

UNIVERSITY OF BOLTON

SCHOOL OF SPORT AND BIOLOGICAL SCIENCES

BSc (HONS) MEDICAL BIOLOGY

SEMESTER ONE EXAMINATIONS 2018/19

MOLECULAR BASIS OF LIFE

MODULE NO: BIO4002

Date: Friday 18 January 2019

Time: 10.00 am – 1.00 pm

INSTRUCTIONS TO CANDIDATES:

Candidates are advised that the examiners attach importance to legibility of writing and clarity of expression. **YOU ARE STRONGLY ADVISED TO PLAN YOUR ANSWERS**

There are **FIVE** questions.

Answer **ANY** three questions.

All questions carry equal marks.

Marks for parts of questions are shown in brackets.

This examination paper carries a total of 150 marks.

All working must be shown. A numerical solution to a question obtained by programming an electronic calculator will not be accepted.

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Answer ANY THREE questions

PLEASE USE A SEPARATE BOOKLET FOR EACH ANSWER.

1. Using a named example, outline the key steps in genetic engineering.
[50 marks]
2. Explain in detail the main stages of translation in a eukaryotic cell. Include labelled diagrams to illustrate your answer.
[50 marks]
3. The polymerase chain reaction (PCR) is possibly one of the most important techniques used in molecular biology. Give an account of theory behind PCR along with the key practical stages.
[50 marks]
4. Distinguish between gene mutations and chromosomal aberrations. Include named examples to illustrate your answer.
[50 marks]
5. Discuss the theoretical principles and practical applications of buffers.
[50 marks]

END OF QUESTIONS