



FJI NATIONAL UNIVERSITY
COLLEGE OF AGRICULTURE, FISHERIES & FORESTRY
SCHOOL OF AGRICULTURAL SCIENCES & FORESTRY
TRADE DIPLOMA IN AGROFORESTRY -II
AGF 503. AGROFORESTRY SYSTEM AS SUSTAINABLE LAND MANAGEMENT SOIL
CONSERVATION AND BIODIVERSITY

Time Allowed. 3.00 hours plus (10 minutes reading time) Total Marks. 100

INSTRUCTIONS.

1. Please check to see that all your paper is complete.
2. Answer all the objective type questions, descriptive type questions and essay type questions in the Answer Booklet only.
3. No written or printed material and mobile phones are allowed in the examination hall.
4. Marks allocated for each question appears at the side of each question so allocate your time accordingly.
5. This paper is divided into three parts.
 - First part contains Objective Type Questions which is having four sections (4) – A, B, C and D. All the questions of this part are compulsory.
 - Second part is Descriptive Type Questions which is having five (5) questions. All questions are compulsory.
 - Third part is Essay Type Questions which is having two (2) questions. Attempt only one (1) question from this part.
6. The question paper consists of 9 pages.

I. OBJECTIVE TYPE QUESTIONS (50 Marks)

To be answered only on the Answer Sheet.

Section A. Fill in the blanks. (20 Marks)

Section B. Multiple choice Questions. (10 Marks)

Section C. Write True or False. (10 Marks)

Section D. Matching (10 Marks)

II. DESCRIPTIVE TYPE QUESTION (35 Marks)

There are Five (5) descriptive type questions provided, please attempt all the five (5) questions.

Answer every question from a new page to facilitate evaluation.

III. ESSAY TYPE QUESTION (15 Marks)

There are Two (2) essay type questions provided, please attempt only one (1) question only.

I. OBJECTIVE TYPE QUESTIONS

Note. Write your answers on the Answer Sheet provided.

Time. 55 Minutes

Total Marks. 50

A. Fill in the blanks.

(20x1=20 Marks)

1. Factors such as insecure tenure, extreme poverty, and lack of access to credit often result in inadequate investment in maintaining _____ capital.
2. Agroforestry can improve the land's _____.
3. _____ is the protection of soil from erosion and other types of deterioration, so as to maintain soil fertility and productivity.
4. The _____ the slope of a field, the greater the amount of soil loss from erosion by water.
5. Sustainable Land Use is that which achieves production combined with _____ of the resources on which that production depends, thereby permitting the maintenance of productivity.
6. Agroforestry provides new market opportunities, habitat for wildlife, and is a form of sustainable agriculture and land _____.
7. Agronomic measures, such as manuring and _____ can easily be integrated into daily farming activities.
8. Depletion of _____ and soil organic matter and erosion are the principal forms of soil degradation.
9. Trees supply debris to streams which creates _____ structure and detritus which contributes to the aquatic food chain.
10. Root growth and plant residue improve soil structure which enhances _____ of dissolved contaminants.
11. Biodiversity is the _____ of life on earth and the essential interdependence of all living things.
12. Genetic diversity is the diversity of _____ within a species.

13. _____ both from the neo tropics and old-world tropics are well known for their high floristic diversity.
14. Agroforestry systems contain more planned diversity than the corresponding _____ crops.
15. _____ is the interbreeding of individuals from genetically distinct populations, regardless of their taxonomic status.
16. _____ is the transfer of genes from one population to another by the repeated backcrossing of hybrids to one or both parental populations.
17. Landscape is defined as a _____ of ecosystems or habitats, present over a kilometer-wide area.
18. Agroforestry influences ecological processes like the presence and dispersal of fauna and flora, water and nutrient flows, _____, and disease and pest dynamics within the landscape.
19. The underlying concept of agroforestry is to maintain _____ while supporting crop growth.
20. Reforestation of corridors between protected areas is necessary to improve _____ between patches.

B. Multiple choice questions. Select the correct answer. (10x 1–10 Marks)

21. The concept of _____ was discussed in the 1992 Rio or the Earth summit.
- A. productivity
 - B. commodity
 - C. responsibility
 - D. sustainability

22. Agroforestry can increase _____ as a means to deal with economic and environmental uncertainty and the dynamics of changing needs and wants.

