

UNIVERSITY OF BOLTON
SCHOOL OF SPORT AND BIOLOGICAL SCIENCES
BSc (HONS) MEDICAL BIOLOGY
SEMESTER ONE EXAMINATIONS 2019/20
MOLECULAR BASIS OF LIFE
MODULE NO: BIO4002

Date: Friday 17th January 2020

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

This examination is **THREE** hours long.

There are **FIVE** questions.

Answer **ANY** three questions.

All questions carry equal marks.

Marks for parts of questions are shown in bold.

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. Give an account of the polymerase chain reaction (PCR), including the theoretical background and practical procedures involved.
50 marks

2. Using a named example, outline the key steps in genetic engineering.
50 marks

3. Explain the main stages of translation that occur in a eukaryotic cell. Include labelled diagrams to illustrate your answer.
50 marks

4. Distinguish between chromosomal aberrations and gene mutations, giving a detailed account of each.
50 marks

5. Discuss the theoretical principles and practical applications of buffers.
50 marks

END OF QUESTIONS