

Bridging Exemption Test  
Module Outline

**Module: Biology**

**Overview:**

Test questions on principles and concepts in biology covering topics of molecules of life, cell structure and function, genetic inheritance, population genetics, expression of biological information, mutation, and recombinant DNA technology. There are also questions on various biological processes which include cellular respiration, photosynthesis and homeostasis.

**Faculty / Programme Group:**

- Civil
- Electrical and Biomedical
- Chemical and Energy
- Mechanical
- Science
- Architecture and Landscape
- Real Estate
- Land and Quantity Surveying
- Urban and Regional Planning
- Geoinformation
- Industrial Design

**Topics Covered:**

- Molecules of Life  
*Water, Carbohydrates, Lipids, Proteins and Nucleic Acids.*
- Cell Structure and Functions  
*Prokaryotic and Eukaryotic Cells, Structure and Functions: Cell Membrane and Organelles*
- Genetic Inheritance  
*Monohybrid and Dihybrid inheritance, Deviation from Mendelian inheritance*
- Population Genetic  
*Gene Pool Concept, Hardy-Weinberg Law*
- Expression of Biological Information  
*DNA and Genetic information, DNA Replication, Protein Synthesis-Transcription and Translation*
- Mutation  
*Types and Classification*
- Recombinant DNA technology

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*Introduction, Methods in Gene Cloning, Application*

- Cellular Respiration  
*Cellular Respiration, Aerobic Respiration, Anaerobic Respiration: Fermentation and Its Application*
- Photosynthesis  
*An Overview of Photosynthesis, Absorption Spectrum of Photosynthetic Pigments, Light-Dependent & Light-Independent Reaction, Alternative Mechanisms of Carbon Dioxide Fixation*
- Homeostasis  
*Concept of Homeostasis, Negative Feedback Mechanism, Homeostatic Organ: Kidney*

**Module Test Contents:**

*Format:*

- Consists of two parts: (100 marks)  
Part A: Multiple Choice Questions (70 marks)  
Part B: Structured Questions (30 marks)

*Duration:*

3 hours

**References:**

1. Liew Shee Leong et al., (2018). Biology for Matriculation Semester 1. Oxford Fajar 5th Edition.
2. Liew Shee Leong et al., (2018). Biology for Matriculation Semester 2. Oxford Fajar 5th Edition.
3. Reece, J. B., & Campbell, N. A. (2011). Campbell biology. Boston: Benjamin Cummings / Pearson.