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:** 6	**CREDITS:** 12
COURSE CODE:	IEM621S	**COURSE NAME:**	INTEGRATED ENVIRONMENTAL MANAGEMENT
DATE:	JANUARY 2025	**PAPER:**	THEORY
DURATION:	3 HOURS	**MARKS:**	100

SECOND OPPORTUNITY / SUPPLEMENTARY EXAMINATION QUESTION PAPER	
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INSTRUCTIONS
1. Read and answer all the questions carefully.
2. Number the answers clearly.

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

Question 1:

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

(a) Which one of the following is *not* an aim of integrated environmental management?

A political control
B economic development
C social well-being
D long-term health and integrity of ecosystems
E sustainable development (1)

(b) In environmental indicator systems, what is the significance of "baseline data"?

A it is another word for impact data
B it provides historical data against which change can be measured
C it measures the immediate response to a policy change
D it indicates the most favourable environmental conditions
E it defines the thresholds for adhering to environmental regulations (1)

(c) What is the primary application of spatial analysis and geographic information systems (GIS) in state of the environment reporting?

A promoting government transparency
B identifying key stakeholders
C visualising environmental data and trends
D advocating for policy changes
E impressing environmental auditors (1)

(d) What is the role of the "Environmental Commissioner" in the environmental impact assessment (EIA) process for development activities in Namibia?

A evaluating the environmental impacts of development activities and grant or deny environmental permits
B promoting development activities without oversight
C conducting EIAs on behalf of the project proponent
D issuing environmental permits for all development activities, whether they have large environmental impacts or not
E carrying out stakeholders analysis (1)

(e) In the context of scoping, what is the significance of "alternatives analysis"?

A evaluating project financing options
B assessing the economic viability of a project

C considering and comparing different project designs and locations
D choosing an alternative land use for the designated project site
E expediting the EIA process (1)

(f) In impact analysis, what does the term "cumulative impacts" refer to?
A impacts that occur simultaneously with project implementation
B the combined impacts of a project with those of other existing and future projects
C impacts that are negligible and not worth considering
D impacts that can be mitigated easily
E impacts that add to the cost of mitigation (1)

(g) What is the purpose of "compensation" as a mitigation measure in EIA?
A eliminating all social impacts of a project
B financially compensating an affected community for project impacts
C maximising project benefits
D reducing significant impacts to an acceptable limit
E avoiding all impacts entirely (1)

(h) In the circular economy, what does "cradle-to-cradle" design refer to?
A designing products with a short lifespan
B designing products that cannot be recycled
C designing products without considering environmental impacts
D designing products at the lowest possible cost
E designing products with a focus on recyclability and reusability (1)

(i) Which of the following is *not* typically considered an environmental impact category in life-cycle assessment?
A air quality
B resource depletion
C freshwater use
D contribution to climate change
E customer satisfaction (1)

(j) Which of the following is <u>not</u> a goal of ecological restoration? Re-establishing an ecosystem that is ...
A resilient
B self-sustaining
C integrated into the larger landscape
D supporting sustainable livelihoods
E dependent on human interventions indefinitely (1)

[10]

Question 2:

For each of the following scenarios, select the most appropriate tool from the 'integrated environmental management toolbox' and explain your choice.
(e.g., if the scenario is about identifying mitigation actions for a project, the appropriate tool will be an environmental impact assessment):

(a) Before deciding to conduct bush clearing on a farm near Otjiwarongo in order to improve veld productivity, scientists measure various vegetation parameters. (2)

(b) After the productive lifetime of Ramatex, buildings are reconstructed, dangerous and unsightly waste and pollutants are removed, and the site is converted into a national convention and adventure centre. (2)

(c) The Ministry of Urban and Rural Development wants to know what the nation-wide environmental effects and impacts of the revised Rural Development Policy will be. (2)

[6]

Question 3:

As a development planner in a regional authority, you may be required to apply the provisions of the Namibian Environmental Management Act and its Regulations.

(a) The Regulations of this Act list activities that require an environmental clearance certificate. Name the activities related to the rezoning of land (land use change). (4)

(b) Propose a (i) state indicator, (ii) pressure indicator, and (iii) response indicator to assess rhino poaching in Namibia. (3)

[7]

Question 4:

The Namibian environmental impact assessment (EIA) process requires a sequence of steps, including the scoping and assessment reports. Describe the contents of the EIA assessment report.

[11]

Question 5:

'We can only manage things that we measure'. Provide arguments in full sentences (not only bullet points or phrases) to support this statement with reference to the concept of environmental indicators.

[7]

Question 6:

The main aim of engaging stakeholders is to improve communication in the interest of facilitating better decision-making and more sustainable development.

