

**NAME:** .....

**ADM. NO:** ..... **CLASS:**.....

**INDEX NO:**.....

**JITEGEMEA HIGH SCHOOL 2016**

**BIOLOGY PRACTICALS**

**PAPER 231/3**

**TIME: 1 ¾ HRS.-**

**INSTRUCTIONS**

- a) This paper contains three questions.*
- b) Answer all the questions on the spaces provided.*
- c) Use the first fifteen minutes to read through the paper.*

**FOR OFFICIAL USE ONLY**

<b>QUESTIONS</b>	<b>MAXIMUM SCORE</b>	<b>STUDENT'S SCORE</b>
1	11	
2	17	
3	12	
	40	

1. You are provided with a solid labeled M.

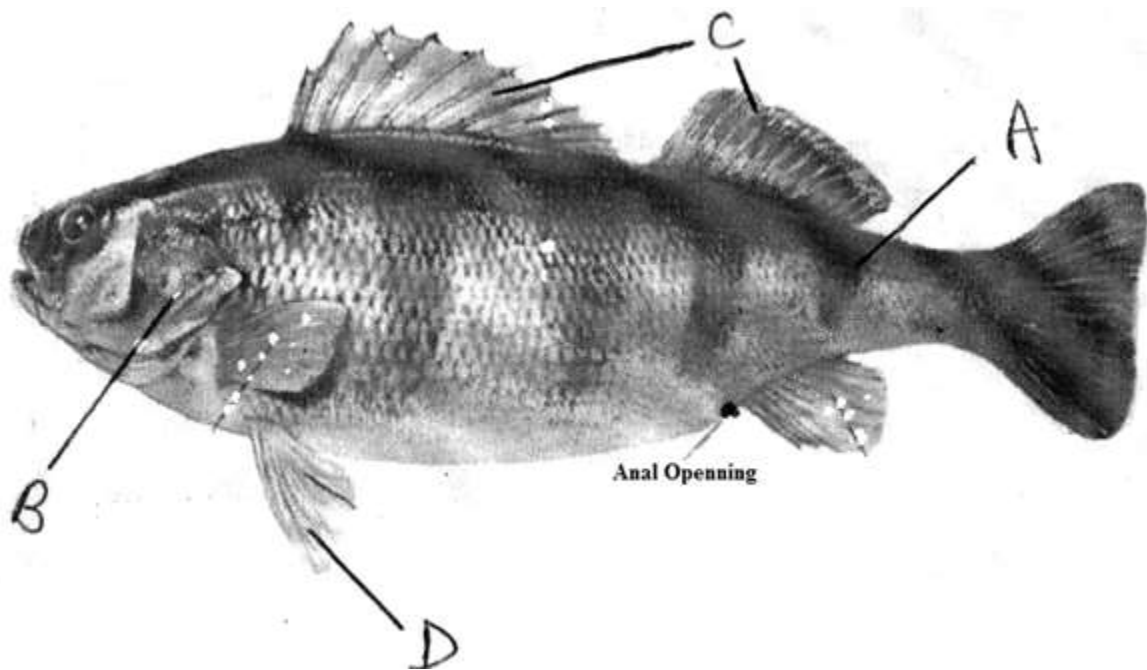
Crush the solid M on a piece of paper. Dissolve the powder in a 50ml of distilled water. Shake the mixture well.

a) Using the reagents provided, test the food – substances in the solution.  
(9mks)

Food substance	Procedure	Observation	Conclusion

b) State the importance of each of the food substance present in solution L, to the human body.  
(2mks)

2. Study the photograph shown below, and use it to answer the questions that follow.



a) i) Name the phylum to which the specimen belongs. (1mk)

ii) With a reason state the class to which the organism belongs.

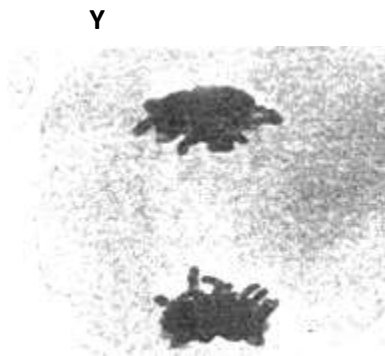
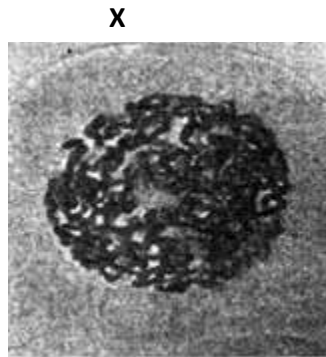
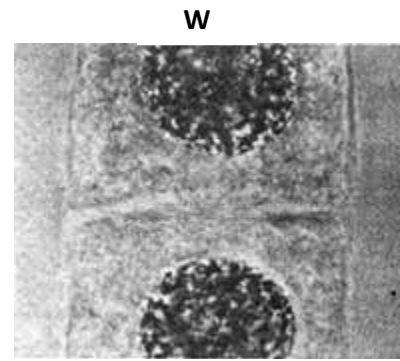
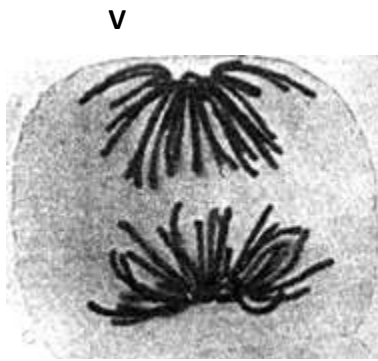
Class (1mk)

