Myfuture CBC Revision

general science - Grade 10

Question Paper

1. Which laboratory safety practice is important when using sharp instruments like scalpels?

A. Point the sharp edge towards yourself when cutting

B. Place the scalpel in your pocket after use

C. Cut away from your body and others, and keep fingers clear

D. Wave the scalpel around to show it is sharp

2. Which pair correctly contrasts plant and animal cells?

A. Animal cells have chloroplasts; plant cells do not

B. Animal cells have a large central vacuole; plant cells do not

C. Plant cells have cell walls and chloroplasts; animal cells have neither

D. Plant cells lack a cell membrane; animal cells have a cell membrane

3. 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 right-hand rule

C. Fleming's left-hand rule

D. Lenz's law

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

A. It acts as the indicator

B. It is not involved in the reaction

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

D. It is the solvent

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

A. Epiglottis

B. Larynx

C. Trachea

D. Pharynx

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

A. Chloroplast

B. Mitochondrion

C. Vacuole

D. Lysosome

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

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

B. Producers are always fungi

C. Producers consume animals to get energy

D. Producers break down dead material into nutrients

8. If you double the concentration of a reactant in many simple reactions, what is the usual immediate effect on the rate?

A. The rate becomes one quarter of its previous value

B. The rate becomes zero

C. The rate doubles or increases depending on reaction order

D. There is no change because concentration doesn't matter

9. Which tissue transports manufactured food (sugars) from the leaves to other parts of the plant?

A. Cambium

B. Xylem

C. Phloem

D. Endodermis

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

A. To kill beneficial bacteria only

B. To make soil more saline

C. To increase soil acidity for tea farms

D. To neutralise acidic soils and improve fertility

11. Which plant tissue is primarily responsible for transporting water and mineral salts from the roots to the leaves?

A. Xylem

B. Cortex

C. Epidermis

D. Phloem

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

A. Grasshopper

B. Lion

C. Acacia tree

D. Decomposer fungus

13. Why is it recommended to add acid to water slowly when diluting concentrated acid?

A. To reduce the heat released and avoid splashing of concentrated acid
B. To prevent the mixture from becoming neutral

C. To make the acid stronger

D. To make the water acidic instantly

14. What is the pH of a neutral solution at standard conditions?

A. 14

B. 7

C. 1

D. 0

15. What is the main driving force that pulls water up through the xylem from roots to leaves in tall plants?

A. Transpiration pull

B. Photosynthetic force

C. Phloem pressure

D. Active pumping by root hairs

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

A. Skeletal system

B. Nervous system

C. Digestive system

D. Circulatory system

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

A. Length of the wire

B. Number of turns of the wire when wrapped tight

C. Cross-sectional area of the wire

D. Material (type of metal)

18. Which structure is hair-like and used for movement and feeding in Paramecium?

A. Flagellum

B. Pseudopodia

C. Cilia

D. Cell wall

19. Which organelles are mainly responsible for releasing energy during cellular respiration in animal cells?

A. Chloroplasts

B. Cell wall

C. Vacuoles

D. Mitochondria

20. Which cell structure stores the cell's hereditary information (DNA) in most eukaryotic cells?

A. Nucleus

B. Mitochondrion

C. Vacuole

D. Ribosome

21. In an experiment, the time taken for a blue dye to fade gives a measure of rate. Which instrument would give the most precise measurement of the colour change?

A. A measuring cylinder

B. A colorimeter (or spectrophotometer)

C. A thermometer

D. An ordinary stopwatch and eye observation only

22. What happens to the magnetic domains in a piece of iron when it becomes magnetised?

A. They heat up and vibrate independently

B. They align in a common direction creating a net magnetic field

C. They disappear completely

D. They change the chemical composition of the iron

23. 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 increases the available active surface area and can increase rate

C. It reduces the number of active sites

D. It turns the catalyst into a reactant

24. Which organelle is responsible for protein synthesis?

A. Centriole

B. Chloroplast

C. Ribosome

D. Lysosome

25. Which statement about viruses is true in the context of life science for form 2 (age 15)?

A. Viruses grow by increasing in cell size like bacteria

B. Viruses can reproduce only inside a host cell

C. Viruses carry out photosynthesis

D. Viruses are cells with all organelles present

26. During inhalation the diaphragm contracts and moves in which direction?

A. It stays the same

B. Downwards

C. Upwards

D. It folds

27. In a simple AC transformer, if the primary has 100 turns and the secondary has 200 turns and the input is 120 V AC, the output voltage is approximately

