2024 MASENO SCHOOL ANNUAL NATIONAL BIOLOGY CONTEST

JUNIOUR CATEGORY MARKING SCHEME

QSN	ANSWER
1.	Conversion of excess glucose to glycogen; conversion of lactic acid to glycogen;
2.	a) Cycad have cones located at the trunk while cypress have cones located among lateral branches or at the base of terminal bud; b) Cycad have long pinnately compound leaves while cypress have needle-like/shaped leaves;
3.	a) Glucose $\longrightarrow$ lactic + energy; b) Glucose $\longrightarrow$ ethanol + energy + carbon (IV) oxide;
4.	Are hydrolyzed to glucose; which is oxidized to yield energy for active pumping of water across the endodermis;
5.	Have salt secreting glands in leaves for excretion of excess salt; their roots hair cells accumulate high concentration of salt for continuous uptake of water by osmosis; their tissues have large number of parenchyma cells for water storage;
6.	a) Channels/conveys blood rich in oxygen and nutrients to body tissues; b) Q- Made up of inelastic collagen fibres to protect the middle layer from bursting due to high pressure; R- Made up of a single layer of cells to offer least possible resistance to blood flow;
7.	Maintains the volume of blood; dissolves metabolic wastes for transportation and subsequent elimination; forms medium where plasma proteins and blood cells are suspended for transportation;
8.	Arthropods have open circulatory system while chordates have closed circulatory system; arthropods have exoskeleton while chordates have endoskeleton; arthropods use tracheoles while chordates use alveoli/skin/gill filaments/buccal cavity;
9.	They develop long hairs to trap a layer of air which insulates the body against heat loss; they have thick adipose tissue for insulation against heat loss;
10.	a) G absorbs water from soil; which is transported by F; to E which uses it for photosynthesis; b) Allows haemolymph to flow into the heart;
11.	Milk coagulation by renin to form curdle(casein); digestion of casein into peptides by pepsin;
12.	Nostrils have hairs which traps dust present in the inhaled air; nostrils have goblet cells which secrete mucus to trap dust particles from inhaled air; trachea have goblet cells which secrete mucus to trap dust and foreign particles from inhaled air;
13.	a) Active transport; b) Presence of protein carrier; presence of ATP molecules;
14.	Warm water provides optimum temperature; which activates digestive enzymes; hence faster rate of hydrolysis of ingested food substances;
15.	Upon ingestion, the cyst membrane is digested and the protozoans (*Entamoeba histolytica*) are released; the protozoans moves to colon where they release enzyme histolysin; which dissolves the colon mucosa lining;
16.	To reduce diffusion distance; for faster diffusion of oxygen to the matrix and faster diffusion of carbon (IV) out of the matrix;
17.	Since the proteins in the recipient and the grafts are genetically dissimilar; the recipient's immune system recognized the antigens in the transplanted eyeball as foreign; and responded by producing antibodies; to destroy the graft;
18.	Image diameter of one cell,60÷12=5µm; actual diameter of one cell, 5µm÷ 250000= 0.00002mm;
19.	