# KENYA NATIONAL EXAMINATION COUNCIL
# REVISION MOCK EXAMS 2016
## TOP NATIONAL SCHOOLS

## KAPSABET HIGH SCHOOL
**BIOLOGY**
**PAPER 2**
**MARKING SCHEME**

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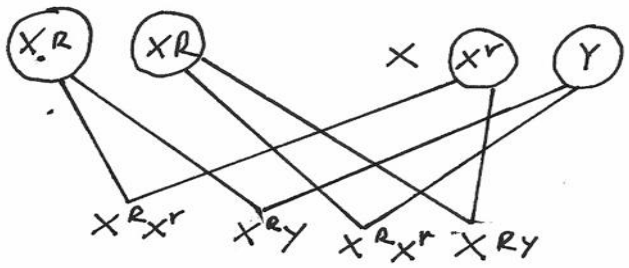
# KAPSABET HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016
# BIOLOGY
# PAPER 2 / 231/2
# MARKING SCHEME

1. (a) (ii) A -Stomach;
B - Pancreas;
(ii) (Stomach wall) is made of thick circular and longitudinal layers of muscles; which contract and relax producing movements that mix contents of stomach/ churning;
(b) (i) Cholecystokinin
(ii) Cholecystokinin – It stimulates the secretion of bile from the gall bladder; bile contains bile salts/ sodium glycocholate and sodium taurocholate;
emulsify fats into tiny fat droplets;
(3mks)

2. (a) Aquatic;
(b) (i) Phytoplanktons;
(ii) Hawks;
(c) (i) Phytoplanktons → Zooplanktons → Frogs → Snakes → Hawks;
(Reject if arrow is not indicated)
(ii) Snakes would decrease due to less food;
Zooplanktons would increase due to less predators;
(d) - Oil clogs fish gills;
– Oil cuts off dissolved oxygen in water leading to suffocation;
(Accept any one right)
(e) - Domestic wastes and sewage;
– Silting;
– Industrial effluents;
– Agro – chemicals;
(Accept any one right)

3. (a) Anaerobic respiration;
Reject respiration alone
(b) (i) Glycolysis;
(ii) Cytoplasm;
(c) (i) Alcohol/ ethanol, carbon IV oxide and energy;
(Reject if only one product is given) + Energy
(ii) Lactic acid, energy
(d) Pyruvic acid will be further oxidized by oxygen (in a series of enzymatic reactions/ Krebs
cycle) into carbon IV oxide, water and energy;
(reject if all products are not mentioned)
(e) The amount of oxygen required to get rid of the lactic acid that accumulates in the body tissues when supply of oxygen is less than demand;

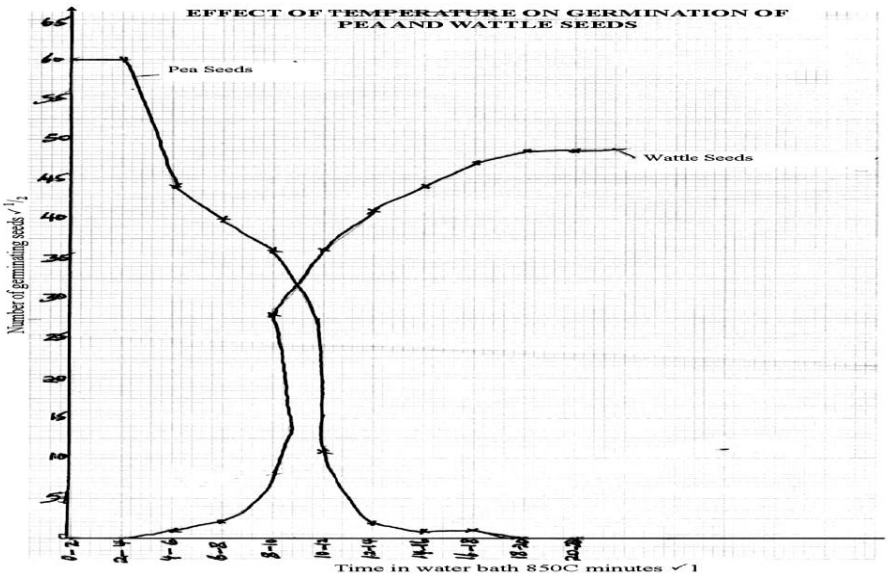
4. (a) Situation in which a heritable characteristic is determined by more than two variant forms of a single gene e.g. ABO blood group
(b) Parental phenotypes Red eyed x White eyed
Genotypes $X^R X^R$ x $X^r Y$




