PAG 2 Dissection: OCR A Level Biology Exam Questions by Topic

9 questions · 19 marks · about 23 minutes. Answer in the spaces, then check the mark schemes at the end.

Question 1 · A level Paper 3 · June 2024 · Q3(b)(i) · 2 marks

(b) A pair of students dissect the vascular tissue of the primrose plant, *Primula vulgaris*.

(i) State **and** explain **one** safety precaution that the students should take when dissecting the vascular tissue.

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.....

.....

..... **[2]**

Question 2 · AS Paper 2 · June 2017 · Q2(a) · 2 marks

2 **(a)** A group of students wanted to observe the position of xylem vessels in the leaf stalks (petioles) of celery.

Describe a procedure they could use to do this.

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.....

.....

..... **[2]**

Question 3 · AS Paper 2 · June 2017 · Q3(a) · 2 marks

3 Bony fish and insects have different gas exchange systems. Both can be observed by dissection.

(a) Describe how you would carry out the dissection to display maximum detail of either gas exchange system.

.....

.....

..... **[2]**

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Question 4 · A level Paper 3 · November 2021 · Q1(b)(ii) · 1 mark

(ii) A student described how they dissected a fish to view the gills:

'I held the fish on a cutting board with one hand. I used scissors and a scalpel to carefully cut from the mouth to the tail, down the ventral side of the fish. I was able to split the fish into two halves and view the gills on the inside of the mouth.'

Suggest **one** improvement to the student's method that would allow them to observe the gills more easily.

.....

.....

..... **[1]**

Question 5 · AS Paper 2 · November 2021 · Q2(b)(i) · 2 marks

(b) A group of students were examining a mammalian heart prior to dissection. The atria and ventricles were clearly visible.

(i) Name **two** arteries that could be seen by the students.

1 .....

2 .....

[2]

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Question 6 · information from earlier in the question

(ii) The students then carried out a dissection of the heart. **Fig. 2.2** is an example of a drawing from one of the students.

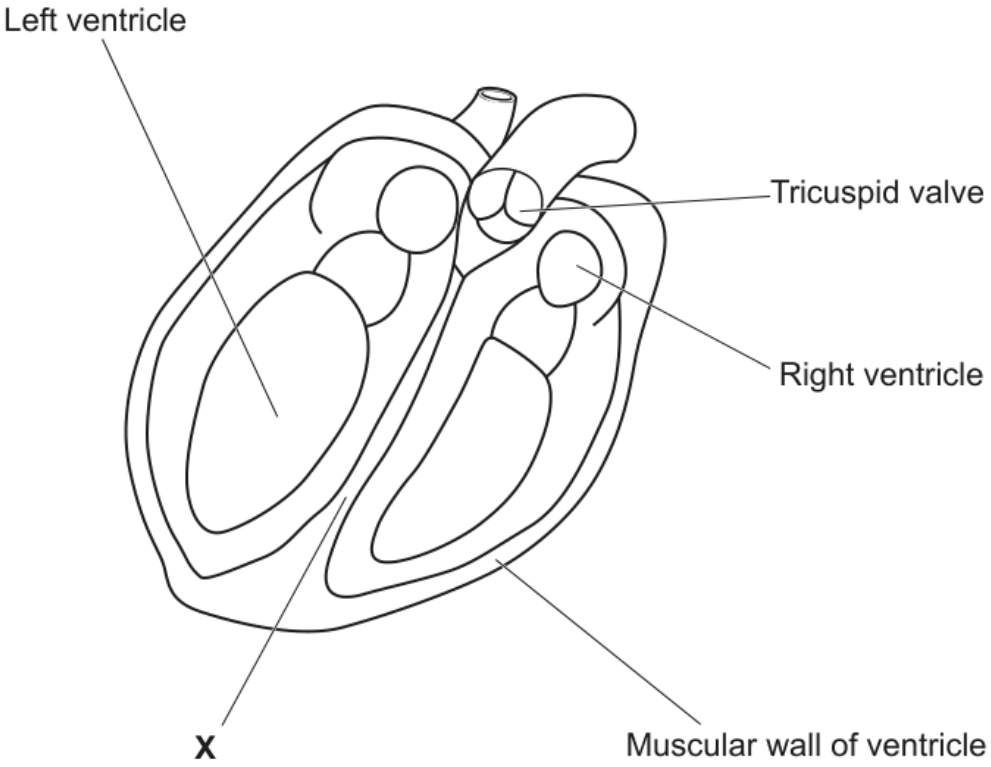


Fig. 2.2

Name the structure labelled **X** on **Fig. 2.2**.

..... **[1]**

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(iii) Another student pointed out that there were structural and labelling errors in the drawing in **Fig. 2.2**.

In the space below, list **three** of these errors **and** the correction you would make.

Biological drawing errors are not required.

Error and correction 1

.....

.....

.....

Error and correction 2

.....

.....

.....

Error and correction 3

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.....

.....

[3]

Turn over

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Question 7 · A level Paper 1 · June 2017 · Q16(d) · 2 marks

(d) A student planned to carry out a dissection of insect and fish gaseous exchange systems.

