KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

KENYA HIGH SCHOOL
BIOLOGY
PAPER 2
MARKING SCHEME

SCHOOLS NET KENYA
Osiligi House, Opposite KCB, Ground Floor
Off Magadi Road, Ongata Rongai | Tel: 0711 88 22 27
E-mail:infosnkenya@gmail.com | Website: www.schoolsnetkenya.com

KENYA HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM

PAPER 2

MARKING SCHEME

1.

a. i. Regulate the amount of light passing to the condenser,
   ii. Enable rotation changing magnification from low, medium and high power;

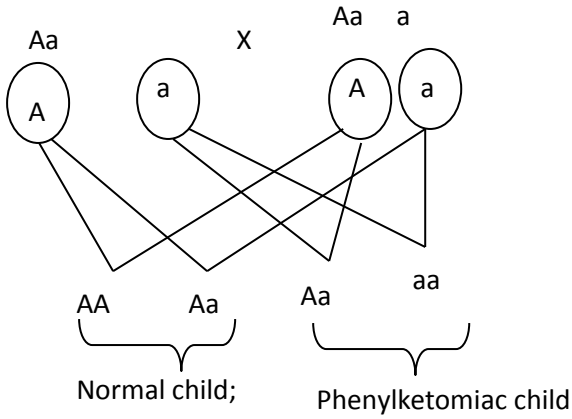
b. i. Make organelles clearer and move distinct '
   ii. To enable light to pass through;

c. i. Golgi apparatus /bodies;
   ii. Ribosome;

d. i. Parenchyma
   ii. Photosynthesis

a. i. A chromatid breaks in 2 places, middle piece rotates through 180^0 and join again; All chromosome
   ii. A chromosome/chromatid breaks in two places, middle sector drops out; (2mks)

b. i. Aa, Aa all Both Aa



c. Gene manipulation to produce desired characteristics manipulates desire gene, acting it, looking and transferring it to another organism,

3 a) Grass;

b) i. Wind
   ii. Stigmas are long and feathery help their trap pollen from floating or air;
   - Filaments are long which allows anthers to hang free for flower/filaments are slender and shatter by slightest wind ; (3mks)

c) i. Integuments; (2mks)
   ii. Ovule; (2mks)

d) By the 4^{th} month placement in glandular, it takes up the role of secretary progesterone (2mks)

4) a) Single –blood pores through the heart one for a complete circulation, double-blood pores the hear twice for a complete circulation

b) O,

c) i. Red blood cells/erythrocytes,
   ii. Blood contains blood cells and plasma; tissue fluids in without blood cells I blood projects 3mks)

d) -Low temperature
-High pressure
-High atmospheric humility
1^{st} two

5. a) Analogous structure –super secondly /similar/perform same function but different embryonic origin

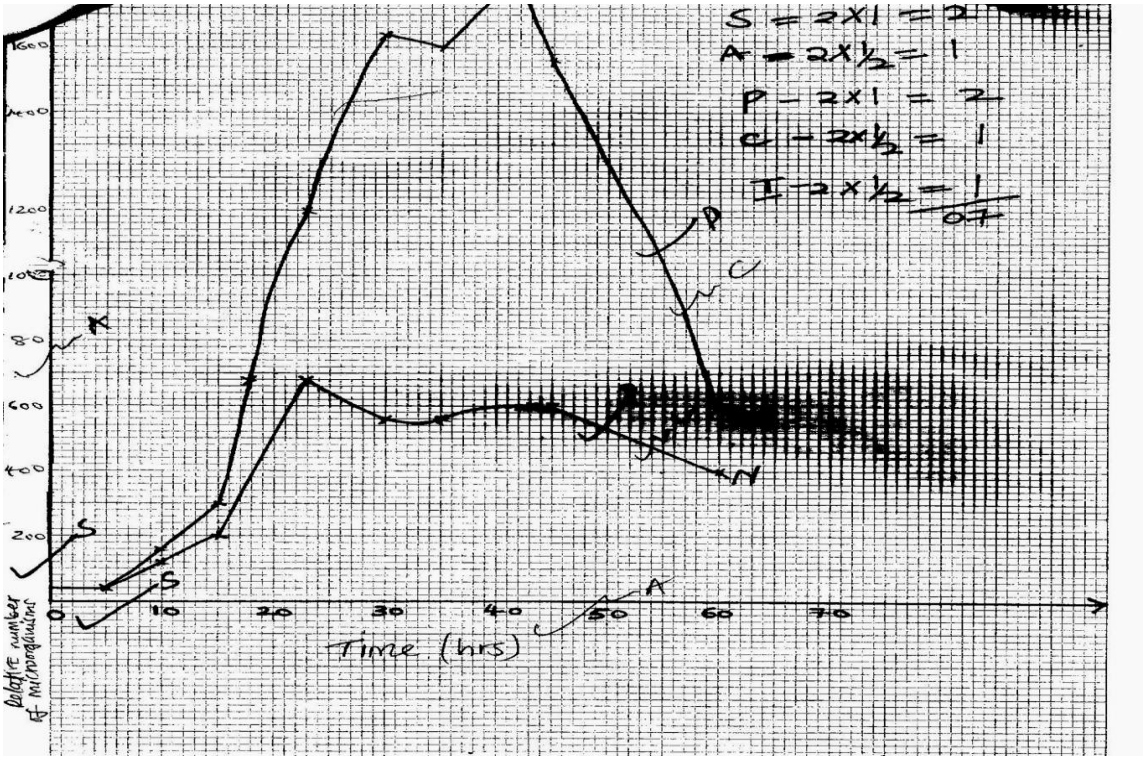
b) Through mutation, some members acquire genes that make them insensite to drug, gene may lead to change in chemicals composition of organism /function of an enzyme that degrade the drugs (3mks)

c)i. Scapula;

ii. Humerus;

i. Has a spine for attachments of muscles;
Has a globoid cavity for articulation with 1st two humerus;
Has large surface area for attachment of muscles;

