

P530/2
BIOLOGY
Paper 2
July / August
2½ Hours



ELITE EXAMINATION BUREAU MOCK 2019

Uganda Advanced Certificate of Education

BIOLOGY

(Theory)

Paper 2

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

- Answer question **one** in Section **A** plus **three** others from Section **B**.
- You are advised to read the questions carefully, organize your answers and present them precisely and logically, illustrating with well labeled diagrams wherever necessary.
- Any extra questions answered will lead to loss of marks.

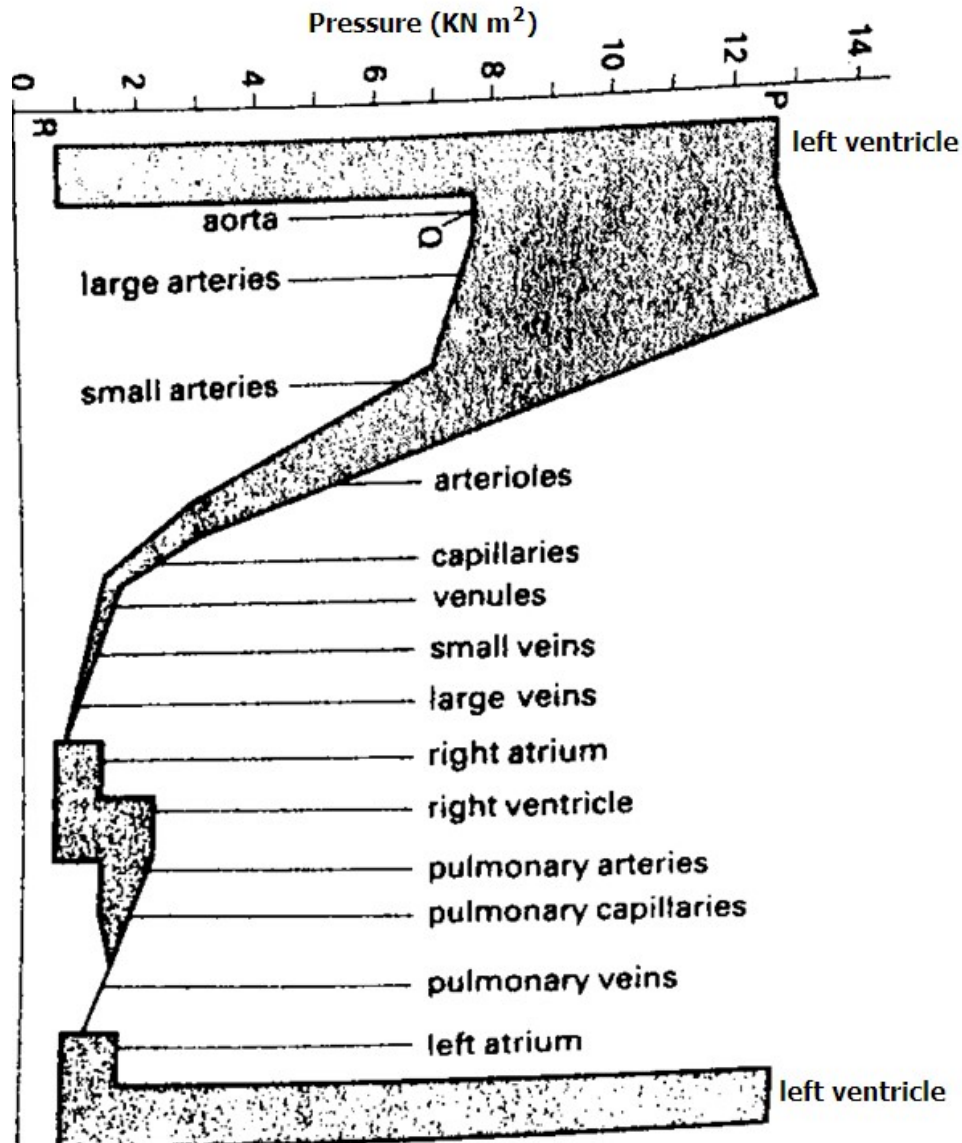
FOR EXAMINER'S USE ONLY

QUESTION	MARKS	EXAMINER'S INITIALS
1. SECTION A (40Marks)		
2. (20 marks)		
3. (20 marks)		
4. (20 marks)		
5. (20 marks)		
6. (20 marks)		
TOTAL		

Turn Over

SECTION A (40 MARKS)

1. The mammalian cardiac cycle involves a series of volume and pressure changes. Different parts of the mammalian circulatory system have different pressures. Figure 1 below indicates the variations in pressure in different parts of the human circulatory system.



- With reason state which part of the circulation shows the greatest fluctuations in pressure? (4 marks)
- Which parts show no fluctuations? Explain. (4 marks)
- With reason state which part of the circulation always maintains a pressure above 7.5 kN m^{-2} (4 mark)
- Describe the factors which exert the pressures evident at i) P (4 marks)
 ii) Q (4 marks)
 iii) R (4 marks)
- Suggest the sector of the circulation which offers the greatest resistance to the flow of blood. How is this indicated by the diagram? (3 marks)

- f) Blood flow in the main veins is under relatively low pressure. Describe how the return of blood to the heart is maintained (3 marks)
- g) Account for the different ranges of pressure in the pulmonary and systemic circulations. What are the advantages to the mammal in having a double circulatory system? (5 marks)
- h) Describe the structural and physiological features of cardiac muscle which distinguish it from skeletal muscle (4marks)
- i) Explain what would be observed in the pressure of the left ventricle if the person went for a 100m race. (5 marks)

SECTION B

2.
 - a) What is meant by mutual inhibition? (3 marks)
 - b) Explain the importance of mutual inhibition in vision (4 marks)
 - c) Using a named example, explain what is meant by summation. (6 marks)
 - d) Explain the importance of retinal convergence in vision (6 marks)
3.
 - a) By means of an annotated diagram, describe how gaseous exchange occurs in a protist such as amoeba (6 marks)
 - b) Describe the nervous control of breathing in a mammal (14 marks)
4.
 - a) Explain what is meant by geographical distribution. (2 marks)
 - b) Explain why **North America** and **Eurasia** have similar fauna yet Africa, South America and Australia have markedly different mammalian genera and species despite being with similar climatic conditions and on the same latitude. (14 marks)
 - c) How does the fossil theory of the ancient Reptile **Mesosaurus** give evidence to continental drift? (4marks)
5.
 - (a) Describe the process of alternation of generations in a named bryophyte. (16 marks)
 - (b) Explain the significance of the gametophyte generation in the bryophyte named in (a) above. (04 marks)
6.
 - a) The Hatch slack path way is an efficient carbon dioxide fixation mechanism. Explain why not all plants use it to fix carbon dioxide? (6 marks)
 - b) Explain why the photosynthetic efficiency of C4 plants is higher than that of C3 plants (8 marks)
 - c) Account for the mechanism of carbondioxide fixation in CAM plants. (6 marks)

END