සියලු ම හිමිකම් ඇවිරිණි/முழுப் பதிப்புரிமையுடையது/All Rights Reserved]

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரீட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka
ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
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අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2018 අගෝස්තු
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர)ப் பரீட்சை, 2018 ஓகஸ்ற்
General Certificate of Education (Adv. Level) Examination, August 2018

ජීව විද්‍යාව II உயிரியல் II **Biology II**	**09 E II**	**07.08.2018 / 1300 – 1610**

පැය තුනයි
மூன்று மணித்தியாலம்
Three hours

අමතර කියවීම් කාලය - මිනිත්තු 10 යි
மேலதிக வாசிப்பு நேரம் - 10 நிமிடங்கள்
Additional Reading Time - 10 minutes

Use **additional reading time** to go through the question paper, select the questions and decide on the questions that you give priority in answering.

Index No. : .....

Instructions:

* *This question paper consists of* **10** *questions in* **9** *pages.*
* *This question paper comprises Part* **A** *and Part* **B.** *The time allotted for* ***both parts*** *is* ***three hours.***

PART A — Structured Essay (Pages 2 - 8)

* *Answer* ***all four*** *questions on this paper itself.*
* *Write your answers in the space provided for each question. Note that the space provided is sufficient for your answers and extensive answers are not expected.*

PART B — Essay (Page 9)

* *Answer* ***four*** *questions only. Use the papers supplied for this purpose. At the end of the time allotted for this paper, before handing over to the supervisor tie the two parts together so that Part* **A** *is on the top of Part* **B.**
* *You are permitted to remove only Part* **B** *of the question paper from the examination hall.*

For Examiners' Use Only

Part	Question No.	Marks
A	1	
	2	
	3	
	4	
B	5	
	6	
	7	
	8	
	9	
	10	
Total		
Percentage		

Final Marks

In Numbers	
In Letters	

Code Numbers

Marking Examiner 1	
Marking Examiner 2	
Marks checked by :	
Supervised by :	

[see page two

Part A - Structured Essay

*Answer **all** questions on **this paper itself**.*

*(Each question carries **10** marks.)*

Do not write in this column

1. (A) (i) Following are some of the characteristics seen in living organisms. Explain what is meant by each of these characteristics.

(a) Growth

.....

.....

(b) Development

.....

.....

(c) Reproduction

.....

.....

(ii) There are four main types of organic compounds found in organisms. State the mostly found main type of organic compound in each of the following.

(a) Egg white: .....

(b) Coconut milk: .....

(c) Primary cell walls: .....

(d) Arthropod exoskeleton: .....

(iii) Name a laboratory test used to identify the following.

(a) Main type of organic compound found in egg white

.....

(b) Main type of organic compound found in coconut milk

.....

(c) Main storage substance of Chlorophyta

.....

(d) Reducing sugars .....

(B) (i) Name **four** monosaccharides according to the number of carbon atoms and give an example for each of them.

	Monosaccharide	**Example**
(a)	.....	.....
(b)	.....	.....
(c)	.....	.....
(d)	.....	.....

(ii) What is a disaccharide?

.....

.....

[see page three

Do not write in this column

(iii) (a) State the common characteristic of all monosaccharides and some disaccharides.

.....

(b) Describe a simple laboratory test used to identify sugars with the characteristic stated as the answer for (iii) (a) above.

.....

.....

.....

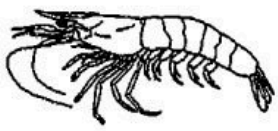
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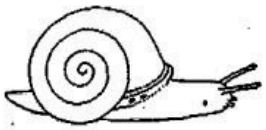
(C) (i) State the generic names of **two** homosporous, seedless plants with vascular tissues.

.....

(ii)



(a)



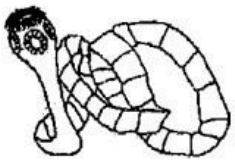
(b)



(c)



(d)



(e)



(f)

Complete the following dichotomous key using appropriate numbers and letters to distinguish the animals shown in the diagrams (a)-(f) above.

