BUKAKA CLUSTER EXAMINATIONS

END OF TERM 1 – 2025

231/3

BIOLOGY Practical

Marking scheme

FORM 4

1. a). You are provided with specimen Q. Cut it into two halves. Squeeze out juice from the two halves into a beaker. Sieve the juice to obtain solution Q1. Divide solution Q1 into two equal amounts. Label them as solution Q2 and Q3. Using the reagents provided, carry out food test on solution Q2. Record your results in the table provided below. (**9 marks**)

FOOD TESTED	PROCEDURE	OBSERVATION	CONCLUSION
Protein	*Into a clean test tube put 2ml of solution Q2, add equal amount of 10% sodium hydroxide and shake. Add 1% Copper (II) sulphate dropwise and shake after every addition. (1mk)*	*Blue colur of copper (II) sulphate remain/retained (1mk)*	*Protein absent (1mk)*
Reducing sugar	*Into a clean testtube put 2ml of solution Q2, add equal amount of Benedict's solution and shake. Heat the mixture to boil.*	*Blue colour changes to green then to yellow, orange or brown(1mk)*	*Reducing sugar present(1mk)*

	Observe and rebcord the colour change. (1mk)		
Vitamin C/ ascorbic acid	*Into a clean testtube put 1ml of DCPIP solution, aadd solution Q2 dropwise(1mk)*	*DCPIP is decolourised(1mk)*	*Ascorbic acid/Vit C present(1mk)*

NOTE: ***Wrong procedure denies the observation and conclusion mark***.

b) i) You have been provided with a visking tubing. Open it carefully. Tie one end with a piece of thread. Half- fill it with solution Q3. Tie the other end tightly to avoid leakage. Rinse the visking tubing and immerse it in a beaker with distilled water. Leave it to stand for 25 minutes. Using Benedict's solutions only, carry out food test on the contents of the beaker. (**2marks**)

0BSERVATION	CONCLUSION
Colour changes from blue to green, yellow to orange	*Reducing sugar present.*

ii) Account for your observation in b (i) above. (**2 Marks**)

Fructose molecules are small in size therefore pass across the visking tubing into the distilled water in the beaker through diffusion; hence the presence of reducing sugar in the content of the beaker.

2. Study the photographs below and answer the questions that follow.

(a) With observable reasons identify the class of the specimen in the photograph .

(i) Class – *Mammalia* **1mk**)

(ii) Reasons (**2mks**)

- Body is covered with fur

- Has external ear/pinna

(b) (i) Name the structures labeled (**4mks**)

P - liver

Q - ileum

R - stomach

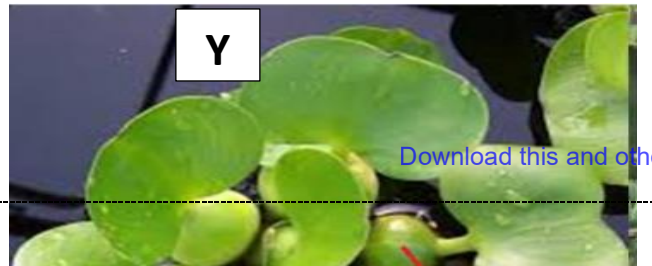
S - pancrease

(ii) State the function of the parts labeled (**2mks**)

U – produce saliva

V – has bacteria which secrete enzyme cellulase which digest cellulose.

(c) Study the photographs below depicting plants growing in different habitats.