6.



i) On the graph paper (7mks)

ii) 42 hours (1mk)

iii) Graph M at 1220± 20 (1200 – 1240)
Graph W at 540 ± 20 (520 -560)
120-540; = 680 ± 40; (640-720)
(Answers vary 640 -720)

iv) Population (growth stops) decreases;
High temperature kill the microorganisms/denature enzymes; (2mks)

v) Population (growth rate) decrease, death rate (of the microorganisms) is higher than (their population) rate of multiplication,(of the microorganism due to exhaustion of nutrients; and accumulation of toxic, wastes; shortage of O_2 ; overcrowding/shortage of space
Observation (1mk)
Reason (2mk)
Total (3mks)

b.) i. **Tympanic membrane**
Receives sound waves (from the air); and vibrates/transforms sound waves into vibrations to transmit them to the ear ossicles/malleus; acc.Hammer for malleus.

ii. Eustachian tube
Equalizes the air pressure in the middle ear to that in the middle ear to that in the outer ear

iii. Ear ossicles
Amplify/transmit vibrations from the tympanic membrane in the inner ear/venestra ovalis/oval window

b. i) There are three semicircular canals; arranged in planes at right angles to each other; at the end of each canal is swelling called ampulla's which contains receptors;

The movement of the head causes movement of the fluid in at least one canal; the fluid movement deflects /displaces the coperta and thus stimulating the receptors/sensory hairs, the impulse/nerve sensory, impulse is transmitted/conducted to the brain; by auditory nerve, about the movement of the body / head

Max (total mark 2mks)

ADAPTATION OF THE EYE

The presence of

-The sclerotic layer which contains tough connective tissue fibres; which helps it to support and protect the other parts of the eye ball;

-The choroid which contain many blood capillaries; which supply oxygen and nutrients to the retina and removes the metabolic wastes; from the eye

-It is highly pigmented; to prevent reflection of light, (within the posterior chamber of the eye ball)

-The retina contains photoreceptor cells called (cones and rode) ;It is said to be light sensitive part of the eye; cones are adapted for high light intensity and colour vision ;while rods are adapted for dim light vision;

-The cornea is transparent and curved; thus allows light to pass through and refracts light rays;

-Forea/yellow spot has a high concentration of cones; for accurate vision/visual acuity;

-Blind spot; which is the place where the optic nerve leaves the eye; has no cones and rods hence no impulse are generated.

-Optic nerve has sensory nerve fibres; for transmission of impulses to the brain for interpretation;

-Lens is made up of elastic and transparent materials and is biconvex.

-It adjusts to focus for far or near objects, allows light to pass through and refracts light rays.

-Ciliary body has muscles fibres; that contract and relax t change shapes /convature of the lens bringing about accommodation; and is glandular; secreting aqueous humor;

-Suspensory ligaments are inelastic; to hold the lens in position and attach it to ciliary body

-Iris has radial and circular muscles, which control the size of the pupil,

-Pupil is the hole at the centre of iris through which light passes into the eye;

-Aqueous humour is clear fluid; through which oxygen and nutrients pass to the cornea and lens and maintains the shape of the eye ball; and refracts light rays;

Vitreous humour is a fluid which creates hydrostatic pressure; thus maintaining the shape of the eye; and refracts light rays

Conjunctiva is a thin, transparent and tough membrane; that protects the eye; and allows light to pass through;

- Eye lashes -
- The eye muscles -
- The eye brows -

8. Explain how a biotic factor affect plants (20mks)

Wind;

In windy conditions the rate of transpiration increase; wind disperses fruits/seeds

Is an agent of pollination

Acc. Spores for seed

Temperature;

Changes in temperature affect the rate of photosynthesis and other biochemical reactions/metabolic reactions /enzymatic reaction, temperature increases rate of transpiration;

Light

Plants need light for photosynthesis some plants need light for flowering/photoperiodism (seeds like lettuce require light for germination;

Humidity

When humidity is low, the rate of transpiration increases;

pH;

Each plant requires a specific ph to grow well/acidic /alkalinity/neutral

Salinity

Plants with salts tolerant tissues grow in saline area; plants in estuaries adjust to salt fluctuations;

Topography

North facing slopes in temperature land have more plants than south facing slopes plants on wind ward side have stunted /distorted growth; Acc comparisons of mountains and valleys

Acc. Description of other areas with other topographies e.g. river, rainwater/water;

-Fewer plants in areas/semiarid /and

-Water is needed for germination is a raw material for photosynthesis/dissolves .Mineral salts provides turgidity for support/fruits/seeds

Pressure

Variation in atmospheric pressure affects availability of CO_2 which affects photosynthesis and low pressure increase rate of transpiration and affect amount of oxygen; for respiration

Mineral salts/trace elements

-Affects distribution of plants in the soil;

-Plants thrive well where there are mineral salts in the soil;

-Plants living in the soil deficient in particular mineral element

-Have special methods obtaining it; for example legumes obtaining of Nitrogen by fixation or carnivorous.