5.3.3 Biology Paper 3 (231/3)

1. (a) (i) Sternum; (1 mark)

(ii) The internal intercostal muscles relax; pulling the ribs upwards; and outwards;
This increases the volume of the rib cage while pressure decreases;
Forcing air into the lungs;
(5 marks)

(b) (i) Anterior/dorsal view; (1 mark)

(ii) Name - Neural canal; (1 mark)

Function - Passage of the spinal cord. (1 mark)

(iii) **V**: It is thick and solid; for bearing the weight of the body (back) (2 marks)

S: It is long; to provide a large surface area for attachment of muscles;
(2 marks)

(c) (i) Image width = 9.8 cm;

(ii) Magnification = $\frac{\text{Image length / width}}{\text{Actual length / width}}$;

$= \frac{9.8 \pm 0.1}{4.6 \pm 0.1}$

Mg = × $\frac{2.13}{}$;

(iii) Actual length AB = $\frac{10.4 \pm 0.1}{2.13}$;

= 4.8826 cm ;

(5 marks)

2.

Food Substance Tested	Procedure	Observation	Conclusion
1. Reducing sugars	• Put 2 cm^3 of C in a test tube; • Add equal volume of Benedict's Solution. • Put in a hot water bath/heat/ warm/boil;	No colour change/ blue colour remains/ colour of Benedict's solution remains/ persists;	Reducing sugars absent;
2. Reducing sugar	• Put 2 cm^3 of C in a test tube; • Add a few drops of dilute hydrochloric acid. • Place the test tube in a hot water bath for 3 minutes; • Remove the test tube and cool in cold water. • Add $(NaH)_2CO_3$ drop by drop until fizzing stops • Add 2 cm^3 of Benedict's Solution. • Place the test tube in a hot water bath/heat/warm/boil;	Colour changes to green / yellow / orange / brown;	Reducing sugars present;
3. Proteins	• Put 2 cm^3 of C in a test tube; • Add an equal amount of sodium hydroxide solution and shake. • Add copper sulphate drop by drop, shaking well after each addition;	Colour changes to purple/violet/mauve;	Proteins present;

3.

1.	(a)	Simple leaves	go to 2;
	(b)	Compound leaves	go to 4;
2.	(a)	Leaves net-veined/reticulate	go to 3;
	(b)	Leaves parallel veined	*Commelinaceae*;
3.	(a)	Leaves with serrated margins	*Malvaceae*;
	(b)	Leaves with smooth (entire) margins	*Nystaginaceae*;
4.	(a)	Leaves opposite	go to 5;
	(b)	Leaves alternate	*Bignoniceae*;
5.	(a)	Leaves pinnate	*Papilionaceae*;
	(b)	Leaves trifoliate	*Compositae*;

(10 marks)