The student planned to complete diagrams of the different tissues. They were advised to observe the following guidelines:

- use a sharp pencil
- use ruled label lines
- include a scale bar.

Suggest **two** further guidelines for the student to follow to ensure they present their diagrams clearly and accurately.

1 .....

.....

.....

2 .....

.....

..... **[2]**

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Question 8 · A level Paper 3 · November 2020 · Q1(a) · 2 marks

1 (a) A student dissected a kidney. Fig. 1.1 shows one half of the dissected kidney.



Fig. 1.1

Draw a simple diagram of the kidney in Fig. 1.1 in the space below.

On your diagram, label the pelvis, medulla and cortex.

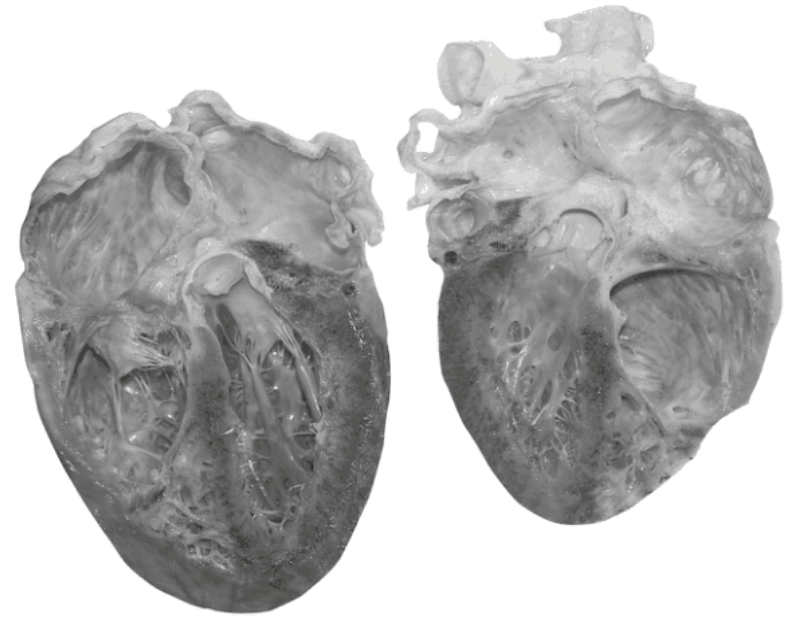
[2]

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Question 9 · AS Paper 1 · June 2023 · Q26(a) · 3 marks

26 (a) **Fig. 26.1** shows a dissected human heart.

Fig. 26.1



Draw a simple diagram of the front half of the heart shown in **Fig. 26.1** in the space below.

On your diagram, label the left ventricle.

[3]

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Mark schemes

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Question 1 · A level Paper 3 · June 2024 · Q3(b)(i) · 2 marks

3	(b)	(i)	*Safety precaution* cut away from the body **OR** *idea that* only one person at a time should work on the specimen **OR** use sharp, scalpel / scissors / knife / razor blade ✓ *Explanation* to avoid cuts / AW ✓ *Safety precaution* wash specimen / wash hands / wear gloves ✓ *Explanation* to avoid, infection (with plant pathogens) / allergic reaction / AW ✓

Question	Answer
2 max	**Explanation mark can only be awarded if linked to relevant idea of safety precaution** *Examples 'be careful when using, a scalpel / sharp instruments, to avoid cutting yourself = 1 mark (no precaution but has explanation) 'wear goggles to prevent plant sap going into your eye' = 2 marks (safety precaution and explanation)* **IGNORE** 'be careful when using a scalpel' / 'take care when using sharp instruments' **ALLOW** 'take care when using a sharp, scalpel / scissors / knife / razor blade' **ALLOW** use forceps to hold plant tissue / use of, dissection board / glass tile / slate e.g. to avoid penetrating the skin' / 'to avoid stabbing, yourself / someone else' **ALLOW** wear eye protection
Mark	**Guidance**

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Question 2 · AS Paper 2 · June 2017 · Q2(a) · 2 marks

Question			Answer	Mark
2	(a)		**D1** put , (leaf) stalk(s) / petiole(s) , in , dye / stain / food colouring ✓ **D2** (then) cut , transversely / cross section ✓ **OR** **M1** cut a (thin) , transverse / cross , section ✓ **M2** (then) add (named) stain / observe with microscope under low power ✓	2

Guidance

IGNORE any observations

D1 ACCEPT 'stick' for 'stalk'

D2 ACCEPT cut across , (leaf) stalk / petiole (with a sharp blade)
a longitudinal , cut / section
IGNORE cut in half
IGNORE

M1 ACCEPT cut a (thin) slice of (leaf) stalk / petiole (with a sharp blade)
a longitudinal , cut / section
IGNORE cut in half
IGNORE

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Question 3 · AS Paper 2 · June 2017 · Q3(a) · 2 marks

3	(a)	removal of <u>operculum</u> (of fish) / move <u>operculum</u> out of the way / cut open <u>exoskeleton</u> (of insect) ✓ method to , observe / display , gills / tracheae / tracheoles ✓