Reason (1mk)

b) What term is used to describe the shape of the specimen? (1mk)

- c) i) Name the parts labelled A and B. (2mks)
- A**
- B**
- ii) State the functions of part C and D. (2mks)
- C**
- D**
- d) From the photograph, state **three** features that adapt the organism for movement in water. (3mks)
- i)
- ii)
- iii)
- e) Measure in millimeters the length of the:
- i) Specimen from the tip of the mouth to the tip of the tail.  
Length ..... mm (1mk)
- ii) Tail from the anus to the tip of the nail.  
Length ..... mm (1mk)
- iii) Using the measurement in d (i) and (ii) above, calculate the tail power. (2mks)
- f) The length of the actual fish from which the photograph was obtained measured 20cm. Calculate the magnification of the photograph. (2mks)

3. The micrograph below shows stages in a type of cell-division that occurs in organisms.



a) State the type of cell-division. (1mk)

b) Identify the stages indicated by letter:- (4mks)

- V .....
- X .....
- Y .....
- Z .....

- c) Name the type of cells in which the above process occurs. (1mk)
- d) State two significance of this type of cell-division. (2mks)
- e) From the micrograph, suggest with reason (s) whether the cell-division shown occurred in plants or animals. (2mks)
- f) Name two cellular activities that occurs in stage labelled W. (3mks)

# **BIOLOGY PRACTICAL**

## **PAPER 3**

**231/3**

**MARKING SCHEME**

Food Substance	Procedure	Observation	Conclusion
Starch	Add 2 drops of iodine solution to the food – substanceM;	No colour change/iodine colour remains the same	Starch absent
Reducing – sugar Re; Simple – sugar, mono saccharide	- Add 2mls of Benedict’s solution to the food – substanceM; Heat/Boil/Warm in a <u>hot</u> water bath;	Colour change to yellow then to orange.  Acc. Yellow or orange.	Reducing – sugar present
Vitamin C/Ascorbic acid	- Put 2mls DCPIP solution in a test – tube.  - Add solution M dropwise; (and shake)	Colour changes from blue to colourless/decolourisation occurs;	Vitamin C/Ascorbic acid present;

(9mks)

Reducing sugar - It is oxidized in the cell to release energy/source of energy;

Vitamin C - For protection against infection/offers resistance to infection.

- Used in formation of collagen, cement of teeth, connective tissues of blood.

(2mks)

2. a) i) Chordata (1mk)

ii) Class: Pisces (1mk)

Reason: Presence of fins/gills/operculum/lateral line

Rej; Scales (1mk)

b) Streamlined; (1mk)

c) i) A Lateral line; Rej:- lateral or line alone  
B Operculum; Rej:- Gill – cover (2mks)

ii) C Prevents rolling and yawing; (1mk)

D Balance/braking/steering; (1mk)

d) - Presence of fins;  
- Presence of scales overlapping backwards;  
- Streamlined body; (3mks)

Rej; Lateral line, gills, mucous covering the scales.



- e) i) 139mm + 1mm (1mk)  
-
- ii) 45mm + 1mm (1mk)  
- 1mm (1mk)
- ii)  $45/130 \times 100; = 34.62\%$  ; (2mks)
- f) Magnification =  $\frac{\text{Length of drawing}}{\text{Length of Actual}} = \frac{130}{200} = \times 0.65$
3. a) Mitosis/Mitotic cell division; (1mk)
- b) V Anaphase/late phase; (1mk)  
X Prophase; (1mk)  
Y Telophase (1mk)  
Z Metaphase (1mk)
- c) Somatic/body cells; (1mk)
- d) - Growth and development;  
- Forms the basis of asexual reproduction.  
- ensures chromosome numbers and genetic constitution of the daughter cell is the same as that of the parent; (2mks)
- e) Plants; (1mk)  
Reason: Formation of middle lamella separating two daughter cells;  
Accept Lack of centrioles. (1mk)
- f) - Replications of chromosome;  
- Synthesis of new organelles;  
- Synthesis of energy/Building up of (ATP) energy. (3mks)