(c) - Has high rate of reproduction hence provides large sample sizes for study
– Has several pairs of contrasting characteristics that are distinct
– Have short generation time (10 -14 days) hence many generations can be studied
– Safe to handle, does not transmit diseases

5. (a) (i) Oxygen;
(ii) Photosynthesis;
(b) The rate of photosynthesis increases with increase in light intensity;
(c) Each time of the day, place the electric bulb at different distances from the set up; to vary light intensity reaching the plant;
Count the number of bubbles of gas emitted per minute; for each distance between light source and plant;
(d) Electric bulb gives off heat which could raise temperature around the plant; (increasing rate of photosynthesis)

6. (a) Labeling of X axis ½ mark
Labeling of Y axis ½ mark
Scale X axis 1 mark
Y axis 1 mark
(origin must be indicated)
Maximum value above 60
Plotting of points 2 marks
Smooth curve X axis ½ mark
Y axis ½ mark
Identification 1 mark
1. Inverted curves a maximum of 1 mark (identification)
2. 2 separate curves mark the 1st and award a maximum of 5 marks
3. Extrapolated curves – deny curve and plotting marks
(b) (i) 11 minutes
(ii) 19 minutes accept 18 minute
(c) Garden peas (½ mark) because more seeds germinated when exposed to hot water for a short time (½ mark)
(d) (i) Pea seeds have a weak testa; (which is quickly soaked and starts allowing water into the seed) when exposed for long to hot water into the enzymes get denatured; and the embryo is destroyed by excessive heat;
(ii) Wattle seeds have a tough testa; which requires long time of contact with hot water to hasten softening of testa;
(e) (i) Comparatively fewer/ no garden pea seeds will germinate but more/ all wattle seeds will germinate;
(ii) No wattle (reject fewer) will germinate while most/ all pea seeds will germinate
(f) - Enzymes
– Seed viability
– hormones




7. (a) Deoxygenated blood enters the right atrium (from the body) through vena cava; then passes through the tricuspid valve into right ventricle;
Blood is pumped through semi – lunar valves to pulmonary artery to the lungs; (for oxygenation)
Oxygenated blood from lungs enters the left atrium through the pulmonary vein; then through bicuspid valve to the left ventricle;
Blood is then pumped through semi – lunar valves to aorta to the rest of the body.
(Total 6 marks)

(b) When ventricular muscles relax/ during diastole; volume of ventricles increases; pressure decreases; Atrio – ventricular valve/ cuspid valve opens; allowing deoxygenated blood to flows into the right ventricle; while oxygenated blood flows from the left atrium into left ventricle; Semi lunar valves close; preventing blood from flowing back into ventricles;
When ventricular muscles contract during systole; atrio – ventricular/ cuspid valves close; preventing blood from flowing back into the auricles; volume of ventricles decreases; while pressure increases; this force blood out of the heart to lungs; (via semi lunar valve through pulmonary artery) and to body tissues; via semi lunar valve through the aorta. Total 15 marks

(Maximum 14 marks)

8. **Auxins;**
- Promote root initiation/ root depth
- Promote woody tissue formation & repair
- Promote apical dominance
- Delays falling of leaves & fruits
- Promotes flowering in plants
- Promote seed & bud dormancy
- Promotes fruit formation by parthenocarpy
- Promotes cell differentiation especially vascular tissue (9 marks)

**Gibberellins**
- Stimulates rapid division leading to root & stem elongation of dwarf varieties
- Breaks both seed & bud dormancy
- Induce flowering in long day plants
- Induce parthenocarpy in plants

- Inhibit growth of adventurous roots
- Retard leaf abscission
- Promote leaf expansion (8 marks)

**Cytokinins**

- Enhance cell division
- Stimulate leaf growth due to cell enlargement
- Promote chloroplast development
- Delay aging of leaves by preventing formation of hydrolytic enzymes which degrade tissues
- Breaks seed dormancy
- Inhibit apical domance
- Promote flowering in some plants

**Abs sic acid**

- Accelerate abscistion of fruits
- Controls closing of stomata
- Inhibit stem elongation

- Inhibit seed germination/ hence cause seed dormancy (5 marks)

**Flogen**

Promotes flowering