

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY

BIOC 305: INDUSTRIAL BIOCHEMISTRY

STREAMS: BSC BIOCHEMISTRY

TIME: 2 HOURS

DAY/DATE: TUESDAY 17/04/2018

11.30 A.M – 1.30 P.M

INSTRUCTION:

- **Answer question one and any two question**
 - **Do not write anything on question paper**
1. (a) Biodegradation is the breakdown of complex chemicals through biological process.
 - (i) Explain why it is important to degrade organic matter in the environment. [2marks]
 - (ii) Describe the biodegradation of organochloride, pesticides, alkyl solvents and arylhalides by named microorganisms. [4marks]
 - (iii) Discuss the aerobic sludge digestion. [5marks]
 - (b) Outline microbial production of yoghurt. [5marks]
 - (c) List and describe fundamentals benefits of fermented milk in human body. [4marks]
 - (d) (i) What is a bioreactor? List four types of bioreactors used in bioprocess technology. [5marks]
 - (ii) Using well labeled diagram describe the specifications of most commonly used fermentor/bioreactor. [5marks]
2. (a) Describe the five basic steps of brewing beer. [10marks]
 - (b) What are the safety concerns of genetically modified plant (GMP)? [10marks]

3. (a) Briefly describe five types of phytoremediation techniques. [10marks]
(b) Distinguish between penicillin and cephalosporin antibiotics. [2marks]
(c) Explain how monoclonal antibodies are produced and their uses. [8marks]
4. (a) Explain the role of microbial co-metabolism in environmental remediation. [5marks]
(b) Describe production process and chemical composition of biogas. [7marks]
(c) Explain use of Serrapeptase in pharmaceutical industry. [8marks]
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