



**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	LEVEL:	7	CREDITS:	12
COURSE CODE:	NRS711S	COURSE NAME:	NATURAL RESOURCES MANAGEMENT AND SUSTAINABLE DEVELOPMENT		
DATE:	JULY 2024	PAPER:	THEORY		
DURATION:	3 HOURS	MARKS:	100		

SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER	
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INSTRUCTIONS
<ol style="list-style-type: none">1. Answer ALL the questions.2. Read the entire question paper before answering the questions.3. Questions may be answered in any sequence, provided that they are numbered clearly and correctly.4. Write clearly and legibly.

PERMISSIBLE MATERIALS

Pen, ruler, pencil and eraser

THIS QUESTION PAPER CONSISTS OF 12 QUESTIONS AND 8 PAGES (including this front page)

Question 1:

Select the single *CORRECT* answer to each of the following questions. Just write down the number, e.g. (a) D.

- (a) Plant roots, lichens and bacteria contribute to the weathering of rocks and the formation of soil. This is an example of an interaction between the ...
- A cryosphere and geosphere
 - B atmosphere and hydrosphere
 - C biosphere and atmosphere
 - D geosphere and biosphere
 - E hydrosphere and cryosphere
- (1)
- (b) Earth Overshoot Day is:
- A The number of days before the Earth System collapses
 - B The date in a year when mankind's demand for ecological resources and services surpasses Earth's capacity to replace those resources and absorb those wastes
 - C Earth's biocapacity minus mankind's ecological footprint (in global hectares)
 - D The number of days per year that mankind is in ecological deficit
 - E The date when the global population passes 8 billion
- (1)
- (c) Which international conference in 1992 led to the adoption of Agenda 21 and raised awareness about sustainable development?
- A Copenhagen Climate Conference
 - B Johannesburg Conference on Implementation of Sustainable Development
 - C Paris Agreement Summit
 - D Rio Earth Summit
 - E Montreal Conference on Protection of the Ozone Layer
- (1)
- (d) Small Island Developing States receive special consideration in SDG 13 (Climate Action) because they ...
- A offer great possibilities for carbon sequestration
 - B are particularly vulnerable to earthquakes
 - C are tax havens for ultrarich people in wealthy countries
 - D are in imminent danger due to sea level rise
 - E have excellent tourism potential
- (1)

- (e) Which of the following best defines sustainable development?
- A focusing solely on environmental conservation
 - B promoting technological advancement regardless of its impact on society
 - C achieving economic growth while limiting environmental damage and optimizing benefits for society
 - D meeting the needs of the current generation
 - E putting human wellbeing ahead of economic prosperity and environmental protection
- (1)
- (f) Zoonoses are diseases that ...
- A circulate within animal populations and can infect humans
 - B develop in humans due to unhealthy lifestyles
 - C are only found in overcrowded zoos
 - D are plant diseases that can cause allergies in humans
 - E circulate within human populations and are transmitted from humans to animals
- (1)
- (g) The Intergovernmental Panel on Climate Change ...
- A is a secretariat of the UNFCCC that carries out its own research on climate change
 - B prescribes to the UNFCCC Conference of Parties how they must implement the articles of the Convention
 - C produces regular assessment reports on the science of climate change, impacts, vulnerability and adaptation, and mitigation
 - D is the governing body of the UN Framework Convention on Climate Change
 - E produces annual national communications on climate change
- (1)
- (h) The index that measures income distribution inequality within a population is the ...
- A Multidimensional Poverty Index
 - B Human Development Index
 - C Gini Coefficient
 - D Gender-Inequality Index
 - E Gross National Income
- (1)
- (i) Which one is *not* a *renewable* energy source for generation of electricity?
- A hydro energy
 - B natural gas
 - C sea currents
 - D wave energy
 - E geothermal energy
- (1)

- (j) The City of Windhoek was the first city in the world to implement ...
- A demand-side management of water
 - B reclamation of wastewater and managed aquifer recharge
 - C conjunctive use of various water sources
 - D desalinisation of wastewater
 - E sliding scales for water tariffs according to usage levels
- (1)
-
- [10]**

Question 2:

