



**RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES**

**B.Sc. (General) Degree in Applied Sciences
First year – Semester I Examination – May/June 2016**

BIO 1201 - CELL BIOLOGY & BIOCHEMISTRY

Index Number:

Time: Two (02) hours

Answer question 1 (compulsory) and three questions from questions 2-5.

1.

a) Explain briefly how the two DNA strands are held together to form the double helix.

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(12 marks)

b) Describe how the bases are paired in the double helix.

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(08 marks)

c) Briefly state what is meant by 'Trombone Model'.

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(05 marks)

d) How does DNA replication ensure its accuracy?

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(04 marks)

- e) State the roles of accessory proteins listed below, in DNA replication.

DNA Helicases

DNA Ligase

SSBs

RNAse H

Topoisomerases

Primase

DNA polymerase

(3x7=21 marks)

2. Describe the structure and function of the endomembrane system of cells. (50 marks)
3. a) Explain what is meant by the cell cycle. (15 marks)
b) Outline the different phases of the cell cycle and describe how it is regulated. (35 marks)
4. a) What is meant by abortive transcription? (05 marks)
b) Describe the two types of proofreading mechanisms of RNA polymerase in transcription. (15 marks)
c) Comment on the divergence of Rho dependent and Rho independent termination of transcription in prokaryotes. (30 marks)
5. Write short notes on any four of the following.
a) Membrane proteins
b) Endosymbiosis
c) Enzyme inhibitors and activators
d) Cytoskeleton
e) Binary fission

(50 marks)