MWINGI CENTRAL SUB-COUNTY JOINT EXAM
JULY/AUGUST 2015
231/3
BIOLOGY PAPER 3
CONFIDENTIAL

In addition to general laboratory apparatus, the teacher in charge of Biology should avail the following for each student.

1. Bougainvillea flower
2. - Iodine solution labeled P
   - Benedict's solution labeled Q
   - DCPIP labeled R
   - Sodium hydroxide labeled S
   - Copper (II) Sulphate labeled T
   - Solution K

   NB: Solution K is prepared by mixing 10g of maize flour, 5ml of pineapple juice in 100ml of distilled water for 10 students. For more than 10 students, use the ratios to prepare solution for your students.
- 4 clean test tubes in a test tube rack
- Dropper
- Source of heat

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Kenya Certificate of Secondary Education
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PRACTICAL
TIME: 1 ¾ Hours

1. You are provided with specimen labeled X, use it to answer questions that follow.
   (a) (i) State the agent of pollination (1mk)
   (ii) Give reasons for your answer in a(i) above (2mks)
   (b) Describe the floral parts of specimen X

Floral	Description

(8mks)

   (c) (i) State the class to which the specimen X belongs (1mk)
   (ii) Give reason(s) for your answer in c(i) above (2mks)
2. (a) You are provided with reagents P – Iodine, Q – Benedits solution, R-DCPIF, S-Sodium hydroxide and T-Copper (II) sulphate)
   Use the reagents to identify the food substance(s) in solution K

Food	Procedure	Observation	Conclusion

(12mks)

   (b) Name the end product of digestion of food substance(s) present in solution K (1mk)
   (c) Describe the assimilation of food substance(s) identified in 2(a) above (2mks)
3. Study the photograph T provided and answer the questions that follow.
   (a) (i) Name the class to which the specimen belongs (1mk)
   (ii) Give reasons for your answer in a(i) above (2mks)
   (b) (i) Describe the shape of the specimen (1mk)
   (ii) What is the significant of your description 6(i) above (1mk)
   (c) Measure in millimeters the depth of:
   (i) Specimen from the tip of the mouth to the tip of the tail (1mk)
   Length_____mm
   (ii) Tail from the anus to the tip of the tail (1mk)
   Length_____mm
   (iii) Using the measurement in c(i) and c(ii) above, calculate the tail power (percentage length of tail to the rest of the body) (2mks)
   (d) Name the parts labeled B and D (2mks)
   (e) State one function of the part labeled E

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1. (a) Insect/Insects; (1mk)
Rej: Specific insect e.g. bee
Insect pollination
(ii) Briefly coloured bracts (2mks)
Tubular corolla
Landing state
(b)

Floral Parts	Description
Sepals	5 fused retals
Retals	5 fused Retals
Stamens	8 free stamens
Carpet	1 Carpet

(8mks)
(c) (i) Dicotyledonae (1mk)
Rej: Dicotyledon and wrong spelling
(ii) Network of veins/Net venation (2mks)
Floral parts in four or fives or multiples of four or fives

2. a)

Food	Procedure	Observation	Conclusion
Starch	Put a little food substance into a test tube. Add a few drops of iodine/ P; Rej (2-3) arrange Acc. Specific no. of drops e.g. 2/8/4	The colour changes to blue/black/blue black	Starch present
Reducing sugar	Put a little food substance into a test tube. Add a few drops of Benedict's Solution. Warm/heat to boil Ref: burn	Colour changes from blue to green-yellow/orange to brown precipitate	Presence of reducing sugar
Proteins	Put a little food substance K into a test tube. Add a few drops of sodium hydroxide. Add a few drops of copper sulphate, shake	No observable colour change Rej: No change	Absence of proteins
Vitamin C/Ascorbid acid	Put a little few drops of DCIP into a test tube. Add a few drops of food substance K into the test tube. Shake	DCPIP is decolourise / the colour of DCPIP disappears	Presence of Vitamin C

Acc where candidate uses:
- Few drops
- Little substance
- Specific amounts e.g. 1cm3 , 2 dorps, 3 ctn
- Rej: range e.g 3-4, 2-3 etc

In proteins test
Rej: if candidates write
Add copper sulphate, ten add sodium hydroxide
(b) Glucose
(c) Glucose – energy production (cell respiration) (1mk)
Vitamin C – Healing of wounds / gums prevents scurvy

3. (a) (i) Piesces
(ii) Presence of scales; fins; operculum; lateral line
NB: a(i) and all tied
(b) (i) Streamline/Torpedo shape
(ii) Reduce friction in water
(c) (i) 77mm
(ii) 22mm
(iii) $\frac{22}{70} \times 100 = 25.97\%$
(d) B – Dorsal , D – Anal
(e) Steering
Control pitching
Changing direction
Braking
Balancing