

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2014/2015**

**YEAR 3 SEMESTER II EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN GENOMICS SCIENCES**

**SZL 2322: TECHNIQUES IN MOLECULAR BIOLOGY**

**DATE: APRIL 2015 TIME: 2 HOURS**

**INSTRUCTIONS:**

**Answer question ONE and any other two questions**

**QUESTION ONE**

1. Explain how the following properties of a nucleic acids preparations can be measured
2. Concentration (2marks)
3. Purity (2marks)
4. Integrity (2marks)
5. Explain four factors affecting electrophoretic separation of a sample (6marks)
6. Explain roles of the different components of PCR mix (6marks)
7. i. Explain the principles of molecular cloning (2marks)

ii. Outline characteristics of a cloning vector (4marks)

1. Distinguish the following;
2. Northern and southern blot (2marks)
3. Sequence alignment and sequencing (2marks)
4. Restriction Fragment Length Polyphism and Amplified Fragment Length Polymorphism (2marks)

**QUESTION TWO**

Describe any four sequencing techniques used in molecular biology (20marks)

**QUESTION THREE**

1. Describe northern blot assay (10marks)
2. Describe applications of PCR (10marks)

**QUESTION FOUR**

1. Describe the procedure for RNA isolation using Guanidium isothiocyanate (10marks)
2. Describe any two techniques used in DNA purification (10marks)

**QUESTION FIVE**

Describe applications of molecular cloning (20marks)