(1) Tentacles present .....

Tentacles absent .....

(2) Suckers present .....

Suckers absent .....

(3) Hooks present .....

Hooks absent .....

(4) Segmented body .....

Unsegmented body .....

(5) Large foot present .....

Large foot absent .....

(iii) Structures known as pedicellaria are present in some echinoderms such as starfishes. Draw the external appearance of a pedicellaria.

(iv) Name **two** classes of phylum Echinodermata that do **not** have pedicellaria.

.....

[see page four

Do not write in this column

2. (A) (i) Name a class which has animals with an incomplete alimentary canal other than coelenterates and flat worms.

.....

(ii) (a) What is radula?

.....

.....

(b) What is the use of radula?

.....

(iii) (a) Why are some plants insectivorous?

.....

(b) State the generic name of an insectivorous aquatic plant. .....

(iv) (a) Write in correct order, the passage of air from outside to alveoli in man.

.....

.....

(b) What is the role of goblet cells present in human respiratory tract?

.....

(v) (a) What is respiratory cycle?

.....

.....

(b) What is the volume of air that enters the respiratory system during one normal respiratory cycle of a healthy adult man at rest? .....

(B) (i) (a) What is meant by ultrafiltration that takes place during urine formation?

.....

.....

(b) Name an ion that is secreted into the lumen of human nephron.

.....

(ii) State **three** functions of human kidney other than urine formation.

.....

.....

.....

(iii) Name the skin receptors involved in thermoregulation in man.

.....

.....

.....

(iv) (a) What is the functional unit of human liver? .....

(b) State **four** homeostatic functions of human liver.

.....

.....

.....

.....

[see page five

Do not write in this column

(v) (a) What are the **three** factors that contribute to the resting membrane potential of neurones?

.....

.....

.....

(b) Which lobe of the human cerebrum controls muscle movement needed for speech?

.....

(C) (i) (a) What is a hormone?

.....

.....

.....

(b) Where does ADH act on the kidney tubules of man?

.....

(ii) State **two** main differences between nervous coordination and endocrine coordination.

.....

.....

(iii) (a) Briefly describe what are known as sinuses located in some bones of the human skeleton.

.....

.....

(b) Name a bone that contains sinuses but does not take part in the formation of human cranium. .....

(iv) State **two** functions of sinuses.

.....

.....

(v) Name the **two** processes found in human mandible and state the function of each of them.

Process	**Function**
.....	.....
.....	.....

—

3. (A) (i) State the location of the pacemaker in the human heart.

.....

(ii) Name the arteries that arise first from the aorta and state the structure to which they supply blood.

Arteries	**Structure**
.....	.....

(iii) State how blood circulatory system contributes to maintain constant body temperature in man.

.....

.....

.....

.....

[see page six

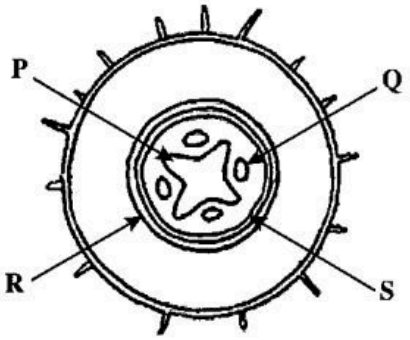
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(iv) Considering the ABO blood groups and Rh factor, state the blood groups of the following persons.

Universal donor .....

Universal recipient .....

(B)



(i) Identify the structure shown in the above diagram.

.....

(ii) (a) Name the tissues labelled as **P**, **Q**, **R** and **S** in the above diagram.

P ..... **Q** .....

R ..... **S** .....

(b) What is the tissue of the above diagram that appears in red when stained with safranine?

.....

(iii) Draw and label a few cells of tissue **R** when it is at matured stage.

(iv) What are the features of gymnosperms that enable them to be more successful on terrestrial habitats than bryophytes?

