UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS

UNISA university of south africa

BMI2604

May/June 2015

MOLECULAR BIOLOGY

Duration 2 Hours

100 Marks

EXAMINERS
FIRST PROF J DEWAR
SECOND DR S GILDENHUYS

Closed book examination

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This paper consists of 2 pages

ANSWER **FIVE (5)** OF THE **SEVEN (7)** QUESTIONS

Students must answer the questions in the examination answer book provided.

Dear student, take a deep breath, exhale and relax Now you are ready to start answering the questions All the best!

QUESTION 1 **[20]**
Describe the four main families of small organic molecules that associate to form large macromolecules

QUESTION 2 **[20]**
Together with a labelled diagram, describe the basic structures within an eukaryotic cell

QUESTION 3 **[20]**
Discuss features of the eukaryotic cell cycle Include in your answer details of stages of the cell cycle, mitosis, apoptosis and tumorigenesis

QUESTION 4 **[20]**
Discuss DNA replication

QUESTION 5 **[20]**
Discuss evolution of genomes, changes in genes and so-called "junk" DNA

QUESTION 6 **[20]**
Discuss the following laboratory techniques

6 1 Electrophoresis (5)
6 2 Polymerase chain reaction (5)
6 3 Flow cytometry (5)
6 4 Tissue culture (5)

QUESTION 7 **[20]**

7 1 With the aid of a labelled diagram, describe the process of RNA translation (10)
7 2 Briefly describe how an eukaryotic mRNA molecule may be modified after synthesises (10)

TOTAL MARKS 100