



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

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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

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



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

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