RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES, MIHINTALE

B.Sc. (General) Degree in Applied Sciences
First year – Semester I Examination – April/May 2015

BIO 1203 - CELL BIOLOGY & BIOCHEMISTRY

Index Number: **Time: Two (2) hours**

Answer question 1 and three questions from questions 2-5.
Illustrate your answers with labelled diagrams where appropriate.

1)

I. List the three components of a nucleotide.

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II. How are the nucleotides linked to form nucleic acids?

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III. Name the different types of purine and pyrimidine bases found in nucleic acids.

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IV. Write the complementary sequences for the following DNA strands.

Strand A: AAAATCAGTCTTTA Strand B: AAGCTCCGCCTGCA

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V. Which of the above DNA fragments will dissociate/separate more easily into single strands when heated gently? Explain your reasoning.

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2) Describe the major factors that affect the activity of enzymes.

3) "Mitochondria and chloroplasts are thought to be descendants of prokaryotic cells that were engulfed by other prokaryotic cells." Discuss this statement by comparing structural features of mitochondria and chloroplast with prokaryotic cells.

4) a) Define the terms 'synapsis' and 'chiasmata'.
b) Describe the differences between the attachment of centromeres to spindles during metaphase I of meiosis and metaphase of mitosis.
b) Explain the effects of this difference have on the movement of chromosomes and the final chromosome number in the resulting daughter cells.

5) Write short notes on the following.

a) Ribosomes
b) Microbodies
c) Centrioles
d) Binary fission