KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

BAHATI GIRLS HIGH SCHOOL
BIOLOGY
PAPER 2
MARKING SCHEME

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BAHATI GIRLS KCSE TRIAL AND PRACTICE EXAM 2016
BIOLOGY
PAPER 2 / 231/2
MARKING SCHEME

1. (a)

Arteries	Veins
Narrow lumen;	Wide lumen
Thick layer of muscles;	Thin layer of muscles
Have no valves;	Have valves

3mks

(b) Muscular contractions;
Valves prevent back flow;
Gravity; (Any 1st two – 2mks)

(c) Antigens;
Antibodies; (2mks)

(d) Vitamin k;

2. (a) Combination of hydrogen atoms with carbon (IV) Oxide; to form simple sugars (glucose); using energy from ATP;

(b) Light energy splits water into hydrogen ions and hydroxyl ions (photolysis); Four hydroxyl ions combine to form two water molecules and one oxygen molecule.

(c) Water;

3. (a) A – Sensory neurone;
B – Motor neurone;

(b) Contains cerebrospinal fluid which supplies oxygen and nutrients to the brain/spinal cord;

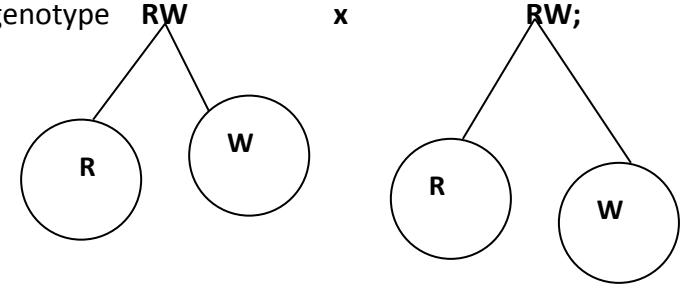
(c) Pain receptors; in the skin are stimulated. An impulse is generated; and transmitted through sensory neurone, across a synapse; to the relay neurone; in grey matter. It is then transmitted to motor neurone through another synapse and finally to effector muscles which contract; to bring the withdrawal of the limb; Total 6 marks Max 5

4. (a) Albinism; sicle cell anaemia; Haemophilia; colour blindness; achondroplasia/chondrodystrophic dwarfism; ketonuria; (Any 1st two – 2mks)

(b) Alternative forms of a gene controlling a particular characteristic/trait; (1mk)

(c) (i) The genes for red and orange marks are co – dominant;

(ii) F1 phenotype Yellow marked beetles x Yellow marked beetles
F1 genotype **RW** **x** **RW;**



♀ \ ♂	R	W
R	RR	RW
W	RW	WW

5. (a) growth rate/growth – Increase/decrease in numbers/change in numbers;
Dispersion – the spread/distribution of organisms in a habitat;

Density – Number of individuals per unit areas; (characteristic and description must be given to award a mark = 3mks

(b) (i) Ecologically balanced ecosystem is one where the components of the ecosystem are available in a steady state such that there is no depletion of any of them; (hence the ecosystem is self perpetuating) (1mk)

(ii) Construct the food chain

Water plant → Insect larvae → Fishes → Bacteria;

