KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

MARANDA HIGH SCHOOL
BIOLOGY
PAPER 2
MARKING SCHEME

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MARANDA SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

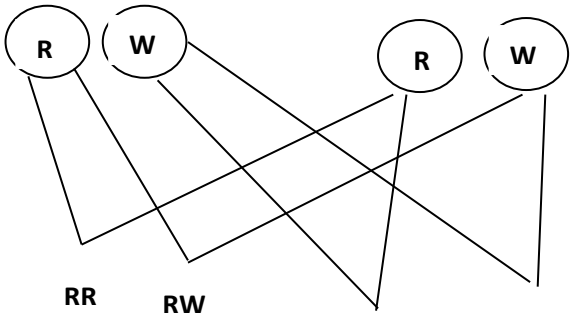
PAPER 2

MARKING SCHEME

1. (a) Red - RR
White - WW (Both must be correct).

(b) Parental phenotype Pink Pink

Parental genotype RW X RW ;

Gametes 

;
;
;

F_2 offspring genotype :

(c) (i) I red : 2 pink : 1 white
(ii) 1RR : 2RW : 1WW

(d) ABO blood group acc. blood group.

2. (a) To investigate the effect of boiled saliva on starch.

(b) P - brown/yellow colour of iodine
Q - black/blue-black colour

© P - starch has been digested/broken down by salivary amylase
Q - salivary amylase was denatured by boiling hence no digestion of starch.

(d) provide optimum temperature for enzyme activity.

(e) (i) glycogen
(ii) starch

3. (a) A - ovary
C - uterine wall

(b) Ectopic pregnancy

(c) Oestrogen - Repair and healing of endometrium, stimulate pituitary to secrete LH.
Progesterone - Proliferation/thickening of endometrium.
- together with oestrogen inhabits production of FSH.
- inhabits production LH

(d) Secrete a thick plug of mucus which prevent entry of air and micro organisms.

4. (a) Adaptive radiation

(b) Originates from a common ancestral form then become modified to occupy different ecological niches.

(c) (i) Structures whose sizes are reduced/rudimentary because they have ceased to be functional with time.
(ii) Appendix, caecum, vestigial tail/coccyx.

(d) (i) Nature selects those that are well adapted, survive and produce new offsprings while those that are Not well adapted are eliminated/do not survive/die.
(ii) Peppered moth; resistance of malaria parasites to drugs.

(b) Organisms with similar blood pigments share common ancestry.

5. (a) Transfer of blood from donor to the circulatory system of the recipient.

(b) - ABO compatibility
- Rhesus factor

- Screened for presence of disease causing micro-organisms
- Screened to be free from HIV/AIDS.

(c)(i) **Advantage**
- Universal donor
- Most abundant blood groups

Disadvantages
- Can only get blood from donor blood group O.

(d)(i) Universal recipient can receive blood from all other blood groups.

