NAME: ……..... **SIGNATURE: …….**

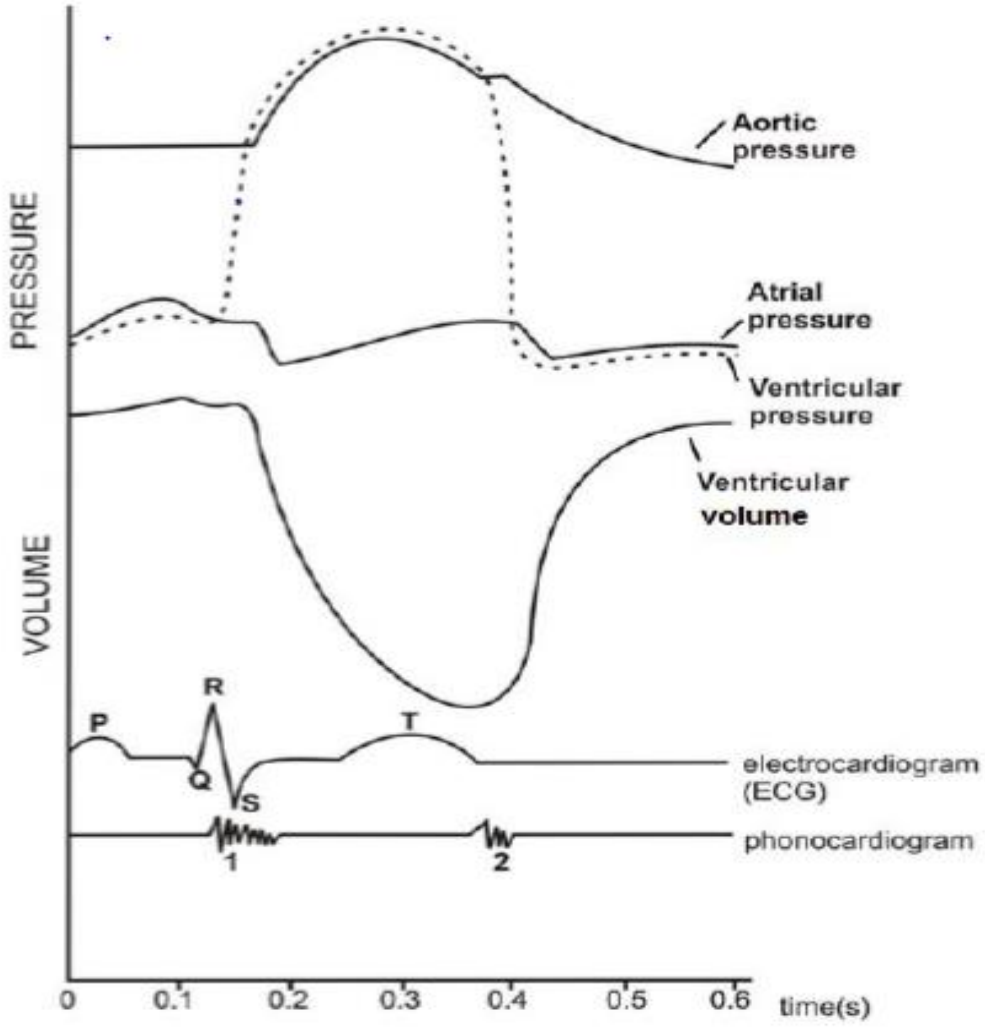
S.6 BIOLOGY OCTOBER ASSESSMENT TEST

TIME: 60 MINUTES INSTRUCTIONS: Attempt only question no. 1

SECTION A (40 MARKS)

1. The figure below shows the pressure and volume changes that occur during the mammalian cardiac cycle (of a dog). The pressure changes were measured in the left atrium and ventricles, and the aorta. Volume changes were measured for both ventricles.

   The electrical activity in the heart wall (electrocardiogram) and heart sounds (phonocardiogram) as recorded in a human subject are also shown.



(a) Calculate the rate of heart beat of the mammal from which the results were obtained **(03 marks)**

(b) Describe the change in:

(i) Atrial pressure **(07 marks)**

(ii) Ventricular pressure **(07 marks)**

(c) What are the differences in the changes in the ventricular pressure and ventricular volume between 0.1 seconds and 0.5 seconds? **(03 marks)**

(d) Explain the effect of the changes in atrial, aortic and ventricular pressures to blood flow during the cardiac cycle **(15 marks)**

(e) Explain the pattern of:

(i) Electrical activity **(03 marks)**

(ii) Sounds on the phonocardiogram. **(03 marks)**

(f) Explain how the internal heart structure is related to its functioning. **(03marks)**

SECTION B (60 MARKS)

2. (a) Describe the structure of guard cells in a plant leaf. (6 marks)

   (b) Explain how stomatal opening occurs according to

   (i) Starch sugar interconversion (08 marks)

   (ii). Photosynthetic theory (06 marks)

3. (a) Describe the relationship between organism in the lichen. (06 marks)

   (b) Compare mutualism and parasitism (07 marks)

   (c) Explain how termites are able to feed on wood (07marks)

4. (a) Differentiate between aerobic and anaerobic respiration. (05 marks)

   (b) Describe what happens to the end product of glycolysis in absence of oxygen. (10 marks)

   (c). Why is it important to produce ATP during cellular respiration (05 marks)

5. (a) outline the functions of a cell nucleus (2 marks)

   (b) Explain the changes that occur in a nucleus during meiosis (13 marks)

   (c) Explain the significance of mitosis and meiosis in organisms. (5 marks)

6. (a) Give the differences between fibrous and globular proteins. (04 marks)

   (b) With examples, explain the factors causing protein denaturation. (12 marks)

   (c) Give four differences between polysaccharide and polypeptide chains. (04 marks)

END

It's your time to change your future.