hydroxide (caustic soda)
- D. Ammonia solution

42. Which of the following diseases is caused by a bacterium?

- A. HIV/AIDS
- B. Measles
- C. Cholera
- D. Common cold

43. Which change will generally increase the rate of a reaction between solid magnesium and dilute hydrochloric acid in a student laboratory?

- A. Using a larger piece of magnesium metal
- B. Decreasing the concentration of the acid
- C. Grinding the magnesium into finer powder
- D. Lowering the temperature of the reaction mixture

44. Which experimental observation would suggest that light affects the rate of a reaction?

- A. Reaction proceeds faster when exposed to sunlight than in the dark
- B. Reaction rate depends only on concentration
- C. Reaction stops when cooled slightly
- D. Reaction rate is same in bright and dark conditions

45. In the decomposition of calcium carbonate by heat, which change would speed up the reaction?

- A. Removing the heat source
- B. Increasing the surface area by using powdered calcium carbonate
- C. Decreasing the furnace temperature
- D. Using a thicker piece of calcium carbonate

46. Which statement about inhibitors is correct?

- A. Inhibitors remove reactants from the solution completely
- B. Inhibitors increase the rate of reaction by adding heat
- C. Inhibitors convert products back to reactants immediately
- D. Inhibitors slow down reactions by interfering with catalysts or active sites

47. If the distance from the pivot is halved while the applied force stays the same, what happens to the moment?

- A. The moment halves
- B. The moment becomes zero
- C. The moment stays the same
- D. The moment doubles

48. What is homeostasis?

- A. The ability of an organism to produce many offspring
- B. The maintenance of a stable internal environment
- C. The process by which plants make food
- D. A sudden change in the weather

49. Which of the following best defines a habitat?

- A. All the organisms of the same species living together
- B. A group of ecosystems with similar climate
- C. The place where an organism lives and obtains its needs
- D. The role an organism plays in its community

50. A force of 30 N acts at 0.20 m from a pivot at an angle of 60° to the lever. What is the moment about the pivot? (Use $\sin 60^\circ = 0.866$)

- A. 6.0 N·m
- B. 30 N·m
- C. 0.260 N·m
- D. 5.2 N·m