



# INTI International College Penang

FINAL  
Examination Paper

(COVER PAGE)

Session : August 2018

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Programme : Foundation In Science (CFSI)

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Course : **BIO1204 : BIOLOGY 2**

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Date of Examination : 13 December 2018 (Thursday)

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Time : 11:00AM – 1:00PM      Reading Time : -

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Duration : 2 Hours

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**Special Instructions** :

This paper consists of **FIVE (5)** questions. Answer any **FOUR (4)** questions in the answer booklet provided.

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Material permitted : Non-Programmable Scientific Calculator

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Materials provided : Answer Booklet

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Examiner(s) : **Ooi Saik Huey**

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Moderator : Assoc. Prof. Dr. Sreeramanan Subramaniam

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*This paper consists of 4 printed pages, including the cover page.*

INTI INTERNATIONAL COLLEGE PENANG

FOUNDATION IN SCIENCE PROGRAMME (ENGINEERING/ SCIENCE)

BIO1204: BIOLOGY 2

FINAL EXAMINATION: AUGUST 2018 SESSION

**Instructions:** This paper consists of **FIVE (5)** questions. Answer any **FOUR (4)** questions in the answer booklet provided. All questions carry equal marks.

**Question 1**

- (a) Describe the **THREE (3)** different types of muscle cells and its functions. (6 marks)
- (b) Define homeostasis and explain it by using **ONE (1)** example. (4 marks)
- (c) Describe the **FOUR (4)** functional components of saliva. (4 marks)
- (d) Explain how diet can influence the risks of cardiovascular disease and cancer. (4 marks)
- (e) Explain how heartbeats are controlled. (4 marks)
- (f) Explain how the structure of a capillary relates to its functions. (3 marks)

**Question 2**

- (a) Describe the development of B lymphocytes and T lymphocytes. (3 marks)
- (b) Describe the process of clonal selection **and** compare the functions of effector cells and memory cells. (3 marks)
- (c) List **FOUR (4)** effector mechanisms of the humoral immune system. (4 marks)
- (d) Explain how cytotoxic T cells destroy infected body cells. (3 marks)
- (e) Describe the **FOUR (4)** ways that heat is gained or lost by an animal. (4 marks)

- (f) Describe the **THREE (3)** ways that animals eliminate nitrogenous wastes **and ONE (1)** advantage of each method. (6 marks)
- (g) Explain how antidiuretic hormone contributes to homeostasis. (2 marks)

**Question 3**

- (a) List **TWO (2)** hormones produced by thyroid gland and state **TWO (2)** functions for these hormone. (4 marks)
- (b) Explain how insulin and glucagon manage blood glucose levels. (3 marks)
- (c) Describe the role of hormones in the maintenance of the human menstrual cycle. (9 marks)
- (d) Explain how an action potential is produced **and** the resting membrane potential restored. (9 marks)

**Question 4**

- (a) Describe the **THREE (3)** main types of tissue systems found in young eudicot roots, stems, and leaves. (3 marks)
- (b) Describe the parts of a flower **and** their functions. (4 marks)
- (c) Explain how guard cells control transpiration **and** describe **THREE (3)** factors that contribute to stomatal opening at dawn. (6 marks)
- (d) Explain why **and** how most plants depend on bacteria to supply nitrogen. (4 marks)
- (e) Distinguish between short-day plants **and** long-day plants. (2 marks)
- (f) Explain how plants defend themselves against herbivores. (2 marks)
- (g) List **THREE (3)** uses of plant hormones in modern agriculture **and ONE (1)** ethical issues associated with their use. (4 marks)

**Question 5**

- (a) Define population density **and** describe different types of dispersion patterns. (4 marks)
- (b) Describe and compare the exponential **and** logistic population growth models, illustrating both with examples. (4 marks)
- (c) Define interspecific competition, mutualism, predation, herbivory, and parasitism. (5 marks)
- (d) Explain how invasive species can affect communities. (2 marks)
- (e) Explain the meaning of the term biodiversity. (2 marks)
- (f) Explain the need to maintain biodiversity in an ecosystem such as a tropical rainforest. (8 marks)

**~ The End ~**  
*BIO1204(f)/august2018/*