



NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING AND THE BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE, PLANNING AND CONSTRUCTION

QUALIFICATION: BACHELOR OF REGIONAL AND RURAL DEVELOPMENT	
QUALIFICATION CODE: 07BRAR	NQF LEVEL: 7
COURSE CODE: NRS711S	COURSE NAME: NATURAL RESOURCES MANAGEMENT AND SUSTAINABLE DEVELOPMENT
DATE: JUNE 2025	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 100

FIRST OPPORTUNITY EXAMINATION	
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NOTES:
<ol style="list-style-type: none">1. The Question Paper consists of 7 pages (including this front page).2. Answer ALL the questions.3. Read all the questions carefully before answering.4. Number the answers clearly and legibly.5. The following materials are permissible during the examination: pen, pencil, ruler and eraser.

THIS QUESTION PAPER CONSISTS OF 7 PAGES (Including this front page)

Question 1

Selects the single **CORRECT** answer to each of the following questions. Just write down the answer, e.g. (1) (i).

1) Select the incorrect statement. Earth system processes..... (1)

- (i) Often involve energy fluxes between sub-systems
- (ii) Can take place at both very small and very large spatial scales
- (iii) Are too vast and powerful to be influenced by human activities
- (iv) Are responsible for maintaining natural equilibria
- (v) Conjunctive use of various water sources

2) The roots of plants break up rocks to increase their weathering rate is an example of: (1)

- (i) The geosphere interacting with the atmosphere
- (ii) The hydrosphere interacting with the atmosphere
- (iii) The geosphere interacting with the biosphere
- (iv) The biosphere interacting with the cryosphere
- (v) The biosphere interacting with hydrosphere

3) Among the principles of sustainability, the precautionary principle refers to..... (1)

- (i) The person causing environmental harm being responsible for the cost to fix it
- (ii) Waiting for more scientific information on impacts and risks before implementing a potentially harmful policy or activity
- (iii) Reducing and eliminating unsustainable patterns of consumption and production
- (iv) Focusing solely on environmental conservation
- (v) Achieving economic growth while limiting environmental damage and optimizing

4) Which one is not a target of SDG 3 (Good Health and Well-being)? (1)

- (i) Decrease in injuries and deaths from traffic accidents
- (ii) Access to healthcare services, medicines and vaccines
- (iii) Decrease in illnesses and deaths from environmental pollution and hazardous chemicals
- (iv) Prevention and treatment of drug and alcohol abuse

(v) Population reduction by imposing a global one-child-per-family policy

5) The idea that a developing country can bypass outdated, inefficient or polluting technologies and move directly to efficient, cost-effective and green technologies is known as ... (1)

(i) The Fourth Industrial Revolution

(ii) Leapfrogging

(iii) The Lifecycle Approach

(iv) Sustainability

(v) The circular economy

6) Local horticultural production in Namibia is supported by ... (1)

(i) Transport subsidies

(ii) Import restrictions on some fruits and vegetables at certain times of the year when there is sufficient local supply

(iii) Export subsidies

(iv) Plans to dismantle the veterinary cordon fence ('Red Line')

(v) infant-industry protection for the chicken industry

7) Anthroponoses are diseases that ... (1)

(i) Are caused by modern diets that are too rich in animal proteins

(ii) Are endemic to animal populations

(iii) Are only found in overcrowded zoos

(iv) Circulate within the human population and can jump species to animals

(v) Are transmitted from animals to humans

8) One outcome of the first 'Rio Conference' in 1992 was the adoption of ... (1)

(i) The Paris Agreement

(ii) The UN Agenda 2030

(iii) The Helsinki Rules

(iv) The Vienna Convention and Montreal Protocol

(v) The UN Framework Convention on Climate Change

9) The index that measures income distribution inequality within a population is the ... (1)

(i) Multidimensional Poverty Index

(ii) Human Development Index

(iii) Gini Coefficient

(iv) Gender-Inequality Index

(v) Gross National Income

10) Small Island Developing States receive special consideration in SDG 13 (Climate Action) because they ... (1)

