



UNIVERSITY OF EMBU

2017/2018 ACADEMIC YEAR

SECOND SEMESTER EXAMINATIONS

**SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
IN INDUSTRIAL CHEMISTRY**

SCI 303: BIOTECHNOLOGY

DATE: APRIL 11, 2018

TIME: 8:30 – 10: 30 AM

INSTRUCTIONS:

Answer any ten (10) questions (7 marks each)

- 1) Outline the differences between prokaryotic and eukaryotic cells
- 2) Discuss the roles of the following chemicals of life
 - a) Carbohydrates
 - b) Proteins
 - c) Lipids
- 3)
 - a) Discuss the functions of the various types of RNA
 - b) Explain why genetic information flows from DNA to proteins via RNA and not directly from DNA to proteins
- 4) Describe the theories of DNA replication
- 5) Discuss the industrial applications of enzymes
- 6) Discuss the features of the genetic code
- 7) Discuss the applications of gene cloning in the biotechnology industry

- 8) Describe the procedures involved in the making of recombinant DNA
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- 9) Discuss the applications of the following organisms in sewage treatment plants
- a) Aerobic and anaerobic bacteria
 - b) Anaerobic bacteria
 - c) Protozoa
 - d) Rotifers
 - e) Fungi
- 10) Discuss the categories of fermentation processes and their applications

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