.....

.....

.....

.....

.....

(v) State **three** uses of plant tissue culture other than the propagation of plants with desired characteristics.

.....

.....

.....

(C) (i) What is the main purpose of examining a bacteria smear stained with methylene blue under the high power of a light microscope.

.....

[see page seven

Do not write in this column

(ii) (a) Name the forms of arrangement of cells of cocci shown in the diagrams **A – D** given below.



A ..... **B** .....

C ..... **D** .....

(b) What are the **two** types of arrangement of cells of bacilli?

.....

(iii) (a) What are prions?

.....

(b) How could prions be transmitted from human to human?

.....

.....

(iv) Some microorganisms in the normal microbiota of humans may become pathogenic when general resistance of the body is lowered. How are these microorganisms called?

.....

(v) Give **four** reasons for lowering the general resistance of the human body against microbial infections.

.....

.....

.....

.....

4. (A) (i) (a) What is placenta?

.....

.....

.....

(b) What is the type of placenta found in humans?

.....

(ii) (a) Name a material that passes from mother to foetus and from foetus to mother through placenta. .....

(b) Name a virus that can pass from mother to foetus through placenta.

.....

(iii) (a) Name a hormone secreted only by the human placenta.

.....

(b) State **two** functions of placenta other than hormone secretion and exchange of material between mother and foetus.

.....

.....

(iv) (a) What is lactation?

.....

(b) Name **two** hormones that are directly involved in lactation.

.....

[see page eight

(v) What is the reason for menopause?

.....

(B) (i) Where does oxidative phosphorylation take place in an eukaryotic cell?

.....

(ii) State the events that take place during oxidative phosphorylation in an eukaryotic cell.

.....

.....

.....

.....

.....

(iii) Name **three** enzymes involved in DNA replication and state one function of each of them.

Enzyme	**Function**
.....	.....
.....	.....
.....	.....

(iv) State **three** traits introduced to agricultural crops by genetic modification for crop protection.

.....

.....

.....

(C) (i) Why is it important to study environmental science?

.....

.....

.....

.....

.....

.....

(ii) What is *in-situ* conservation?

.....

.....

(iii) State **three** methods of *in-situ* conservation other than establishing national reserves.

.....

.....

.....

(iv) What is Ramsar convention?

.....

.....

.....

(v) Name **two** Ramsar sites located in the north-west of Sri Lanka.

.....

.....

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இலங்கைப் பரீட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka

අධ්‍යයන පොදු සහතික පත්‍ර (උසස් පෙළ) විභාගය, 2018 අගෝස්තු
கல்விப் பொதுத் தராதர பத்திர (உயர் தர)ப் பரீட்சை, 2018 ஓகஸ்ற்
General Certificate of Education (Adv. Level) Examination, August 2018

ජීව විද්‍යාව	II
உயிரியல்	II
Biology	**II**

09 E II

Part B - Essay

Instructions:

- *Answer four questions only.*
  Give clear labelled diagrams where necessary.
  (Each question carries **15** *marks.)*

5. (a) Describe the structure of plasma membrane.
   (b) Explain how a nerve impulse is generated in the plasma membrane of an axon and how it is conducted along a non-myelinated axon.

6. (a) Describe advantages and disadvantages of sexual and asexual reproduction in plants.
   (b) Explain alternation of generation with respect to plants.

7. (a) Discuss the importance of microorganisms in human health.
   (b) Describe the economic importance of fungi.

8. (a) Briefly describe the diversity of nutrition seen among protists.
   (b) Describe the gross structure of human stomach.

9. (a) Describe the Hardy-Weinberg equilibrium.
   (b) (i) Describe how blood groups are inherited to the children of a mother having blood group AB and a father having blood group A.
   (ii) Explain how the inheritance of ABO blood groups differs from Mendelian inheritance.

10. Write short notes on the following.
    (a) Lymphatic system of man
    (b) Sliding filament theory of muscle contraction
    (c) Ozone layer depletion

* * *