



**1<sup>ST</sup> SEM 2018/19**

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**UNIVERSITY OF ESWATINI**

**FINAL EXAMINATION**

**PROGRAMME: BACHELOR OF SCIENCE IN HORTICULTURE YEAR 3**

**COURSE CODE: HRT301 and HORT 305**

**TITLE OF PAPER: RESEARCH METHODS/HORTICULTURAL EXPERIMENTATION**

**TIME ALLOWED: TWO (2) HOURS**

**INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS**

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**QUESTION 1**

- a) Describe these terms:
- i. Research [1]
  - ii. Experimental research [1]
  - iii. Experimental plot [1]
  - iv. Replication [1]
  - v. Randomisation [1]
- b) Why do we conduct experiments? [5]
- c) What are the factors considered before choosing an experimental design? [9]
- d) How can you solve problems of soil heterogeneity/variability when conducting an experimental research? [6]

**[25 marks]**

**QUESTION 2**

- a) What are the common mistakes made when planning and laying-out in an experiment?

**[25 marks]**

**QUESTION 3**

- a) How can you control experimental error?

**[25 marks]**

**QUESTION 4**

- a) Discuss Completely Random Block Design (CRBD) and draw its skeleton ANOVA table. [15 marks]
- b) What are the common causes of missing data when conducting research? [10 marks]

**[25 marks]**

**QUESTION 5**

Seed-Co has three (3) new varieties that she would like to test its performance on different fertiliser application rates in a factorial experiment. The varieties are SC727, SC719 and SC701. The fertiliser application rates are 400 kg/ha, 600 kg/ha, 800 kg/ha and control.

- a) Design a treatment layout. [12]
- b) Draw a skeleton ANOVA table and solve. [13]

**[25 marks]**