



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya

Tel: +254(0) 799 529 958, +254(0) 799 529 959, + 254 (0) 712 524 293,

Website: info@must.ac.ke Email: info@must.ac.ke

University Examinations 2022/2023

THIRD YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR
OF SCIENCE IN BIOCHEMISTRY

SHD 3352: RECOMBINANT DNA TECHNOLOGY

DATE: APRIL 2023

TIME: 2 HOURS

INSTRUCTIONS: Answer question *one* and any other *two* questions

QUESTION ONE (30 MARKS)

- a) Explain the Mendel's principles that lay the foundation for the field of genetics
(3 marks)
- b) Describe briefly one basic chromosomal abnormality that occurs in organisms
(3 marks)
- c) Describe briefly the key genomic characteristics and infective modes of Bacteriophage λ
(4 marks)
- d) Explain how Guanine:Cytosine (GC) content could explain variation in genomes
(2 marks)
- e) Explain three key functional characteristics of Type I Restriction endonuclease
(6 marks)
- f) Describe briefly five types PCR techniques in molecular biology
(5 marks)
- g) Outline the steps in analysing cloned DNA by restriction mapping
(4 marks)
- h) Outline Protein-protein interaction detection methods
(3 marks)

QUESTION TWO (20 MARKS)

- a) Discuss transformation in DNA cloning (10 marks)
- b) Describe five types of vectors used in recombinant DNA process (10 marks)

QUESTION THREE (20 MARKS)

Discuss the steps in creating a recombinant DNA organism (20 marks)

QUESTION FOUR (20 MARKS)

Discuss the application of recombinant DNA technology in industry (20 marks)