Office Use Only

Semester 1, Year 1
2020

Department of Plant Breeding & Genetics

Course Code:	**GEN111**	**Subject:**	**Introductory Genetics**
Full Marks:	40	Pass Marks:	12
Exam Duration:	2 hours writing time		

UNIVERSITY/INSTITUTION: (tick where applicable)

✓ GAASC, TU ☐ IAAS, TU ☐ Other domestic university
☐ Universities from abroad ☐ Other (specify)

During an exam, you must not have in your possession any item/material that has not been authorised for your exam. This includes books, notes, paper, electronic device/s, mobile phone, smart watch/device, calculator, pencil case, or writing on any part of your body. Any authorised items are listed below. Items/materials on your desk, chair, in your clothing or otherwise on your person will be deemed to be in your possession.

Failure to comply with the above instructions, or attempting to cheat or cheating in an exam is a discipline offence.

Authorized materials

Book and notes	☐ YES	✓ NO
Calculator Only simple scientific calculator with no user set variables in memory permitted	✓ YES	☐ NO
Specifically permitted items		
Pencil	✓ YES	☐ NO
Ballpen	✓ YES	☐ NO
Ruler	✓ YES	☐ NO
Sharpner and eraser	✓ YES	☐ NO

Candidates must complete this section if required to write answers within this paper

ROLL NUMBER: ___ ___ ___ ___ ___ EXAM CENTER ROOM NUMBER: ___ ___
FACULTY: ___ ___ ___ ___ ___ ___ LEVEL: ___ ___ ___ ___ ___ ___ ___

The exam contains FIVE questions. ALL questions must be answered. The exam is worth 100 marks in total.

QUESTION 1

Show that the following expression is the MLE for the variance assuming a Gaussian distribution.

$$\hat{\sigma}^2 = \frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2$$

20 marks

Total: 20 marks

— END OF QUESTION 1 —

QUESTION 2

Second question.

(a) Part a.

4 marks

(b) More stuff.

10 marks

(c) Final part.

6 marks

Total: 20 marks

— END OF QUESTION 2 —