

KAPSABET HIGH SCHOOL

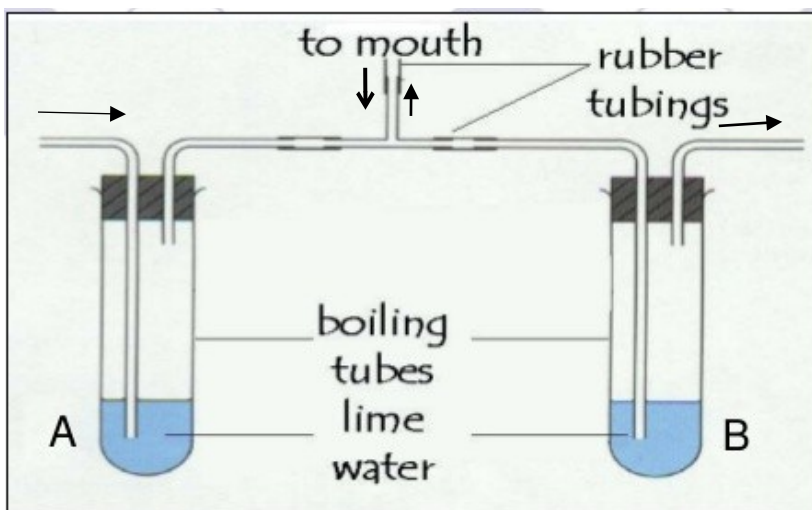
2022 TRIAL 2 JULY INTERNAL EXAMINATION

231/2

BIOLOGY PP2

MARKING SCHEME.

1.a)



Each arrow $\frac{1}{2}$ marks;

b carbon (IV)oxide;

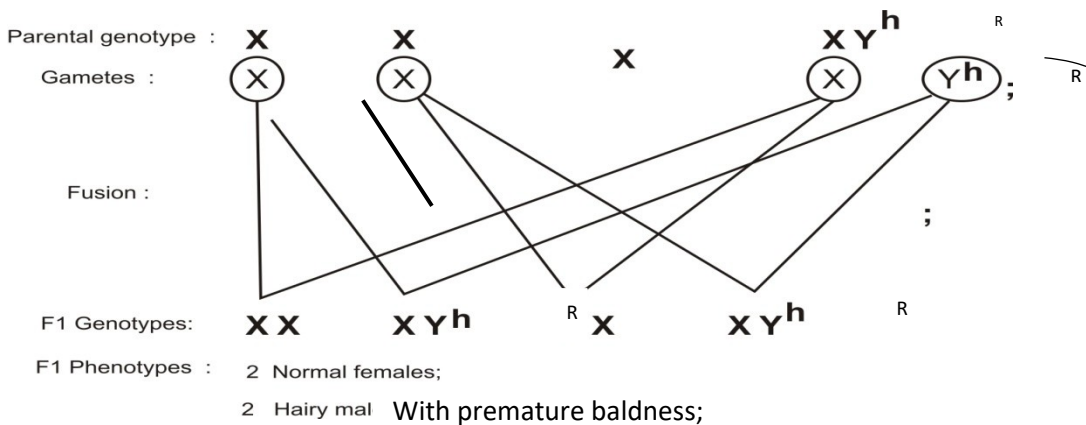
c) Boiling tube A **Lime water remains clear;**

Boiling tube B **A white precipitate is formed.;**

a) **In tube A the level of Carbon (IV) Oxide in inhaled air is low; compared to high amount of Carbon (IV) Oxide exhaled from the body; due to high rate of respiring cells;**

2. (a) A pair of genes occurring on chromosomes, controlling a particular trait./ Alternative form of a gene controlling a particular trait

(b)



(c) The gene is located only on the y chromosome; /have no alleles on the chromosome; females do not inherit y-chromosome/females have xx only;

d) Hairs on the pinna/ nose;

3(a) Process that moves substances/ions/amino acids/sugar across the cell membrane against a concentration gradient by use of energy; OWTTE.

(b) State three factors that increase the rate of active transport. (3 marks)

- Increase in oxygen concentration;
- Increase in glucose concentration;
- Increase in temperature towards optimum for best working of respiratory enzymes/optimum temperature for respiratory enzymes;
- Optimum pH for best working of respiratory enzymes;

(c) - Re-absorption of water from the kidney (tubules);

- Absorption of water in the large intestines;
- movement of water into the cells from tissue fluids; *MARK THE FIRST TWO*

d) It gains water by osmosis; and become turgid ;

4 a) Pelvic girdle/Pubic bones/ innominate bones;

- b) i) Sacral vertebra/Sacrum;
- ii) Acetabulum;
- c) Ball and socket joint;
- d) i) Obturator foramen
- ii) Its an aperture through which blood vessels nerves and muscles pass;

Reduce the weight of the pelvic girdle;