A. 60 V

B. 120 V

C. 240 V

D. 1000 V

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

A. Sugars are actively loaded into phloem at sources raising osmotic pressure, water enters,

B. Mineral salts move passively from soil to leaves through phloem

C. Phloem cells pump sugars using cilia to move sap

D. Water evaporating from leaves pulls sap upward through phloem vessels

29. How do root hairs assist in water absorption?

A. They perform photosynthesis

B. They increase surface area for absorption

C. They produce xylem vessels

D. They close stomata

30. Which two structures are present in plant cells but generally absent in animal cells?

A. Chloroplast and cell wall

B. Mitochondrion and ribosome

C. Nucleus and cell membrane

D. Golgi apparatus and lysosome

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

A. Golgi apparatus

B. Nucleus

C. Chloroplast

D. Lysosome

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

A. Sodium chloride

B. Sodium bicarbonate (baking soda)

C. Hydrochloric acid

D. Sodium hydroxide

33. Why are antacids (e.g., magnesium hydroxide) used to relieve stomach acidity?

A. They convert acid to a gas

B. They act as strong oxidising agents

C. They increase stomach acid concentration

D. They neutralise excess gastric acid to form salt and water

34. What is the name of the process by which cells release energy from food using oxygen?

A. Photosynthesis

B. Transpiration

C. Fermentation

D. Aerobic respiration

35. Which salt is formed in human sweat and is important for body electrolyte balance?

A. Ammonium nitrate

B. Calcium carbonate

C. Magnesium oxide

D. Sodium chloride (table salt)

36. Which device operates on the principle of electromagnetic induction to produce electricity?

A. Capacitor

B. Transformer

C. Resistor

D. Generator

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

A. All organisms are made of only one cell

B. All cells arise from pre-existing cells

C. Cells can form spontaneously from non-living matter

D. All cells have a nucleus

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

A. The Sun's rays push the needle toward north

B. The Earth's gravity pulls the needle northwards

C. The compass is attracted to the geographic North Pole

D. The needle is aligned with the Earth's magnetic field

39. Which organelle modifies, sorts and packages proteins for secretion?

A. Ribosome

B. Nucleolus

C. Mitochondrion

D. Golgi apparatus

40. Which of the following is NOT a characteristic of living organisms?

A. They can grow and develop

B. They can produce energy from sunlight without any chemical processes

C. They can reproduce to produce offspring

D. They can move in response to stimuli

41. Which of these is an autotrophic organism commonly grown in Kenyan farms that makes its own food by photosynthesis?

A. Tapeworm

B. Maize plant

C. E. coli (a bacterium)

D. Mushroom

42. What is the role of tiny hair-like cilia lining the trachea and bronchi?

A. Produce mucus for lubrication

B. Move mucus and trapped particles out of the airways

C. Contract to open the airway

D. Absorb oxygen directly into the blood

43. What is the role of the Casparian strip in the root endodermis?

A. To facilitate faster apoplastic flow of water into xylem

B. To produce root hairs

C. To store starch in root tissues

D. To block the apoplast so water and minerals must pass through living cells for selective

44. Why does a reaction with a high activation energy often proceed slowly at room temperature?

A. Because activation energy is irrelevant at room temperature

B. Because high activation energy attracts particles together too quickly

C. Because high activation energy means the products are unstable

D. Because most particles do not have enough energy for effective collisions

45. Which of the following is a characteristic common to most acids?

A. Turn red litmus paper blue

B. Have a soapy texture

C. React with metals to produce hydrogen gas

D. Taste bitter and feel slippery

46. What happens to a person's breathing rate when they have a fever?

A. Breathing stops

B. Breathing rate decreases

C. Breathing rate stays exactly the same

D. Breathing rate increases

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

A. Stomata are only found on roots and not on leaves

B. Stomata function to absorb mineral salts from the air

C. Stomata generally open in daylight to allow gas exchange for photosynthesis

D. Stomata always remain closed during the day to conserve water

48. 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

49. Which property helps you distinguish between a solution of soap and vinegar by touch and taste (only in safe, known household testing)?

A. Soap solution turns blue litmus red; vinegar turns red litmus blue

B. Both taste the same and feel the same

C. Vinegar feels slippery while soap feels oily

D. Soap solution tastes sour and feels slippery; vinegar tastes sour and feels not slippery

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

A. Symplast pathway

B. Transmembrane pathway

C. Phloempast pathway

D. Apoplast pathway