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**COLLEGE OF AGRICULTURE, FISHERIES AND FORESTRY (CAFF)**
**SCHOOL OF AGRICULTURAL SCIENCES**  
**DEPARTMENT OF SOIL SCIENCE & AGRICULTURAL ENGINEERING**  
**BACHELOR OF SCIENCE IN AGRICULTURE YEAR II**  
**AGR 702: AGRICULTURE, ENVIRONMENT AND CLIMATE CHANGE**
**FINAL EXAMINATION**
**TRIMESTER- 3, 2017**
**TOTAL MARKS: 100**
**TIME DURATION: 3 HOURS**
**INSTRUCTIONS TO STUDENTS**

1. This paper consists for 06 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.

| <b>SECTION</b> | <b>PARTICULARS</b>   | <b>TOTAL MARKS</b> | <b>TIME ALLOCATIONS</b> |
|----------------|--|--------------------|-------------------------|
| <b>A</b>       | <b>Part 1: Fill in the Blanks<br/>Part 2: True and False<br/>Part 3: Multiple Choices<br/>Part 4: Matching</b> | <b>40</b>          | <b>40 minutes</b>       |
| <b>B</b>       | <b>Short answers</b>   | <b>20</b>          | <b>50 minutes</b>       |
| <b>C</b>       | <b>Long answers</b>  | <b>40</b>          | <b>90 minutes</b>       |
|                | <b>Total</b>   | <b>100</b>         |                         |

## SECTION A

### PART 1

FILL IN THE BLANKS WITH APPROPRIATE ANSWERS. (10X1=10 MARKS)

1. \_\_\_\_\_ is the example of slowly degradable pollutant.
2. \_\_\_\_\_ is the example of non-point source of pollution.
3. \_\_\_\_\_ advices and encourages developing countries to reduce deforestation.
4. \_\_\_\_\_ refers to natural or artificial addition of nutrients to bodies of water and to the effects of the added nutrients
5. \_\_\_\_\_ mangroves, grow at the water's edge, with "prop" roots that stabilize trees in soft mud and wave zones.
6. \_\_\_\_\_ mangrove is usually found in muddy areas that flood at high tide. They may have "prop", or "elbow" roots that stick up out of the mud.
7. Physical damage to the ear and the temporary hearing loss often called a \_\_\_\_\_ in this condition people will be unable to detect weak sounds.
8. A sound level of \_\_\_\_\_ or more can physically rupture the human eardrum.
9. \_\_\_\_\_ is an example of mutualism, where mutually beneficial relationship between organisms exists.
10. \_\_\_\_\_ is a method of fishing that involves pulling fishing net through the water behind one or more boats.

### PART 2

STATE TRUE OR FALSE

(10X1=10 MARKS)

1. The diversity at the level of community can be measured by alpha diversity, beta diversity, and gamma diversity.
2. Poaching is the specific threats to certain animals related to large economic benefits.
3. In situ conservation is the conserving of the species outside the natural habitat.
4. El Niño is the result of global warming.
5. Mangroves are salt tolerant plants of tropical and subtropical intertidal regions of the world.

6. Red mangroves are one of the principal genera of trees of mangrove forests, having roots with erect pneumatophores and a trunk without stilt roots.
7. Sea level has remained fairly constant throughout Earth's history.
8. The word environment is derived from the Latin verb "environner" which means to "encircle or surround".
9. Elements of environment are physical and biological elements mainly.
10. The word "Mangrove" is considered to be a combination of the Portuguese word "Mangue" and the French word "grove".

**PART 3**

**(10X1=10 MARKS)**

**MULTIPLE CHOICE QUESTIONS (PICK THE CORRECT ANSWER.)**

1. Which 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
2. 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
3. Which of these greenhouse gases is most abundant in the atmosphere.....
  - a) Carbon dioxide
  - b) Methane
  - c) Nitrous oxide
  - d) Water vapour
4. Most natural resources we consume at our homes are .....
  - a) Renewable
  - b) Nonrenewable
  - c) Infinite
  - d) Free

5. **Why is genetic diversity important?**
- a) Allows for species to adapt /thrive in different environments.
  - b) Global warming threatens monocultures.
  - c) It enables species to create their own habitat.
  - d) It's not important.
6. **Following is the most widely discussed impact of climate change.**
- a) Increase in average sea level
  - b) Deforestation
  - c) Soil erosion
  - d) None of the above
7. **A non-renewable source of energy is.....**
- a) Wild life
  - b) Fossils fuels
  - c) Water
  - d) Forest
8. **What gas is produced by the burning of fossil fuels?**
- a) Oxygen
  - b) Hydrogen
  - c) Helium
  - d) Carbon dioxide
9. **Anthropogenic extinction occurs due to.....**
- a) Earthquakes
  - b) Floods
  - c) Changing environmental conditions
  - d) Human activities
10. **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

**Part 4: Matching:****(10X1 =10 Marks)**

| S.NO. | COLUMN A        | S.NO. | COLUMNB  |
|-------|-----------------|-------|--|
| 1.    | Hazardous waste | a.    | is the organism living on or in the body of another organisms and deriving its food more or less permanently from its tissues.                     |
| 2.    | Reactive waste  | b.    | are those that are poisonous in small or trace amounts   |
| 3.    | Parasite        | c.    | can cause harm to human and the environment.   |
| 4.    | Nudation        | d.    | that have a tendency to react vigorously with air or water are unstable to shock or heat, generate toxic gases                                     |
| 5.    | Commensalism    | e.    | development of barren area without any form of life  |
| 6.    | Toxic wastes    | f.    | In this one species derives the benefits while the other is unaffected   |
| 7.    | Biodiversity    | g.    | reduce greenhouse gas emissions, or enhance the capacity of carbon sinks to absorb GHGs from the atmosphere.                                       |
| 8.    | Alpha diversity | h.    | the increasing quantity of greenhouse gases in the our atmosphere produced by human activities, like the burning of fossil fuels or deforestation. |
| 9.    | Mitigation      | i.    | diversity of organisms sharing the same community or habit   |
| 10.   | Global warming  | j.    | variability among all living organisms from all sources, including terrestrial, marine and other aquatic ecosystems                                |

## SECTION B

(4X5=20 MARKS)

**Short Answer Type Questions. All questions are compulsory.**

1. Provide short notes on any two (2) of the following.
  1. Climate change
  2. E-waste management
  3. Nuclear hazards
2. In context to conservation of natural resources, explain the term reduce, recycle and reuse.
3. What is environmental pollution? Analyse its causes and effects.
4. What is ecosystem? Explain the functions and characterization of ecosystem.

## SECTION C

### Long Answer Type Questions

(4X10=40 Marks)

**Note: Attempt any FOUR (4) questions only. All carries equal 10 marks.**

1. With the help of suitable diagram demonstrate carbon cycle in detail.
2. Analyse some of the disasters occurring in Fiji with emphasis on their causes, effects and mitigation measures.
3. Analyse the role of climate change and its impact on agriculture with their mitigation options.
4. What is Biodiversity? Provide different types of biodiversity threats and their methods of conservation.
5. What is deforestation? Analyse its effect on climate change in detail.
6. What is marine pollution? Analyse its effect on marine life.

**END OF EXAMINATION PAPER**