- (i) Offer great possibilities for carbon sequestration
- (ii) Are particularly vulnerable to earthquakes
- (iii) Are tax havens for ultrarich people in wealthy countries
- (iv) Are in imminent danger due to sea level rise
- (vi) Have excellent tourism potential

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Question 2

- (a) Compile your own comprehensive definition of sustainable development, including clear descriptions of its three pillars. (4)
- (b) Johan Rockstrom and his colleagues from Stockholm Resilience Centre developed the Planetary boundaries model. Briefly articulate what the planetary boundaries model is all about? (6)
- (c) Explain the following concepts:
 - (i) Environmentally Sustainable Society (3)
 - (ii) Sustainable Land Management (3)
- (d) Mention four (4) of the environmental challenges to food production that smallholder farmers in northern Namibia are grappling with. (4)

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Question 3

- a) The United Nation Conference on Environment and Development (earth summit) took place at Rio de Janeiro, Brazil in 1992. Agenda 21 framework was among the several outcomes of the conference.

Based on lecture presentations and class discussions; In your own reflection, discuss what Agenda 21 Framework is all about. (10)
- b) Deliberate the impacts that infrastructure improvements, such as roads and electricity, have on poverty reduction in rural areas. (4)
- c) Describe how can sustainable agricultural practices contribute to poverty reduction in developing countries? (3)
- d) What do you think can the Namibian government do to encourage entrepreneurship as a way to reduce poverty? (3)

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Question 4

- a) Explore the links between human health issues and the pressures that human activities put on wildlife and ecosystems. Use very specific examples to support your arguments. (6)
- b) How do the efforts to protect biodiversity contribute to overall sustainable development, as envisioned by SDG 15 (Life on Land)? (4)
- c) Propose strategies that the Namibian national government can implement to address SDG 2 (Zero Hunger) in Namibia. (6)
- d) Substantiate the importance of investing in sanitation infrastructure in rural public facilities such as schools and clinics for achieving SDG 6. (4)

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Question 5

- a) Explain how can a developing country create resilience to climate-related hazards? (4)
- b) Name two (2) organisations or mechanisms that fund projects on climate action. (2)
- c) What is marine spatial planning? Elaborate on its objectives to enhance your explanation. (4)

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Question 6

- a) "Namibia uses an energy-mix for electricity supply." Substantiate this statement. Use specific examples of Namibian power plants or electricity sources to support your arguments. (8)
- b) Suggest 2 strategies for improving urban air quality. (2)

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Question 7

Match each term in Column 1 with the appropriate description in Column 2. Write down only the capital letter from Column 2 next to the small letter from Column 1, for example (i.) D.

Column 1	Column 2
i. Ecological footprint	A Death rate of a population

<ul style="list-style-type: none"> ii. 'Tragedy of the commons' theory iii. Holocene iv. Carrying capacity v. Exponential population growth vi. Independent Power Producers vii. Declaration on Environment and Development viii. Mortality ix. Conservation agriculture x. A non-renewable energy source 	<ul style="list-style-type: none"> B A political declaration containing principles of sustainable development; an outcome of the 1992 'Rio Conference' C An implementation plan for sustainable development; an outcome of the 2002 World Summit on Sustainable Development D An approach to agriculture that preserves wildlife in their natural habitats E Entities that generate electricity for themselves or for the national grid F Voluntary commitments, identified by countries themselves, to reduce their greenhouse gas emissions H Birth rate of a population I Entities responsible for distribution of electricity within specific regions J The geological period during which most of Earth's coal reserves were formed K The state in which humanity can thrive in totality L The impact that a population has on the environment, in terms of the amount of land required to sustain its use of natural resources M Geological name to acknowledge human influence on the planet. N Shared resources are usually over-exploited, as everybody strives to maximise their own use O Nuclear power P Maximum number of individuals an environment can support indefinitely without negative impacts Q Populations growth that proceeds unchecked until an external disaster happens
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	<p>R Population growth regulated by density-independent factors</p> <p>S An approach to agriculture that maintains and improves soil health, water infiltration and retention, and soil organic matter</p>
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TOTAL = 100