



Government of **Western Australia**
School Curriculum and Standards Authority



PLANT PRODUCTION SYSTEMS

GENERAL COURSE

Externally set task

Sample 2016

Note: This Externally set task sample is based on the following content from Unit 3 of the General Year 12 syllabus.

Plant structure and function

- structure and function of stems, roots, leaves, flowers, fruit and seeds
- nutrient requirements throughout plant growth stages

Breeding and improvement

- aims of breeding and selection, including
 - profitability
 - market requirements
 - environmental conditions
- selection criteria including subjective and objective characteristics

Investigating plant production

- design and conduct an investigation, considering aspects of experimental design including variables and controls

In future years, this information will be provided late in Term 3 of the year prior to the conduct of the Externally set task. This will enable teachers to tailor their teaching and learning program to ensure that the content is delivered prior to the students undertaking the task in Term 2 of Year 12.

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Plant Production Systems

Externally set task

Working time for the task: 60 minutes

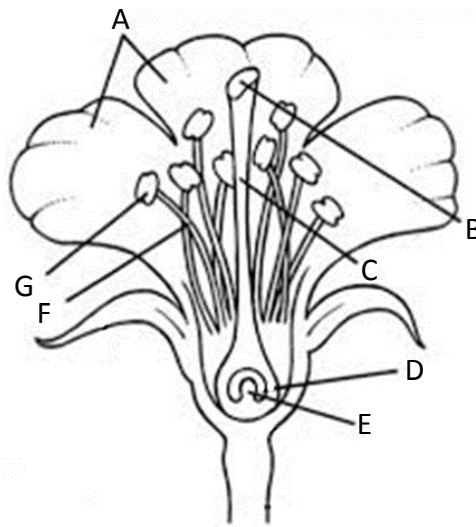
Total marks: 40 marks

Weighting: 15% of the school mark

1. The following diagram shows a typical flower structure.

(7 marks)

Using the diagram below, identify each flower part, and its corresponding function.



Flower part on diagram	Name and function of flower part
A	
B	
C	
D	
E	
F	
G	

2. Plant producers aim to optimise profitability by managing plant requirements at different growth stages. Describe each growth stage identified below, and discuss the plant's requirements at each stage. **(12 marks)**

Germination (4 marks)

Vegetative growth (4 marks)

Reproductive growth (4 marks)

3. Plant producers need to grow varieties which suit their environmental conditions and meet market requirements. **(7 marks)**

(a) Select a raw plant product and identify an end (processed) product made from it. (1 mark)

Raw plant product _____

End (processed) product _____

(b) Describe **one (1)** objective and **one (1)** subjective criterion that would be used to measure the quality of the raw product.

Objective criterion **(3 marks)**

Subjective criterion **(3 marks)**

4. Explain one particular reason for developing a new variety of a specific plant type. **(3 marks)**

- 5(a) You have been asked by a plant breeding company to trial three new varieties of a crop in an effort to find a variety that can grow in an environment with a growing season rainfall of 150 mm. The trial is to be undertaken in a glasshouse where rainfall and other conditions can be controlled. The experiment is to be designed to test the hypothesis that one of the new varieties will be more suited to the low rainfall environment than the common variety. **(11 marks)**

Identify each the following aspects of the experimental design, and explain their importance in conducting a valid trial.

Experimental aspect	Identification of each aspect	The importance of each aspect
Independent variable		
Dependent variable		
Control treatment		
Replication		

- (b) Suppose that you have completed the trial and the results have been collected. Describe the results that you would observe to conclude your hypothesis was NOT supported.

(3 marks)

Acknowledgement

Question 1

Parts of a flower [Image]. (n.d.). Retrieved March, 2014, from

<http://flower-parts-guides.blogspot.com.au/2011/06/also-until-this-week.html>

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