(i) Identify the habitats in which they are found (**2mks**)

Y – A*quatic / hydrophytic*

- *Fresh water*

Z – *terrestrial / semi arid / arid/ xerophytic*

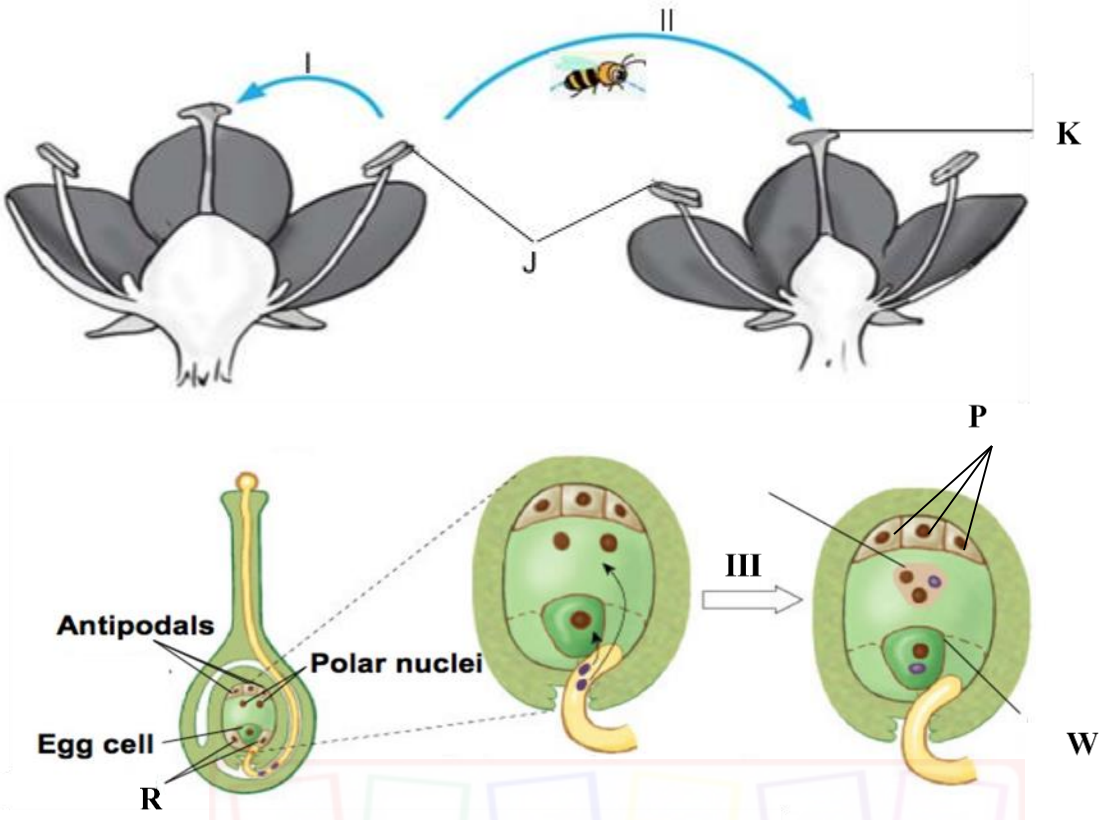
(ii) State the significance of the following structures found in the specimens shown above

(**2mks**)

R – protect the plant from animals

S – provide buoyancy enabling plant to float on water

3. All members of plant division Spermatophyta exhibit alternation of generation. The photographs below show stages in the growth and development of a spermatophyte.



a. i. Processes I, II and III. **(3marks)**

I. *self pollination*

II. *cross pollination*

III. *Double fertilization rej; fertilization only*

ii. Structures K, P, R and W. **(4marks)**

K. *Stigma*

P. *Antipodal cells*

R. *synergids rej; synergid*

W. *Diploid zygote*

iii. The cell division process that occurs in structures J. **(1mark)**

Meiosis

iv. The products of the process named in (iii) above. (**1mk**)

Pollen grains

b. Explain the role of the following in promoting process II in the flowering plants.

i. Petals **(2marks)**

They are large, conspicuous and brightly coloured; to attract insects for cross pollination.

ii. Filaments **(2marks)**

They are long; to expose anthers to the agents of pollination.

c. The photographs above represents one of the phases in alternation of generations in spermatophytes. Name the phase. **(1mark)**

Gametophyte