(ii) AB

6. (a) Graph

Axis	-	01
Scale	-	2
Plotting	-	2
Curve	-	01
Label	-	1
Total		7mks

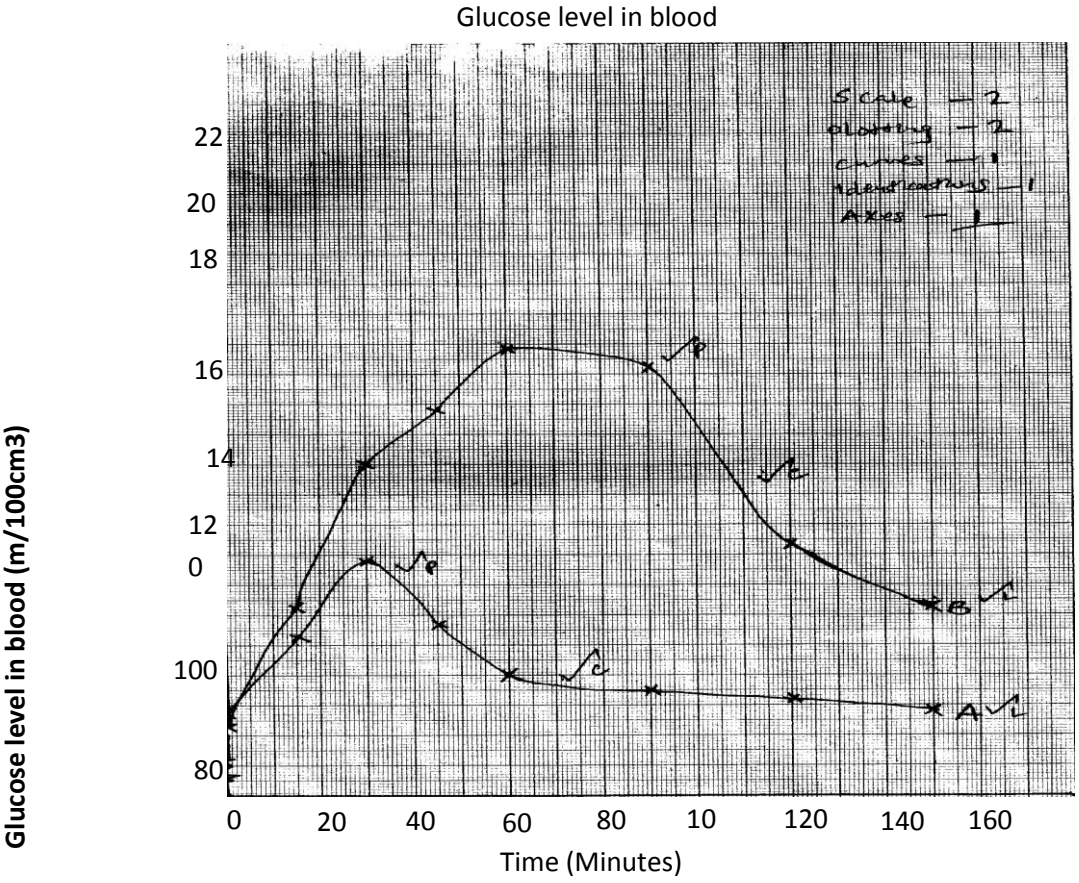
(b) A - 121 + 2
B - 140 + 2

(c) Person A is capable of regulating glucose while person B is likely to be diabetic.

(d) A - Insulin released; excess glucose is converted into glycogen
B - Insulin not released; thus the decline is due to glucose released in urine.

(e) ATP/adenosine triphosphate

(f) Are deaminated; resulting in the formation of ammonia; ammonia combined with Co_2 to form urea, urea is passed out in urine; carbohydrate group is oxidized or stored as glycogen.



7. (a) (i) Red blood cells/erythrocytes
- Transport oxygen from the lungs to all parts of the body.
- Transport carbon(iv) oxide from the body tissues to the lungs

(ii) White blood cells
- Produce antibodies for defence against diseases; engulf harmful bodies.
- Blood plateleter/thrombocytes; produce enzymes thrombokinase/thromboplastin; for blood clotting.

(b) Functions of plasma are:-

- Transport food nutrients from gut to liver and finally to all parts of the body;
- Transport hormones from secretory glands to point of action within the body;
- Transport carbon (IV) oxide from respiring tissues to the lungs;
- Distributes heat from the liver to all parts of the body (hence control body temperature).
- Transport nitrogenous wastes (e.g urea) from the body cells (as liver) to the kidney.
- Contains fibrinogen (and other blood proteins) used in blood clotting.
- Controls the osmotic pressure of the blood and tissue fluids through its content of mineral ions
- Control of PH of blood. (Max. 13mks)

8. Adaptations of bony fish to locomotion

- Scales overlap and point backward; to reduce resistance during movement in water;
- Streamlined body; reduces friction/enable fish to move easily in water
- Mucus on the body/mucold body surfaces to reduce friction.
- Lateral line system; that has sensory cells for sensitivity in water/detect vibrations

in water.

- Inflexible head to maintain forward thrust
- Flexible backbone/series of vertebrae, covered with myotomes/muscle blocks, that

- contract and relax contract and relax alternatively to bring undulating movements.

- Swim bladder, for buoyancy, and vertical position adjustments
- Upaired fins/dorsal fin,anal fin and caudal fin prevent rolling from side to side.
- Caudal fin, is for steelring
- Paired fins/pelvic and pectoral fins, for balancing/baking/changing direction to control upward and downward movements.