2	**ACCEPT** any suitable detail of display method e.g. observe structures under water placing a rod/pencil into buccal cavity to display lamellae staining tracheoles with methylene blue

Question 4 · A level Paper 3 · November 2021 · Q1(b)(ii) · 1 mark

ii	remove operculum / described (rather than cutting up the ventral side) ✓ use pins to hold fish (rather than a hand) ✓ remove gills and observe under a microscope ✓

1 max	3.3	**IGNORE** 'remove gills' unqualified **IGNORE** 'use a microscope' unqualified

Question 5 · AS Paper 2 · November 2021 · Q2(b)(i) · 2 marks

2	(b)	(i)	*any two from:*	**2 max**	AO1.1
			aorta ✓ pulmonary (artery) ✓ coronary (artery / arteries) ✓		

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Question 6 · AS Paper 2 · November 2021 · Q2(b)(iii) · 3 marks

2 (b)	**(iii)**	*any three from:* left ventricle wall should be thicker than right (not same) ✓ label 'right ventricle' should be (left / right) atrium ✓ label 'tricuspid valve' should be semi-lunar valve ✓ idea that drawing is wrong way round so left ventricle should be on the right side of the page ✓	**3 max**

AO3.4	**IGNORE** drawing quality errors **IGNORE** structures omitted from drawing **ALLOW** RV should be at correct label location described **ALLOW** tricuspid valve should be at correct label location described **DO NOT ALLOW** left and right ventricles should be switched **ALLOW** LV should be labelled RV

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Question 7 · A level Paper 1 · June 2017 · Q16(d) · 2 marks

16	(d)			
		1	large size / at least 50% of available space ✓	
		2	title / heading ✓	
		3	labels outside diagram ✓	
		4	label lines should not cross over others ✓	
		5	continuous lines ✓	
		6	no shading ✓	
		7	use plain paper ✓	
		8	state magnification ✓	
		9	correct proportions ✓	
				Total

2 max	***IGNORE*** *numbered lines and mark as prose* ***IGNORE*** *references to detail of diagram* **ALLOW once only** no , sketching / feathering for **either** mp5 **or** mp6
10	

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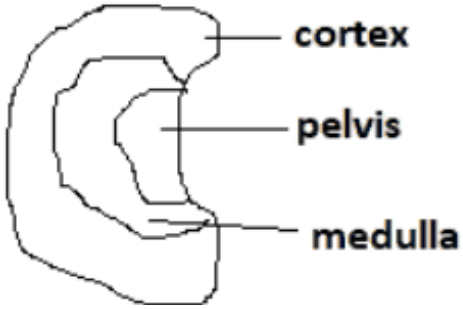
Question 8 · A level Paper 3 · November 2020 · Q1(a) · 2 marks

1	a	line drawing with clear continuous lines ✓ pelvis, medulla and cortex correctly labelled ✓	2	1.1 2.3

ALLOW a variety of shapes and sizes for the cortex medulla and pelvis (but they must be in the correct positions and clear)
ALLOW any orientation of drawing e.g. pelvis on the left
DO NOT ALLOW incomplete, overlapping or sketched lines
DO NOT ALLOW shading or cross-hatching
DO NOT ALLOW ureter or blood vessels shown

DO NOT ALLOW if label lines incorrectly drawn (e.g. not straight or have arrowheads) or do not start exactly at the structure being labelled

e.g. 2 marks for the answer below:



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Question 9 · AS Paper 1 · June 2023 · Q26(a) · 3 marks

26	(a)		3

simple line drawing of the heart with continuous and non-overlapping lines ✓

no shading **and** covers at least half the box ✓

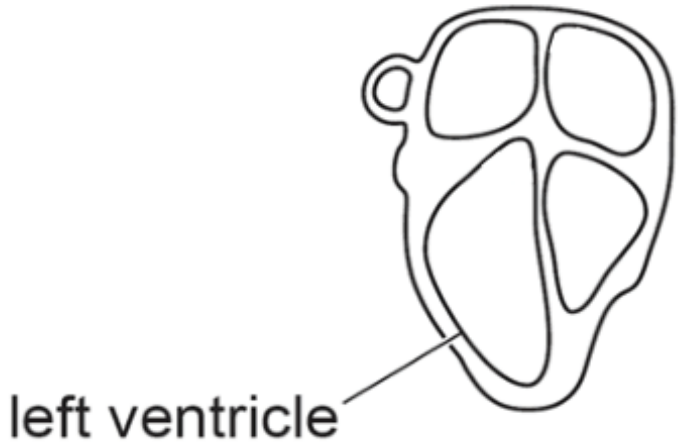
left ventricle labelled (left bottom chamber) ✓

Place three annotations in vertical column to left hand side of the diagram in order of marks in mark scheme

Note diagram should be at least half the vertical size of the space provided
IGNORE absence of the blood vessels shown in the photograph

DO NOT ALLOW if label line is not ruled or has arrowhead

e.g. 3 marks for this:



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