- A. growth
- B. practices
- C. diversity
- D. systems

23. _____ also takes place within the buffer, which leads to an overall reduction in outflow of water and other contaminants.

- A. Transpiration
- B. Infiltration
- C. Evaporation
- D. Excavation

24. _____ and cultivation practices that are not adapted to local environments are the principal causes of soil degradation.

- A. Overgrazing
- B. Over hunting
- C. Overfishing
- D. Over exploration

25. The leaves and branches of trees _____ rainfall, reducing its erosive energy and slowing the movement of rain water.

- A. regulate
- B. release
- C. recommend
- D. intercept

26. _____ was heavily promoted in the 1970s under the guise of the green revolution.

- A. Composting
- B. Green manuring
- C. Monoculture
- D. Intercropping

27. Cacao and banana agroforestry system contributed to conservation efforts by serving as habitats to large numbers of bird and _____ species.

- A. mongoose
- B. bat
- C. dog
- D. rabbit

28. Biosecurity Authority of Fiji (BAF) was established under the Biosecurity Promulgation in December _____.

- A. 2008
- B. 2009
- C. 2010
- D. 2007

29. _____ ecology is the study of the biological, physical, and human interactions of a geographical area.

- A. Animal
- B. Tree
- C. Forest
- D. Landscape

30. While managing shifting cultivation landscapes for increased biodiversity and conservation value, try to conserve as much of the remaining _____ forest in landscapes as possible.

- A. quaternary
- B. secondary
- C. primary
- D. tertiary

C. Write 'True' or 'False?' (10x1=10 Marks)

31.	It is estimated that approximately 10 percent of farm households suffer significant soil losses each year.	
32.	Forests have an open nutrient cycle.	
33.	One of the main principles of controlling water erosion is reducing the velocity of run-off water.	
34.	Soil erosion is one of the most serious threats to soil fertility.	
35.	The record of flow over time is called a limnograph.	
36.	One of the major causes of deforestation, especially in Central and South America is cattle ranching.	
37.	Agroforestry helps preserve germplasm of sensitive species.	
38.	Heterosis is the transfer of alleles or genes from one population to another.	
39.	Cocoa-based systems have been described from northern Thailand and Myanmar.	
40.	Integrated landscape management involves long-term collaboration among different groups of land managers and stakeholders to achieve their multiple objectives and expectations within the landscape for local livelihoods, health and well-being.	

D. MATCHING (10x1=10 Marks)

41. Engineering methods	A. soil and agricultural land technology
42. Vegetative methods	B. narrow strips of naturally growing grasses
43. Sustainable Land Management (SLM)	C. results from the direct impact of falling drops of rain on soil particles
44. TAI	D. the removal of a thin layer of exposed surface soil by the action of raindrop splash and runoff
45. TCI	E. soil is removed rapidly by water gushing over the headcut or uphill
46. SALT	F. change the characteristics of the slope to reduce the amount and velocity of surface runoff
47. Natural Vegetative Strips	G. reduce the force of falling raindrops and water runoff
48. Splash erosion	H. knowledge-based procedure that helps integrate land, water, biodiversity, and environmental management
49. Sheet erosion	I. tree animal interface
50. Gully erosion	J. tree combination interface

II. Descriptive type Questions

Total Marks: 35

Note: Attempt All the Five (5) Questions. All carry equal SEVEN (7) marks.

1.	Define sustainable land use. Discuss the principles of sustainable land use.	(7)
2.	Explain the benefits of biodiversity and some of the major threats to biodiversity.	(7)
3.	Explain the role (importance) of landscape assessments.	(7)
4.	Discuss the ecological, social and economic benefits of soil water conservation through agroforestry.	(7)
5.	“Agroforestry holds considerable potential as a major land-management alternative for conserving soil as well as maintaining soil fertility and productivity in the tropics”. Justify this statement.	(7)

III. Essay type Questions

Total Marks: 15

Note: Attempt Any ONE (1) Question Only. Carry FIFTEEN (15) marks

1.	Define integrated watershed approach. Discuss in detail the various conservation practices on integrated watershed approach.	(15)
2.	Define landscape ecology. Discuss in detail the concept and scope of landscape ecology.	(15)

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