

THE OPEN UNIVERSITY OF SRI LANKA
B. Sc. DEGREE PROGRAMME – LEVEL 05 – 2007/2008
Botany – BTU 3111/ BTE 5111 – Plant Breeding



ASSESSMENT TEST 1 – OPEN BOOK TEST (OBT)

Reg. No. -----

DURATION : ONE HOUR

DATE : 27th February 2008

TIME : 3.00 p.m – 4.00 p.m

ANSWER ALL QUESTIONS

(This paper contains two questions and six (06) pages)

1.

a) What is hybrid vigour ?

b) What is/are the advantage/s of hybrid vigour ?

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e) What is combining ability ?

f) Explain how it is applied in a breeding programme.

04
08/60

2.

a) Name the four types of gene actions identified in a quantitative trait.

b) Explain them briefly.

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c)

- (i) Consider the long pod length (l) in *Brassica juncea*. This is a recessive trait. The pod length of the three genotypes of *B. juncea*, AC 7700, AC 5500 and AC 4400 at 4 weeks are approximately as follows.

	Genotype		
	AC 7700	AC 5500	AC 4400
Pod length (mm)	12	10	7

$$a = 4 \text{ nm}, \quad d = 2 \text{ mm}$$

Frequency of l gene (q) = 0.4

Find out the average effects ?

[illegible]

1610

(ii) Calculate V_A , V_D and V_G . (epistatic deviation = 0.25)

[illegible]