



**DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2021/2022**

**FOR THE DEGREE OF MASTER OF SCIENCE IN CHEMISTRY AND MASTER OF  
SCIENCE IN LEATHER TECHNOLOGY**

**SLT 6118: RESEARCH METHODOLOGY**

**DATE: 4<sup>TH</sup> FEBRUARY 2022**

**TIME: 10.00-01.00 P.M.**

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**INSTRUCTIONS:** Attempt ALL Questions

**QUESTION ONE (10 MARKS)**

- a) Define research **[2 Marks]**
- b) Briefly explain the research process **[5 Marks]**
- c) Differentiate between applied and fundamental research **[3 Marks]**

**QUESTION TWO (10 MARKS)**

- a) Outline four factors that must be considered in development of a good research design **[2 Marks]**
- b) Discuss one principles of experimental design **[2 Marks]**
- c) With the help of a diagram explain two-group simple randomized experimental design . **[5 Marks]**
- d) Discuss two limitations of computer based analysis in research. **[1 Mark]**

**QUESTION THREE (10 MARKS)**

- a) What do you understand by the term validity of an experiment? **[2 Marks]**
- b) Discuss the following regarding internal validity experiments.
  - i. Discuss three Threats to internal validity **[5 Marks]**
  - ii. Discuss how threats in (i) can be mitigated **[3 Marks]**

**QUESTION FOUR (10 MARKS)**

- a) Discuss two precautions to be taken in interpreting data **[2 Marks]**
- b) You have used the following source of information for your literature review. Make a reference on each of the following using the American Psychological Association (APA) Format **[2 Marks]**

Book: P. Kundur, Power System Stability and Control. New York: McGraw-Hill, 1994

Journal Article: L. Gyugyi, Power electronics in electric utilities: static var compensators, IEEE  
, vol.76, No. 4, pp. 483-494, April 1988

c) Discuss the basic principles of tabulation

**[6 Marks]**