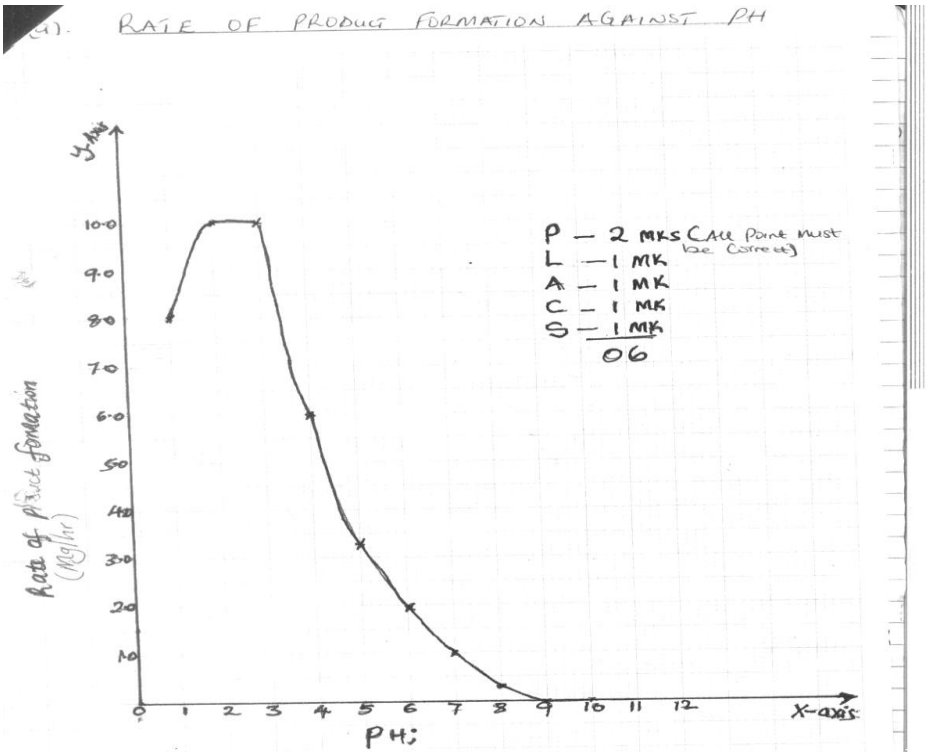
Scale – 1 mark

Scale – 1mk

Height of bar should be uniform – 1mk

(iii) Partially inverted pyramid of biomass because the fishes would have alternative prey other than mosquitoes;

6. (a) **RATE OF PRODUCT FORMATION AGAINST PH**



6. (b) (i) The rate of product formation increase;
Suitable/best PH for enzymatic activity/reaction;

(ii) Rate of product formation declined; increase in PH affect enzymatic activity/ reactions;

(iii) Rate of product formation zero/ no formation of product; high PH denatured/ destroyed the enzymes;

(c) Optimum PH 2- 3

(d) Stomach;
Acidic medium present; due to the presence hydrochloric acid; which will favour the enzymatic reactions of this enzyme; or

(e) (i) Temperature;

(ii) Substrate concentration;

(iii) Presence or absence of inhibitors;

(iv) Enzyme concentrators;

7. (a) Large; brightly coloured petals/ bracts; to attract insects; scented; to attract insects.
Have nector guides that direct insects into nectaries which secrete nectar;
Pollen grains rough/ sticky surface; to stick on insects body;

Special shaped corolla tube; to enable insects to land

Anthers situated inside the flowers; to ensure that they get into contact with the insect;

Sticky stigma; for pollen to stick and adhere;***Total 12 mks max 10 marks***

(b) Animal dispersed fruits/seeds

Presence of hooks for attachment to animals; thus carried to other places;

Fruits are brightly coloured; succulent; aromatic/scented; to attract animals; which feed on them. The seed coats/ hard seed are resistant to digestive enzymes; thus remain unaffected, the seeds are dropped away from parent plant in faeces/ droppings;

Wind dispersed fruits/ seeds

Presence of hairs/ wing like structures/ floss/ extensions; which increases surface area for buoyancy; making it easy for fruit/ seed to be blown away;

fruits/ seeds are light due to small size; therefore easily carried away by wind

Total 11 max 10mks

8.

- Streamlined/ tapered anteriorly and posteriority; to minimize water resistance;
- Overlapping scales facing posterior end; to bring about less resistance;
- Slimy/oily substance to moisten scales; hence reduce resistance between water and fish;
- Swim bladder; which controls/ brings bouyance; and depth at which it swims;
- Myotomes/ muscles blocks; which contract and relax alternately bringing about thrust/force; which propels fish forwards;
- Pectorial and pelvic fins (paired fins); which bring about balancing effect; breaking; and changing direction;
- Dorsal fin and anal fin (unpaired fins); to increase vertical surface area; and therefore prevent rolling; and yawing;
- Tail fins that are long and flexible; for stearing/ more force/ thrust;
- Lateral line; which enables to perceive vibrations; hence can locate objects so that it escapes / changes direction