

**MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

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**University Examinations 2016/2017**

FOURTH YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN BIOCHEMISTRY.

**SHC 3402: INTEGRATED BIOCHEMICAL TECHNIQUES III**

**DATE: DECEMBER, 2016 TIME: 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. Outline the features of a plasmid and state its application. (5 marks)
2. Describe how to determine the concentration of nucleic acids (4 marks)
3. Illustrate the three steps involved in polymerase chain reaction (6 marks)
4. Explain the blue-white assay used in selective amplification (5 marks)
5. Describe the following terms: (4 marks)
6. Recombinant DNA
7. Cloning
8. Explain three main kinds of chromatography for protein isolation (6 marks)

**QUESTION TWO (20 MARKS)**

1. Illustrate the five steps involved in plasmid cloning strategy (10 marks)
2. Outline the use of electrophoresis in the detection of nucleic acids (10 marks)

**QUESTION THREE (20 MARKS)**

Discuss the methods used to determine protein concentration (20 marks)

**QUESTION FOUR (20 MARKS)**

1. Describe the general methods of bacterial transformation (10 marks)
2. Discuss the isolation of nucleic acids (10 marks)