- (a) Global Change is a collective term for planetary-wide changes in the Earth System and its interconnected, interdependent subsystems, as well as related large-scale changes in human society. These changes have become most noticeable since the start of the Industrial Era and have been speeding up since the middle of the 20th Century. Reflect on Global Change in terms of the types of observed changes and their drivers (direct and root causes). (6)
- (b) Choose any two (2) Principles of Sustainable Development, as set out in the Rio Declaration, and discuss their relevance to the potential development of a Namibian oil/petroleum industry. (4)
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- [10]**

Question 3:

- (a) Describe effective national strategies that a developing country could implement to reduce rural poverty. (6)
- (b) How is the Namibian government using social protection programmes to reduce poverty, and how can it improve those? (5)
-
- [11]**

Question 4:

- Suggest strategies that the Namibian national government can implement to address SDG 2 (Zero Hunger) in Namibia. (6)
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- [6]**

Question 5:

- (a) Discuss the links between health issues and exposure to pollution. Use very specific examples to support your argument. (5)
- (b) Propose strategies for improving urban air quality. (4)
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- [9]**

Question 6:

- (a) The overarching aim of SDG 6 is to ensure the availability and sustainable management of water and sanitation for all. How can the promotion of water-efficient agricultural practices and rainwater harvesting support the achievement of SDG 6? (4)
- (b) Explain the importance of investing in sanitation infrastructure in rural schools for achieving SDG 6. (3)
-
- [7]**

Question 7:

- “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)
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- [8]**

Question 8:

- SDG 11 – Sustainable Cities & Communities: List, in full, descriptive sentences, six (6) features or characteristics of sustainable cities. (For example: Fresh water is used sparingly, e.g. by planting ‘water-wise’ gardens). (6)
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- [6]**

Question 9:

SDG 12 – Responsible Consumption and Production – promotes...

- (a) leapfrogging technologies for developing countries (3)
- (b) the lifecycle approach to products (3)
- (c) the circular economy (3)

Explain what is meant by each of these concepts and provide appropriate examples of how this can be done.

[9]

Question 10:

- (a) 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)

[6]

Question 11:

- (a) Which countries have territorial waters within the Benguela Current Large Marine Ecosystem? (3)
- (b) What is marine spatial planning? Elaborate on its objectives to enhance your explanation. (4)
- (c) In addition to ocean warming and sea level rise, what is the other major impact of carbon dioxide emissions on the oceans? (1)

[8]

Question 12:

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 (a) D.

<u>Column 1</u>	<u>Column 2</u>
(a) Tragedy of the Commons theory	A An implementation plan for sustainable development; an outcome of the 2002 World Summit on Sustainable Development
(b) Nationally Determined Contributions	B A facility where genetically modified organisms are produced
(c) Conservation agriculture	C A political declaration containing principles of sustainable development; an outcome of the 1992 'Rio Conference'
(d) Mortality	D Voluntary commitments, identified by countries themselves, to reduce their greenhouse gas emissions
(e) Genebank	E An approach to agriculture that preserves wildlife in their natural habitats
(f) Declaration on Environment and Development	F An approach to agriculture that maintains and improves soil health, water infiltration and retention, and soil organic matter
(g) Holocene	G Entities responsible for distribution of electricity within specific regions
(h) Cryosphere	H Birth rate of a population
(i) Planetary boundaries	I Financial commitments by developed countries to the Green Climate Fund
(j) Independent Power Producers	J A facility where seeds of crop species and their wild relatives are preserved
	K Death rate of a population

- L Unlimited economic growth is impossible in a system with finite resources
- M Earth’s subsystem that involves the upper mantle, crust and soil
- N Where Earth’s atmosphere ends and the vacuum of space begins
- O Entities that generate electricity for themselves or for the national grid
- P The geological period with stable environmental conditions since the end of the last ice age
- Q Upper limits to mankind’s use of natural resources, to maintain critical Earth system processes and stable environmental conditions
- R The geological period during which most of Earth’s coal reserves were formed
- S Earth’s subsystem that involves ice- and snow-covered areas
- T Communal resources are usually over-exploited, as everybody strives to maximise their own use (10)

[10]

TOTAL: 100