

THE UNIVERSITY OF MELBOURNE
Faculty of Land and Food Resources
SEMESTER 1 – ASSESSMENT 2005
ADVANCED DIPLOMA IN AGRICULTURE
207-171 SUSTAINABLE CATCHMENT MANAGEMENT

Exam Duration: Two hours

Reading time: Five minutes

This exam paper has 2 pages, including this cover page.

Authorised materials:

Students are not permitted to bring any written material into the examination

Instructions to Invigilators:

Students need 1 large script book.

Students may retain their examination paper.

Instructions to Students

The examination has a total of 120 marks, which will represent 40 % of the assessment for this subject.

You must answer eight (8) questions from the twelve (12) provided. All questions are worth 15 marks.

Questions have been developed so that a mark is equivalent to one minute.

Answer eight (8) questions only from the twelve (12) provided.
Write your answers in the script book. All questions are worth 15 marks each.

1. With the aid of a diagram, describe the organic matter cycle. Outline the influence of disturbance on the organic matter cycle, and how this impacts on the productivity of natural and agricultural ecosystems.
2. There are four main features of high quality habitat in natural bushland. List and describe each of these, and the differences observed in these features with both high and low quality habitat.
3. Forestry and agriculture are obviously the two major primary industries within the Goulburn-Broken catchment. Outline the basis to forestry production, and the basic harvest cycle in a production forest, and discuss the environmental and catchment considerations that result from such production.
4. Pest species have a number of characteristic features that enable them to thrive despite our best efforts to eradicate them. List and discuss five (5) of these features and provide an example for each characteristic.
5. Describe and discuss the impacts of Blackberry in Australia. In your answer include methods on best practice for control.
6. Native species can become pest species under certain situations. List a native species that can become a pest and then discuss why and in what situations it becomes a pest.
7.
 - a. List and describe how rocks are subdivided on the basis of age and origin.
 - b. For each subdivision provide details on how rocks are further classified on the basis of particle size, crystal size, depth of formation or type of metamorphism
 - c. Provide an example of the following types of rock:
 - i. sedimentary rock formed from consolidated alluvial material
 - ii. sedimentary rock of marine origin
 - iii. plutonic igneous rock
 - iv. volcanic igneous rock
 - v. contact metamorphic rock
8. Dams and reservoirs are some of the largest structures in rural Victoria.
 - a. Why were they installed ?
 - b. How were they paid for ?
 - c. What are the competing demands for these assets ?
 - d. Taking an example of one of the dams visited during the first field trip describe the purpose of the structure, the fate of water impounded and the potential future of the facility.
 - e. For the selected dam what is the impact of catchment management on water quality ?

9. Irrigation dominates water use in the Goulburn and Murray valleys and this land use is currently under much scrutiny.
 - a. Provide a list of the advantages and disadvantages of irrigated land use based on an appreciation gained during the second field trip. Consider different uses of the irrigation water and the agricultural land as well as alternative demands for the water.
 - b. The appreciation should further consider water tables, salinity, impacts on water courses and the water resources of other states as well as the social consequences of change to the region.
10. What is soil pH ? Why is soil pH an important soil property ?
11. Describe one example of how changes in land use or agricultural systems can have social impacts.
12. Discuss 2 factors of soil formation and how these factors influence soil type.