



UNIVERSITY EXAMINATIONS
REGULAR - NJORO CAMPUS

FIRST SEMESTER, 2024/2025 ACADEMIC YEAR

FIRST YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

NARE 102: INTRODUCTION TO EAST AFRICAN FLORA

STREAM: BSC (NARE, ECOT)

TIME 2 HRS

EXAMINATION SESSION: DECEMBER

YEAR: 2024

INSTRUCTIONS:

- (i) Answer ALL questions in Section A and any other TWO Questions in Section B
- (ii) Do not write on the question paper
- (iii) Show your working clearly

SECTION A: (40 marks)

Question One Multiple Choice Questions (30 marks)

- i. What is the primary role of roots in a flowering plant?
 - A. Photosynthesis
 - B. Water and nutrient absorption
 - C. Pollination
 - D. Reproduction
 - E. Seed dispersal
- ii. Which family does *Acacia tortilis* (Umbrella tree) belong to?
 - A. Poaceae
 - B. Fabaceae
 - C. Asteraceae
 - D. Solanaceae
 - E. Myrtaceae
- iii. Which of the following is a key characteristic of monocots?
 - A. Parallel venation
 - B. Net-like venation
 - C. Two cotyledons
 - D. Taproot system
 - E. Woody stems

- iv. The process by which pollen is transferred from the anther to the stigma is known as:
- A. Fertilization
 - B. Pollination
 - C. Germination
 - D. Propagation
 - E. Photosynthesis
- v. In plant taxonomy, which rank is directly above species?
- A. Kingdom
 - B. Class
 - C. Genus
 - D. Order
 - E. Family
- vi. Which of the following plants is commonly found in Kenya's savannah ecological region?
- A. Mangrove
 - B. Bamboo
 - C. Baobab
 - D. Cycad
 - E. Coconut palm
- vii. What is the significance of the vascular tissue in plants?
- A. Gas exchange
 - B. Photosynthesis
 - C. Transport of water and nutrients
 - D. Reproduction
 - E. Seed dispersal
- viii. Which plant species is considered "endangered" due to overharvesting for medicinal use in Kenya?
- A. *Azadirachta indica*
 - B. *Prunus Africana*
 - C. *Euphorbia candelabrum*
 - D. *Cyperus papyrus*
 - E. *Catha edulis*
- ix. The ecological region characterized by dense evergreen forests and high rainfall in Kenya is:
- A. Coastal forest
 - B. Highland forest
 - C. Dryland savannah
 - D. Afro-alpine
 - E. Semi-arid
- x. Which of the following is NOT a pollination agent?
- A. Wind
 - B. Water
 - C. Bees
 - D. Birds
 - E. Rocks

- xii. Which one of the following families includes grasses such as maize and wheat?
- Solanaceae
 - Fabaceae
 - Poaceae
 - Asteraceae
 - Rosaceae
- xiii. Which term describes the science of naming and classifying plants?
- Ecology
 - Ethnobotany
 - Horticulture
 - Taxonomy
 - Forestry
- xiv. Which plant species is known for its cultural significance in the Kikuyu community for ceremonies?
- Neem tree
 - Sodom apple
 - Mugumo tree
 - Eucalyptus
 - Baobab
- xv. Which national park in Kenya is best known for its iconic savannah vegetation?
- Aberdare National Park
 - Nairobi National Park
 - Mount Elgon National Park
 - Amboseli National Park
 - Tsavo East National Park
- xvi. Which plant adaptation is most common in arid and semi-arid ecological zones?
- Waxy leaves to reduce water loss
 - Broad leaves for better sunlight capture
 - Shallow roots to absorb surface water
 - Aerial roots for gas exchange
 - Epiphytic growth for sunlight access
- xvii. Which flowering plant structure is responsible for seed formation?
- Stamen
 - Pistil
 - Petal
 - Sepal
 - Receptacle
- xviii. What does the term "herbarium" refer to?
- A collection of seeds
 - A plant conservation site
 - A place where herbs are grown
 - A collection of preserved plant specimens
 - A botanic research center

- xviii. Which of the following is a major threat to Kenya's coastal forests?
- Overgrazing
 - Charcoal burning
 - Urbanization
 - Illegal logging
 - Agricultural expansion
- xix. Which of the following trees is associated with Kenya's highland forests?
- Mangrove
 - Bamboo
 - Baobab
 - Eucalyptus
 - Coconut palm
- xx. Which method of seed dispersal relies on animals?
- Wind
 - Water
 - Explosive mechanisms
 - Mechanical shaking
 - Endozoochory
- xxi. Which of the following plants is crucial for Kenya's tea industry?
- Camellia sinensis*
 - Theobroma cacao*
 - Coffea Arabica*
 - Zea mays*
 - Citrus sinensis*
- xxii. Which type of flower symmetry is most common in the Fabaceae family?
- Bilateral
 - Radial
 - Irregular
 - Asymmetrical
 - Tubular
- xxiii. Which conservation strategy involves the controlled breeding of endangered plant species?
- Seed dispersal
 - Tissue culture
 - Ex-situ conservation
 - Afforestation
 - Deforestation
- xxiv. What is the economic significance of the *Cyperus papyrus* plant?
- Timber production
 - Medicinal use
 - Papermaking
 - Food crop
 - Essential oil extraction

- xxv. Which adaptation helps mangrove plants thrive in saline coastal ecosystem?
- Salt filtration
 - Sunken stomata
 - Deep taproots
 - Leaf shedding
 - Vertical stem growth
- xxvi. Which region in Kenya is known for high plant diversity and is a biodiversity hotspot?
- Lake Victoria Basin
 - Tana River Delta
 - Aberdare Range
 - Eastern Rift Valley
 - Mau Forest Complex
- xxvii. The term "xerophyte" refers to a plant adapted to:
- High altitudes
 - Low temperatures
 - Wet environments
 - Arid conditions
 - Polluted soils
- xxviii. Which conservation approach focuses on preserving plants in their natural habitats?
- Ex-situ conservation
 - Reforestation
 - Seed banking
 - In-situ conservation
 - Greenhouse propagation
- xxix. Which genus of plants is commonly used in Kenya for the production of timber?
- Baobab
 - Acacia
 - Bamboo
 - Eucalyptus
 - Neem
- xxx. Which of the following methods is commonly used to identify plant species?
- Dissection
 - Microscopy
 - Field sampling
 - DNA sequencing
 - Herbarium referencing

Question Two

Discuss the role of Kenya's national parks in the conservation of flowering plant species.

- Describe how national parks contribute to biodiversity conservation in Kenya. (2.5 Marks)
- Explain the role of national parks in protecting endangered plant species. (2.5 Marks)
- Discuss the challenges national parks face in conserving plant biodiversity. (2.5 Marks)
- Suggest improvements for enhancing plant conservation in Kenya's national parks. (2.5 Marks)

SECTION B: Answer any two (2) of the following questions (30 marks).

Question Three

- a) Explain the major human impacts on East African flora. **(5 Marks)**
- b) Discuss the conservation measures being implemented to mitigate these impacts in Kenya. **(10 Marks)**

Question Four

- a) Describe the ecological regions of Kenya, highlighting the unique plant species associated with each region. **(10 Marks)**
- b) Discuss how plant adaptations contribute to survival in different ecological zones. **(5 Marks)**

Question Five

- a) Examine the economic and cultural significance of plants in Kenyan communities. **(10 Marks)**
- b) How can the sustainable use of plant resources contribute to national development and biodiversity conservation? **(5 Marks)**