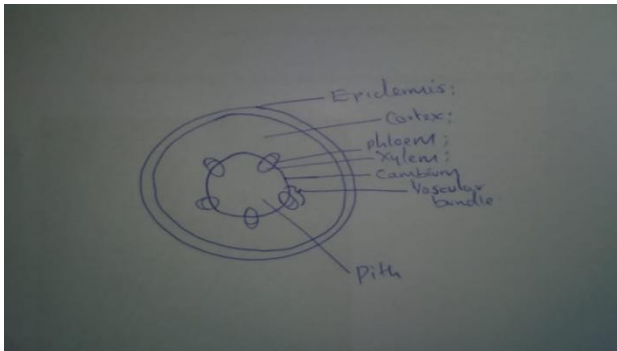
- e) i) Pubis symphysis;
- ii) It relaxes thus expanding the size of pelvic cavity;

5. a) Dicotyledonae;

b) They have broad leaves;

They have network veins;

- Their floral parts are arranged in fours or fives or their multiples;



Drawing ...1mk

Labels.....3mks

- 6(a) (i) High rainfall is followed a month later by high grasshopper population/low rainfall is followed a month later by low population of grasshoppers;
- (ii) vegetation/grass sprouts; vegetation/grass provide food for grasshoppers hence multiply rapidly; vegetation also offer shelter/camouflage for grasshoppers hence predators do not spot them easily;
- (b) Presence of large number of grasshopper is associated with large number of crows in the same month; Acc — the reverse. The crows feeding on grasshopper/predating on the grasshopper; if grasshopper population is low the crow population decrease due to migration to other areas in search of alternative food (sources);
- (c) (i) grasshoppers — 2nd (trophic) level/ primary consumers;
- (ii) crows — 3rd (trophic) level/secondary consumers;
- (iii) the grass in the study area — 1st (trophic) level/producers;
- (d) (i) Total count;
- (ii) Capture re-capture;
- (e) Vegetation/grass would sprout/increase due to decrease of grasshoppers; The predator would compete for food/grasshoppers with the crows (causing some grasshoppers to migrate) rapidly declining

grasshopper population;

f) Maximum number of organism an area/habitat can comfortably support without depletion of the available resources; OWTTE.

(g) Cattle feed on the same type of food/grass (hence high competition food); while wild animals feed on a variety of foods/some are browsers while some are carnivores/; or cattle occupy same ecological niche; while wild animals occupy different ecological niches;

(h) A natural unit composed of abiotic and biotic factors; whose interactions; lead to self-sustaining system;

Path taken by water from the soil to the leaves of a tall tree and eventually to the atmosphere.

Root hairs absorb water; by osmosis; from the spaces between the soil particles; passes into the root hair vacuole; through the cellulose cell wall and plasma/cell membrane; then through cell to cell in the cortex; or through intercellular spaces; then through the endodermis directing water into the xylem; water moves up in the xylem; in the vascular tissue. Once in the root xylem vessels water movement is aided by forces of capillarity; cohesion; adhesion; root pressure; and transpiration pull; into the stem xylem; water then enters into the xylem of the leaf veins/leaf xylem; once in the leaves water moves into the mesophyll cells by osmosis; each time diluting the concentration of cell sap in the cells; this continues until water reaches the air spaces of the mesophyll cells; eventually escapes through stomata: as water vapor.

(22marks max 20)

8.– The mouth has different types of teeth; that chew food increasing surface area for enzyme action;

-The mouth has salivary glands; that secrete saliva which lubricates and softens food; Salivary amylase breaks down starch into maltose;

-The tongue rolls food into boluses; and pushes them to the back of the mouth for swallowing.

-The esophagus is hollow for easy swallowing of food; it has muscles that contract and relax; to move food boluses through peristalsis

-The alimentary canal is long; to provide a large surface area for digestion and absorption of food;

- Small intestine is highly coiled; offering a large surface area for digestion and absorption of food;

-the inner lining of the ileum has villi and micro-villi which increase surface area for absorption

-Doudenum has openings of duct; through which pancreatic juice and bile get into the lumen;

-The alimentary canal has goblet cells that secrete mucus; for lubrication of food; and protection of the wall from digestive enzymes;

- The Brunner's glands also secrete an alkaline fluid ;which provide an optimum pH for action of intestinal enzymes;
 - Small intestines has intestinal glands; that secrete digestive enzymes;
 - the ileum has a rich network of blood capillaries that supply oxygen and remove metabolic waste from the intestinal tissues; and transports digested food and other nutrients
 - The walls have circular and longitudinal muscles; whose peristaltic contractions causes movement of food in the gut; and mixing of food with digestive enzymes;
 - The ileum has a thin epithelium; that allows soluble food materials to pass through rapidly into the bloodstream;
- The villi has lacteal; to transport absorbed lipids;
- The colon has a wide lumen; to increase surface area for absorption of water and mineral salts;
- The anus has anal sphincter muscles; that relax and contract to eliminate the indigestible and undigestible materials;
- max 20mks