



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, NATURAL RESOURCES AND APPLIED SCIENCES

DEPARTMENT OF NATURAL RESOURCES SCIENCES

QUALIFICATION: BACHELOR OF NATURAL RESOURCES MANAGEMENT	
QUALIFICATION CODE: 07BNRS	LEVEL: 7
COURSE CODE: PTS710S	COURSE NAME: Plant Studies 2
DATE: JULY 2024	
DURATION: 2 HOURS	MARKS: 100

SECOND OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Prof. J. M. Kamwi
MODERATOR:	Prof. E. Kwembeya

INSTRUCTIONS
<ol style="list-style-type: none">1. Answer ALL the questions.2. Write clearly and neatly.3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Examination question paper
2. Answering book

THIS QUESTION PAPER CONSISTS OF 3 PAGES (Excluding this front page)

1. The advanced pollination symptoms that angiosperms have over gymnosperms is one of their advances. Explain this and give some examples. [5]
2. Identify and describe any two issues facing the industry of indigenous natural plant products. [6]
3. Many plants, particularly in Namibia's more dry regions, are armed with thorns, prickles, or spines. Explain the distinctions between these three terms, the variety of these structures, and their purposes as you discuss this statement. Provide pertinent examples to support your response. If you would like, you can also utilize drawings. [12]
4. There is a family or subfamily in column B for every species in column A. Link the number in column A and the letter that goes with it in column B, for example, (1) H. REMEMBER: A family may contain more than one species. [15]

COLUMN A – SPECIES	COLUMN B – FAMILIES
(1) <i>Philenoptera violacea</i>	A. Burseraceae
(2) <i>Schinziophyton rautanenii</i>	B. Bignoniaceae
(3) <i>Ziziphus mucronata</i>	C. Anacardiaceae
(4) <i>Datura innoxia</i>	D. Rhamnaceae
(5) <i>Commiphora angolensis</i>	E. Euphorbiaceae
(6) <i>Kigelia africana</i>	F. Poaceae
(7) <i>Terminalia sericea</i>	G. Strychnaceae
(8) <i>Searsia marlothii</i>	H. Clusiaceae
(9) <i>Baphia massaiensis</i>	I. Combretaceae
(10) <i>Phragmites australis</i>	J. Sapotaceae
(11) <i>Spirostachys africana</i>	K. Ebenaceae
(12) <i>Colophospermum mopane</i>	L. Solanaceae
(13) <i>Adansonia digitata</i>	M. Fabaceae / Papilionoidae
(14) <i>Grewia retinervis</i>	N. Fabaceae / Caesalpinioideae
(15) <i>Laggera decurrens</i>	O. Fabaceae / Mimosoidae
	P. Malvaceae (new classification)
	Q. Moraceae
	R. Asteraceae

5. The Namibian genus *Commiphora* is one that has truly adapted to arid conditions.
 - 5.1 Explain this claim by going into detail about the plant's structure and how it manages to survive in this country. [4]
 - 5.2 To which family does this genus belong? [1]
 - 5.3 Name two species of this genus that are endemic to the Namib. [2]
6. The compound fruit of the Moraceae family has evolved into a highly peculiar structure with a special bond between the fruit and its pollinators. Describe this assertion. [12]
7. Explain the "foliar theory of the carpel" in detail. Goethe's theory remains the [4]

most comprehensive explanation for the evolution of the carpel.

8. One of Namibia's most significant and varied families is the Fabaceae family. [20]
 8.1 Discuss the importance of this family to the Namibian environment, and to people. (Refer to different biomes and vegetation types, adaptations of the family, and mention species that are important and what they are important for.)
 8.2 Some taxonomists consider the family to consist of three subfamilies. Describe the traits that set the three subfamilies apart. [9]

9. Explain the following terms.

- (a) Sympetalous
- (b) Synfilamentous
- (c) Adnation (adnate)
- (d) Megacarpa
- (e) Microcarpa
- (f) Perianth
- (g) Androecium
- (h) Gynoecium
- (i) Diagnostic characters
- (j) Type specimen
- (k) Flora

10. Each diagnostic feature listed in column A corresponds to a genus listed in column B. [10]
 Link the number in column A and the letter that goes with it in column B, for example, (1) B.

COLUMN A – CHARACTERISTICS	COLUMN B - GENERA
(1) Simple, opposite leaves; interpetiolar stipule; inferior ovary.	A. <i>Acanthosicyos</i>
(2) Spiny, leafless shrub endemic to the Namib, with large spiny fruit. The pulp and seeds are eaten.	B. <i>Ozoroa</i>
(3) Fruit a 4–5-winged samara, bark peeling in long threads.	C. <i>Ficus</i>
(4) Shrub or small tree with large bipinnate leaves with small leaflets; lacks thorns, has bright yellow flowers in spikes.	D. <i>Euphorbia</i>
(5) A member of the daisy family that has silvery leaves and is abundant in the Khomas region.	E. <i>Commiphora</i>
(6) Fruit is a syconium.	F. <i>Combretum</i>
(7) Deciduous or semi-deciduous tree with a rounded crown, leaves simple and alternate or spirary arranged, infloresence in axillary clusters and is abundant in the Khomas region.	G. <i>Berchemia</i>
(8) Tree with diameter up to 10m; palmately compound leaves; large white flowers; a large ovoid fruit that is high in vitamin C.	H. <i>Vangueria</i>
(9) Plants with large, boat-shaped, succulent leaves, sometimes with toothed margins.	I. <i>Elephantorrhiza</i>

(10) Plants with aromatic resin, with many endemic species in the Namib, often pachycauls, often with peeling bark.	<i>J. Tarconanthus</i>
	<i>L. Hyphaene</i>
	<i>M. Aloe</i>
	<i>N. Phoenix</i>
	<i>O. Adansonia</i>