Myfuture CBC Revision

general science - Grade 10

Question Paper

1. Why are soft iron cores used in electromagnets rather than hard steel when we need the magnet to be turned on and off frequently?

A. Soft iron can be magnetised and demagnetised easily (low retentivity)
B. Soft iron retains magnetism permanently making stronger magnets
C. Soft iron does not conduct electricity so it is safer

D. Soft iron is cheaper than steel

2. What effect does increasing the surface area of a solid catalyst typically have on a catalytic reaction?

A. It makes the catalyst soluble

B. It turns the catalyst into a reactant

C. It increases the available active surface area and can increase rate
D. It reduces the number of active sites

3. Which action will increase the turning effect of a force on a wrench used to loosen a bolt?

A. Reduce the force applied

B. Push farther from the pivot (use a longer wrench)

C. Push closer to the pivot

D. Apply the force along the wrench toward the bolt

4. Which kingdom includes organisms like mushrooms and yeast?

A. Animalia

B. Fungi

C. Plantae

D. Monera

5. Which Kenyan agricultural practice uses lime (calcium oxide or hydroxide) because of its basic nature?

A. To make soil more saline

B. To increase soil acidity for tea farms

C. To kill beneficial bacteria only

D. To neutralise acidic soils and improve fertility

6. Which of these is an example of a unicellular organism commonly studied in schools?

A. Sunflower

B. Human skin cell

C. Amoeba

D. Frog

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

A. Nitrogen

B. Oxygen

C. Carbon dioxide

D. Methane

8. Where does photosynthesis take place in green plant cells such as a maize leaf?

A. Chloroplast

B. Mitochondrion

C. Nucleus

D. Lysosome

9. What is the main purpose of pruning fruit trees like mango or avocado in Kenyan orchards?

A. Increase transpiration by removing leaves

B. Prevent photosynthesis from occurring

C. Stop the tree from producing flowers

D. Improve light penetration and air circulation to increase fruit quality and yield

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

A. Decomposer fungus

B. Lion

C. Grasshopper

D. Acacia tree

11. Which of the following adaptations helps alveoli to be efficient at gas exchange?

A. Thick walls and small surface area

B. Rigid walls and lack of blood supply

C. Presence of cartilage in alveoli

D. Thin walls, moist surface and large surface area

12. Which microorganism is used in baking bread to make dough rise?

A. Paramecium

B. Rhizobium

C. Yeast (Saccharomyces)

D. Escherichia coli

13. What is the best definition of a wave in physics?

A. A disturbance that transfers energy and momentum without transferring matter

B. A movement that always carries particles from one place to another

C. A measure of how hot or cold a substance is

D. A permanent displacement of particles in a medium

14. What is the correct flow of energy in a simple food chain?

A. Primary consumer Producer Secondary consumer

B. Producer Decomposer Producer

C. Secondary consumer Primary consumer Producer

D. Producer Primary consumer Secondary consumer

15. Inside a long solenoid carrying current, the magnetic field is best described as

A. Zero everywhere inside the solenoid

B. Strongest at the edges and zero at the centre

C. Circular around each turn with no axial component

D. Uniform and directed along the axis of the solenoid

16. Which structure modifies, sorts and packages proteins for secretion or use in the cell?

A. Golgi apparatus

B. Mitochondrion

C. Ribosome

D. Cell wall

17. Which of these best describes activation energy?

A. Energy released when a reaction finishes

B. Minimum energy needed for reacting particles to form products

C. Total energy stored in the products

D. Energy used to cool down a reaction

18. A seesaw is balanced. Which condition must be true about the moments about the pivot?

A. Sum of all forces equals zero only

B. Sum of clockwise moments is greater than anticlockwise moments

C. Sum of anticlockwise moments is zero

D. Sum of clockwise moments equals sum of anticlockwise moments

19. Which human body system is mainly responsible for transporting oxygen and nutrients to cells?

A. Circulatory system

B. Skeletal system

C. Digestive system

D. Nervous system

20. Which type of reproduction typically involves two parents and produces offspring with genetic variation?

A. Spore formation

B. Sexual reproduction

C. Budding

D. Binary fission

21. In an acid-base titration to determine concentration of an unknown acid, what is the role of the base of known concentration?

