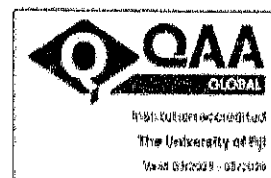


The University of Fiji

(An Entity of Arya Pratinidhi Sabha of Fiji)



School of Science and Technology

Semester 2, 2025

FINAL EXAMINATION PAPER

BIOF12: Foundation Biology II

Important Instructions to Students:

1. Read the questions, instructions carefully and answer the questions.
2. You are allowed an **extra 10 minutes reading time** (during this time, you are not allowed to write with a pen) and **180 minutes (3 Hours) to complete this paper**.
3. Silent, non-programmable calculators are allowed, but not supplied.
4. Write all your answers in the answer booklet provided. If you need extra sheets, please ask from the supervisor. Write your name, course code and student identification number in the answer booklet and in the attendance sheet.
5. This paper contains four (4) sections A, B, C and D. All questions are compulsory to answer **except** section D has choices.
6. This paper consists of four pages.
7. Write all your answers legibly. The marker has the right to award zero for answers that are not legible.
8. This is a **Closed Book Examination**. The University views plagiarism, cheating and dishonest practice as serious offences and if found, offenders are penalized.

Examination Paper Content (Format):

<u>Section</u>	<u>Question</u>	<u>Content</u>	<u>Marks</u>	<u>Suggested Time</u>
A	1-10	Multiple Choice	10	18 minutes
B	11-15	Short Answer Questions	30	54 minutes
C	16-20	Long Answer Questions	30	54 minutes
D	21-23	Essays (Choose Any TWO out of Three)	30	54 minutes
		TOTAL	100	180 Minutes

SECTION A: MULTIPLE CHOICE QUESTIONS (Q1–10)

Marks: 10 Suggested Time: 18 minutes

(Circle the correct answer in the answer grid provided. Each question = 1 mark)

1. Which organelle is responsible for producing energy in the form of ATP?
 - A. Nucleus
 - B. Ribosome
 - C. Mitochondria
 - D. Golgi apparatus
2. The plasma membrane is described as a “fluid mosaic model” because:
 - A. It is rigid and fixed
 - B. It allows all substances to pass
 - C. It is flexible and made of many components
 - D. It has only one layer of lipids
3. Ribosomes are mainly responsible for:
 - A. Energy production
 - B. Protein synthesis
 - C. Waste removal
 - D. Lipid breakdown
4. Which process moves molecules against their concentration gradient using energy?
 - A. Osmosis
 - B. Diffusion
 - C. Active transport
 - D. Facilitated diffusion
5. The light reactions of photosynthesis occur in the:
 - A. Stroma
 - B. Thylakoid membranes
 - C. Cytoplasm
 - D. Mitochondria
6. Which structure in plants transports water and minerals from roots to leaves?
 - A. Phloem
 - B. Xylem
 - C. Cambium
 - D. Cortex
7. Enzymes speed up chemical reactions by:
 - A. Increasing temperature
 - B. Lowering activation energy
 - C. Changing pH
 - D. Breaking substrates randomly

17. Photosynthesis

- Briefly explain the phenomenon of photosynthesis and write the chemical equation of this reaction. (2 marks)
- Explain two differences between photosystem 1 and 2. (4 marks)

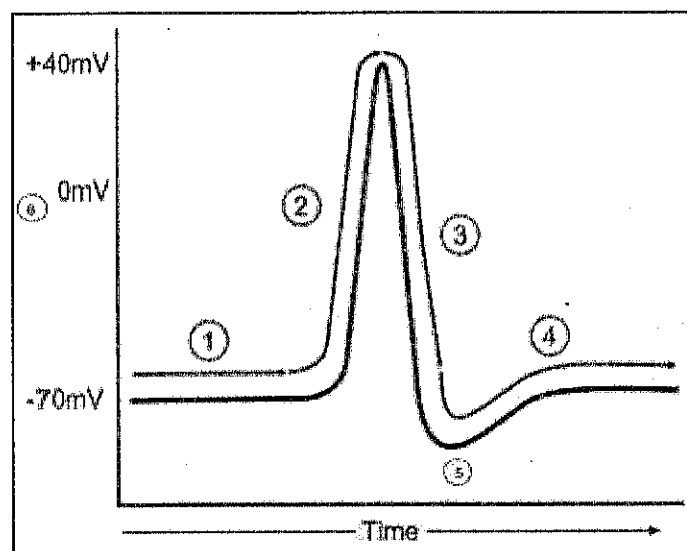
18. Endocrine System

- Explain the steps involved in the negative feedback in homeostasis in terms of controlling blood glucose levels and diabetes. (6 marks)

19. Respiratory System

- Explain the steps of gas exchange in terms of inhalation and exhalation. (4 marks)
- Which parts of the brain control our breathing? (1 mark)
- What is the function of haemoglobin? (1 mark)

20. Nervous System



- Label the Nerve signal-Action Potential graph. (4 marks)
- Explain what happens in depolarisation and repolarisation. (2 marks)

SECTION D: ESSAY QUESTIONS (Q21–23)

Marks: 30 Suggested Time: 54 minutes
(Answer any TWO questions. Each question = 15 marks)

- Describe the structure and function of the human circulatory system. Explain how blood is transported between the heart, lungs, and tissues.
- Explain how the nervous and endocrine systems work together to maintain homeostasis. Include examples of hormones and feedback mechanisms.
- Describe the stages of human reproduction and development, from fertilization through the three trimesters of pregnancy.