NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF ENGINEERING AND SPATIAL SCIENCES

DEPARTMENT OF ARCHITECTURE AND SPATIAL SCIENCES

QUALIFICATION: BACHELOR OF REGIONAL AND RURAL DEVELOPMENT					
QUALIFICATION CODE:	07BRAR	LEVEL:	7	CREDITS:	12
COURSE CODE:	NRS711S	COURSE NAME:	NATURAL RESOURCES AND SUSTAINABLE DEVELOPMENT		
DATE:	JUNE 2022	PAPER:	THEORY		
DURATION:	3 HOURS	MARKS:	100		

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
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MODERATOR:	Gillian Maggs-Kölling

INSTRUCTIONS
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 10 QUESTIONS AND 7 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)   Which one is an *abiotic* component of ecosystems?

A   Fungi

B   Humus

C   Petroleum

D   Clay minerals

E   Insects   (1)

(b)   Which one is *not* part of the definition of natural capital?

A   Processes, such as nutrient cycling

B   Cultural identity of indigenous communities

C   Sinks, that absorb, neutralise or recycle wastes

D   Resources, such as soil, plants, animals

E   Flows of energy   (1)

(c)   Agenda 21 is ….

A   A guide for sustainable development during the 21st century

B   A successor of the Millennium Development Goals

C   A legally binding treaty to address ecosystem degradation

D   A set of objectives under the 2030 Agenda for Sustainable Development

E   A set of development targets to reach by 2015   (1)

(d)   Which one of the following does *not* fit within the concept of sustainable development?

A   Living within environmental limits

B   Transparent, inclusive and accountable governance

C   Intra-generational equity

D   Shared but differentiated responsibility

E   Decision-making based on popular opinion   (1)

(e)   Which one of the following does *not* fit within the concept of Earth System processes?

A   Can sometimes take place on very short timescales

B   Include major biogeochemical cycles

C   Often involve flows of materials between the different 'spheres'

D   Include the water and rock cycles

E   Take place entirely within separate sub-systems, with no connection between them   (1)

(f)   The role of the Namibian Electricity Control Board is to ….
   A   Make policies on electricity supply
   B   Import electricity from neighbouring countries
   C   Generate bulk electricity
   D   Regulate the electricity supply industry
   E   Transmit electricity to bulk consumers   (1)

(g)   The following is *not* a global *driver* of consumption:
   A   Rise in global affluence
   B   Stress on Earth's ecosystems
   C   Throw-away culture among higher-income groups
   D   Rapid global population growth
   E   Peer pressure from social media   (1)

(h)   The Gini coefficient is a measure of ….
   A   Gross national income
   B   Life expectancy, education, and health
   C   Multiple dimensions of poverty
   D   Reproductive health, empowerment of women, and their participation in economic
        activities
   E   Inequality in income distribution   (1)

(i)   Offshore mineral exploration and mining, beyond the limits of national jurisdictions,
        are regulated by the ….
   A   International Maritime Organisation
   B   UN Convention on the Law of the Sea
   C   UN Deepsea Mining Authority
   D   Convention for the Prevention of Pollution from Ships
   E   International Seabed Authority   (1)

(j)   Climate change vulnerability is a function of ….
   A   Exposure and sensitivity to climate hazards, and adaptive capacity
   B   Resilience and mitigation
   C   Loss and damages due to climate hazards
   D   Exposure and sensitivity to ultraviolet radiation
   E   Adaptation and mitigation   (1)

                                                                                      [10]

Question 2:

"Kate Raworth added to the idea of Planetary Boundaries with her 'Social Foundation' concept and stated that we ought to live 'within the doughnut'."

(a)   Explain the meaning of this statement, i.e. the aim and conceptual framework of her model.
        [You may use a diagram to support your argument, but the core of the answer should be a clear, written explanation.]   (6)

(b)   Name five (5) of the eleven Social Foundations.   (5)

(c)   To what extent is mankind meeting these expectations?   (1)

                                                                                                   [12]

Question 3:

(a)   Within the context of the Agenda 21 Sustainable Development Principles, why does Botswana have the right to object to Namibia developing a petroleum industry in Kavango-East, but not to Namibia harvesting seals along its own coast?   (4)

(b)   Why is the youth of the world specifically mentioned in the Sustainable Development Principles?   (3)

                                                                                                    [7]

Question 4:

Discuss the physical, economic, social and policy factors that contribute to food insecurity at national and household level in Namibia. *[Write full sentences.]*   (9)

                                                                                                    [9]

Question 5:

A sustainable city encompasses much more than just sustainable transport. Provide examples of other characteristics of a sustainable city. *[Write full sentences.]*   (9)

                                                                                                    [9]

Question 6:

Explore the links between health issues, and pressure on wildlife and ecosystems by human activities. Use very specific examples to support your arguments.   (9)

                                                                                                                                              [9]

Question 7:

The MARISMA Programme deals with Marine Spatial Planning of the Benguela Current Large Marine Ecosystem.

(a)   Which countries have territorial waters within the Benguela Current Large Marine Ecosystem?   (3)

(b)   What are the objectives of Marine Spatial Planning? Use specific examples to support your explanation.   (6)

(c)   In addition to ocean warming and sea level rise, what is the other major impact of carbon dioxide emissions on the oceans?   (1)

(d)   In what way does intensive agriculture affect marine ecosystems?   (1)

                                                                                                                                              [11]

Question 8:

Discuss approaches (strategies) that would enhance sustainable consumption and production globally. *[Hint: Use the targets of SDG 12 (Responsible Consumption and Production) as a point of departure]*   (12)

                                                                                                                                              [12]

Question 9:

"Namibia uses an energy-mix for electricity supply." Substantiate this statement. Use specific examples of power plants or electricity sources to support your arguments.
[One mark per energy source, one per appropriate example; 1 mark for clear, logical explanation]   (11)

                                                                                                                                              [11]

Question 10

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.

Column 1		Column 2	
(a)	Logistic (sigmoidal) population growth	A	The leading global environmental authority, under the United Nations
(b)	UNEP	B	Earth's subsystem that involves its core, mantle, crust and soil
(c)	Lithosphere		
		C	Database on the conservation status of threatened species
(d)	Mortality		
(e)	Orange Seamount and Canyon Complex	D	International agreement on trade in endangered wildlife and plants
		E	Period of fastest population growth
(f)	Lag phase of population growth	F	One of Namibia's Ecologically and Biologically Significant Areas
(g)	'Limit to Growth' theory	G	List of communist and socialist countries
(h)	Radiation	H	Birth rate of a population
(i)	Ramsar Convention	I	Communal resources are usually over-exploited, as everybody strives to maximise their own use
(j)	Red List		
		J	Earth's subsystem that involves the upper mantle, crust and soil
		K	Population growth regulated by density-dependent factors
		L	Heat distribution through the movement of fluids due to density differences

(continue on next page)

M	Death rate of a population
N	International treaty on wetlands of international importance especially as waterfowl habitats
O	Initial, slow population growth while there are only a few organisms and reproduction is still low
P	Population growth that is not regulated by internal factors, but rather by external disasters
Q	Unlimited economic growth is impossible in a system with finite resources
R	Transmission of electromagnetic energy through space
S	An inter-governmental science-policy platform on biodiversity and ecosystem services
T	One of Namibia's World Heritage Sites

[10]

TOTAL: 100