A. It is not involved in the reaction

B. It acts as the indicator

C. It is the solvent

D. It neutralises the unknown acid so you can calculate its concentration

22. How are frequency (f) and period (T) related?

A. Frequency and period are unrelated

B. Frequency is the reciprocal of period: f = 1/T

C. Frequency is the same as wavelength

D. Frequency equals period multiplied by two: f = 2T

23. How does high atmospheric humidity affect transpiration rate?

A. It converts xylem into phloem

B. It decreases transpiration because the water vapor gradient is reduced

C. It causes guttation to replace transpiration

D. It increases transpiration by opening more stomata

24. Which of the following best describes a permanent magnet?

A. A non-magnetic metal temporarily induced by a nearby magnet

B. A magnet that loses its magnetism as soon as the external magnetic field is removed

C. A coil of wire carrying current that produces a magnetic field only while current flows

D. A material that produces a magnetic field without need for a continuous electric current

25. What is found in bacterial cells but not in animal cells?

A. Membrane-bound nucleus

B. Mitochondria

C. Chloroplast

D. Plasmid DNA

26. Which of the following is an example of a catalyst in a classroom experiment decomposing hydrogen peroxide?

A. Potassium iodide

B. Solid sodium chloride

C. Pure water

D. Dilute sulfuric acid

27. In animal cells which organelle contains enzymes that digest worn-out organelles and foreign materials?

A. Ribosome

B. Chloroplast

C. Lysosome

D. Cellulose cell wall

28. Why does stirring a mixture of reactants usually increase the rate of reaction in a solution?

A. Stirring increases the surface area of molecules

B. Stirring removes catalysts from the solution

C. Stirring decreases the temperature and slows collisions

D. Stirring distributes reactants so collisions occur more frequently

29. What is transpiration in plants?

A. Conversion of sugar into energy

B. Movement of food from leaves to roots

C. Loss of water vapour from plant leaves

D. Absorption of minerals by roots

30. What is the smallest unit that can carry out all the processes of life?

A. Atom

B. Molecule

C. Organ

D. Cell

31. Which method is commonly used in laboratories to sterilize equipment using steam under pressure?

A. Sun drying

B. Simple cloth filtration

C. Freezing

D. Autoclaving

32. What role do guard cells play in a leaf?

A. Absorb nutrients from the soil

B. Control opening and closing of stomata for gas exchange and transpiration

C. Transport water up the xylem vessels

D. Synthesize chlorophyll in the chloroplasts

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

A. Nitrogen

B. Oxygen

C. Hydrogen

D. Carbon dioxide

34. Which gas is the main waste product expelled from the body during respiration?

A. Nitrogen

B. Glucose

C. Carbon dioxide

D. Oxygen

35. Which pathway describes water moving through cell walls and intercellular spaces without entering the cytoplasm?

A. Phloempast pathway

B. Symplast pathway

C. Transmembrane pathway

D. Apoplast pathway

36. Which is a correct simple statement of the role of producers in a food web?

A. Producers are always fungi

B. Producers break down dead material into nutrients

C. Producers convert sunlight into chemical energy that supports the rest of the food web

D. Producers consume animals to get energy

37. Which substance is amphoteric (can act as an acid or a base) and is used in baking and cleaning?

A. Sodium chloride

B. Hydrochloric acid

C. Sodium hydroxide

D. Sodium bicarbonate (baking soda)

38. Which statement about inhibitors is correct?

A. Inhibitors slow down reactions by interfering with catalysts or active sites

B. Inhibitors remove reactants from the solution completely

C. Inhibitors increase the rate of reaction by adding heat

D. Inhibitors convert products back to reactants immediately

39. Why are antibiotics not effective against viral infections?

A. Viruses live only in water and antibiotics dissolve there

B. Antibiotics always cause viruses to mutate faster

C. Antibiotics target bacterial structures/processes not found in viruses

D. Viruses are too large for antibiotics to enter

40. Which practical change would you make to slow down a fast reaction that is difficult to measure accurately in class?

A. Increase the temperature

B. Add more catalyst

C. Increase the concentration

D. Dilute the reactants

41. Why does breathing rate increase at high altitude?

A. Because temperature is higher

B. Because carbon dioxide levels become zero

C. Because oxygen concentration in air increases with altitude

D. Because lower oxygen partial pressure means less oxygen enters blood, so breathing

42. Which of the following pairs correctly matches a factor with its primary effect on reaction rate?

A. Increasing concentration — decreases collision frequency

B. Using a catalyst — provides an alternative lower-energy pathway

C. Lowering temperature — increases number of effective collisions

D. Decreasing surface area — increases rate

43. Which of these processes occurs in mitochondria during aerobic respiration?

A. Glycolysis only

B. Fermentation to produce ethanol

C. Krebs cycle and electron transport chain

D. Photosynthesis

44. Which muscle contracts and moves downwards to increase chest volume during inhalation?

A. Heart

B. Liver

C. Diaphragm

D. Intercostal muscles

45. Which of the following best explains cell specialization (differentiation)?

A. Cells stop using their DNA during specialization

B. All cells always remain identical in structure and function

C. Cells only change when exposed to chemicals in the laboratory

D. Cells develop different structures and functions to perform specific tasks

46. What is the main way most bacteria reproduce?

A. Sexual reproduction with gametes

B. Budding like yeast

C. Spore formation

D. Binary fission (splitting into two)

47. Which organelle contains digestive enzymes used to break down worn-out organelles and waste?

A. Lysosome

B. Golgi apparatus

C. Chloroplast

D. Nucleus

48. Why is crop rotation practiced by farmers in Kenya?

A. To prevent any plant growth on the land

B. To ensure the same crop is grown continuously for higher yield

C. To reduce soil nutrient depletion and control pests and diseases

D. To increase soil salinity on purpose

49. Which feature is a key difference between prokaryotic and eukaryotic cells?

A. Prokaryotic cells always have chloroplasts; eukaryotic cells never do

B. Eukaryotic cells have a nucleus and membrane-bound organelles; prokaryotic cells

C. Eukaryotic cells do not contain DNA; prokaryotic cells do

D. Prokaryotic cells are larger than eukaryotic cells

50. How do root hairs assist in water absorption?

A. They close stomata

B. They increase surface area for absorption

C. They perform photosynthesis

D. They produce xylem vessels