



FIJIANATIONAL UNIVERSITY

COLLEGE OF AGRICULTURE, FISHERIES AND FORESTRY

SCHOOL OF AGRICULTURAL SCIENCE AND FORESTRY  
DEPARTMENT OF SOIL SCIENCE & AGRICULTURAL ENGINEERING  
Bachelor of Education (Secondary) (Agricultural Science)

AGR 702: Agriculture, Environment and Climate Change

Trimester- 1, 2018 Final Examination

**TOTAL MARKS: 100**

**TIME DURATION: 3 HOURS**

**INSTRUCTIONS TO STUDENTS**

1. This paper consists for 5 pages. Please check to see that your paper is complete.
2. You are allowed 10 minutes extra reading time in which you are NOT permitted to write.
3. Attach all the sheets used as your answer paper in their correct sequence and secure with a string.
4. Use both sides of the answer sheet and write your candidate number on each sheet.
5. Write clearly the number(s) of the question(s) attempted on the top of each sheet.

SECTION	PARTICULARS	TOTAL MARKS
A	Part 1: Fill in the Blanks	40
	Part 2: True and False	
	Part 3: Multiple Choices	
B	Short answers	20
C	Long answers	40
	Total	100

## SECTION A

### **PART 1: FILL IN THE BLANKS WITH APPROPRIATE ANSWERS. (10X1.5=15 MARKS)**

1. In \_\_\_\_\_ positive interaction one species derives the benefits while the other is unaffected.
2. \_\_\_\_\_ ecology attempts to explain ecosystem behavior from the properties of individual units.
3. \_\_\_\_\_ is also called as non-obligatory mutualism.
4. \_\_\_\_\_ is the slow soil development by weathering, activities of tolerant species in an ecosystem.
5. In negative interaction grazing and browsing by animals on plants is an example of \_\_\_\_\_.
6. \_\_\_\_\_ ecology attempts to explain ecosystem behavior from the properties of individual units.
7. \_\_\_\_\_ mangroves, grow at the water's edge, with prop roots that stabilize trees in soft mud and wave zones.
8. A sound level of \_\_\_\_\_ or more can physically rupture the human eardrum.
9. \_\_\_\_\_ is a method of fishing that involves pulling fishing net through the water behind one or more boats.
10. Mangroves are \_\_\_\_\_ tolerant plants of tropical and subtropical intertidal regions of the world.

### **PART 2: STATE TRUE OR FALSE**

(10X1=10 MARKS)

1. In legume - rhizobium symbiosis bacteria obtain food from legume and in turn fix gaseous nitrogen, making it available to plant.
2. The diversity at the level of community can be measured by alpha diversity, beta diversity, and gamma diversity.
3. In situ conservation is the conserving of the species outside the natural habitat.
4. Red mangroves are one of the principal genera of trees of mangrove forests, having roots with erect pneumatophores and a trunk without silt roots.

5. In allogenic succession the replacement of the existing community is caused largely by any other external condition and not by the existing organisms.
6. The word environment is derived from the latin verb “*environner*” which means to “encircle or surround”.
7. Elements of environment are physical and biological elements mainly.
8. Sun burn, cataract, aging of skin and skin cancer are caused by increased UV radiation.
9. Any substance which causes pollution is called a pollutant.
10. Non-degradable remain in the environment for many years in an unchanged condition and take decades or longer to degrade.

**PART3: MULTIPLE CHOICE QUESTIONS**

**(15X1=15 MARKS)**

1. A non-renewable source of energy is \_\_\_\_\_.
  - A. wild life
  - B. fossils fuels
  - C. water
  - D. forest
2. Association of animals when both partners are benefitted \_\_\_\_\_.
  - A. colony
  - B. mutualism
  - C. commensalism
  - D. ammensalism
3. \_\_\_\_\_ is the most widely discussed impact of climate change.
  - A. Increase in average sea level
  - B. Deforestation
  - C. Soil erosion
  - A. None of the above
4. The main source of water pollution is \_\_\_\_\_.
  - D. sea water
  - B. rain water
  - C. atmospheric pollutants
  - D. sewage water
5. Cutting down of trees in a forest is called \_\_\_\_\_.
  - A. reforestation
  - B. deforestation
  - C. afforestation
  - D. none of these
6. The sound of which intensity is regarded as the safe noise level for a city?
  - A. 80 dB
  - B. 60 dB
  - C. 120 dB
  - D. 45 dB

7. \_\_\_\_\_ of the following disease is not caused by water pollution?  
A. Malaria  
B. Jaundice  
C. Typhoid  
D. Dysentery
8. The two components of an ecosystem are \_\_\_\_\_.  
A. plants and animals  
B. biotic and abiotic  
C. plants and light  
D. weeds and micro-organisms
9. Soil erosion can be prevented by \_\_\_\_\_.  
A. increasing bird population  
B. afforestation  
C. removal of vegetation  
D. over grazing
10. \_\_\_\_\_ of the following causes ocean acidification?  
A. Absorption of carbon dioxide by the ocean  
B. Chemical spills in the ocean  
C. Acid rain  
D. Warmer ocean temperatures
11. Disaster management covers \_\_\_\_\_.  
A. maintaining control over disasters  
B. reducing the effects of disasters  
C. briefing the top officials of govt. on the effect of disasters  
D. all the above
12. Which of these greenhouse gases is most abundant in the atmosphere \_\_\_\_\_.  
A. carbon dioxide  
B. methane  
C. nitrous oxide  
D. water vapour
13. Climate change may have an impact on the following \_\_\_\_\_.  
A. agriculture, natural terrestrial ecosystems, and water resources  
B. air quality, oceans, and coastal zones  
C. energy and human health  
D. all of the above
14. Air pollution is caused by \_\_\_\_\_.  
A. insecticides  
B. sewage  
C. smoke  
D. loud speakers
15. Interactions among living organisms are grouped into two major groups \_\_\_\_\_.  
A. positive interactions  
B. negative interactions  
C. biological  
D. both a & b

## SECTION B

(4X5=20 MARKS)

Short answer type questions. All questions are compulsory.

1. Provide short notes on environmental studies and its importance in your agriculture education curriculum.
2. In context to conservation of natural resources, analyse renewal and non-renewal resources.
3. What is biodiversity? Analyse its importance in ecological balance.
4. What is marine ecosystem? Provide short note on functions and characterisation of marine ecosystem.

## SECTION C

### Long Answer Type Questions

(4X10=40 MARKS)

Note: Attempt all FOUR (4) questions. All carries equal 10 marks.

1. Analyse the principle of disaster management. Provide cyclone disaster management strategies that can be instigated for Fiji.
2. Analyse the role of global warming and its impact on agriculture with their mitigation options.
3. Provide details of different types of environmental pollution and their methods of control.
4. What are mangrove ecosystems? Analyse their detail role in climate change adaptation in the South Pacific.

THE END