(a) Analyse five benefits of stakeholder engagement for a project proponent. (10)

(b) Compare the two levels of stakeholder engagement "involve" and "empower" concerning the extent to which project proponents collaborate with stakeholders. (4)

[14]

Question 7:

(a) Frame your understanding of the concept of ecolabels. (5)

(b) Discuss the benefits of ecolabels. (5)

[10]

Question 8:

(a) Explain the components of a life cycle assessment of a product. (5)

(b) Compare rehabilitation and restoration in the context of integrated environmental management, by highlighting their respective objectives and expected outcomes.

(6)

(c) List four (4) practical techniques with which humans can assist the recovery of a damaged ecosystem.

(4)

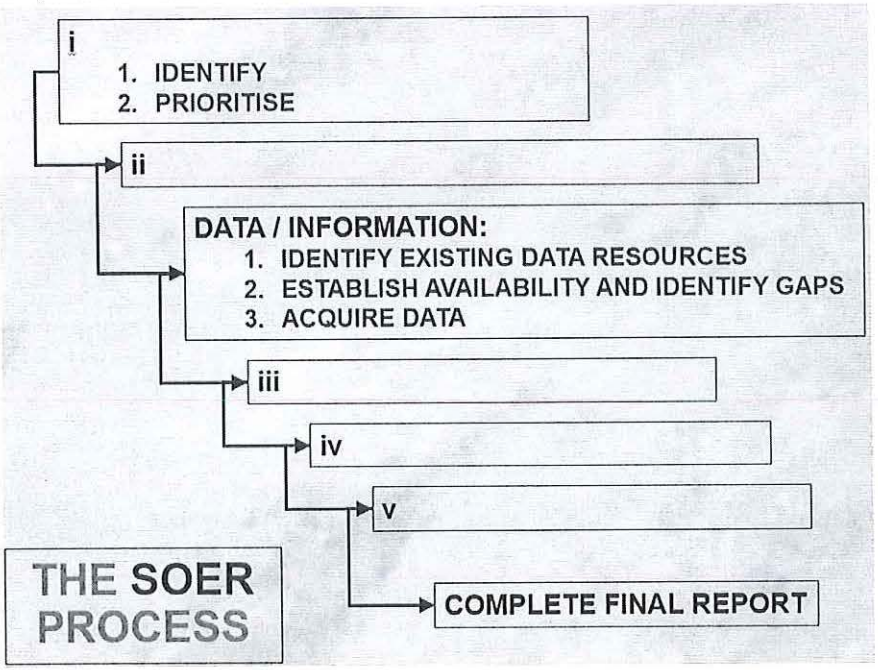
[15]

Question 9:

A key objective of a *State of the Environment Report (SOER)* is to capture and present, in as accurate and useful a format as practicable, key information on the state of the 'environment'.

(a) Complete the flow diagram below to clarify the SOER process. Only write the correct steps for numbers i to v.

(5)



Strategic environmental assessment (SEA) is critical to help achieve sustainable development in public planning and policy making.

(b) Clarify the scoping stage of the SEA process in your own words.

(4)

(c) Summarise the main difference between an environmental impact assessment (EIA) and a strategic environmental assessment (SEA).

(2)

[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)	Eco-balance	A	The successional stages of ecosystem development
(b)	Stakeholder analysis	B	A measurement, statistic or value that identifies the presence or level of a factor affecting the environment
(c)	Environmental monitoring		
(d)	Circular economy	C	How long a particular effect of a project will last
(e)	Avoid, minimize, compensate	D	A technique to identify all organisations, groups or individuals that will be affected by a planned development activity
(f)	Environmental Assessment Practitioner	E	The idea that environmental damage will be ignored if bribes are paid to government officials
(g)	Ecological trajectory	F	A Plan-Do-Check-Act cycle
(h)	Polluter pays principle	G	When, during project implementation, a particular impact will start
(i)	Environmental indicator	H	A production system in which resource input, waste, emissions and energy leakage are minimised by slowing, closing, and narrowing material and energy loops
		I	The impact mitigation hierarchy
		J	Comparison of environmental advantages and

disadvantages of an action

K A face-to-face discussion between the project proponent and key stakeholders to build consensus and reach a mutually acceptable resolution of issues

L A sign that a product is environmentally friendly

M Any person, group or organisation interested in or affected by an activity

N The waste management hierarchy

O A straight line along which observations of ecosystem health is made

P Evaluation of the consumption of energy and resources, and the polluting emissions associated with the life cycle of a product

Q A production model that consists of 'take, make and dispose'

R The idea that the perpetrator of environmental damage should bear the cost of restoration

S A process of systematically observing and/or measuring environmental parameters

T A tool for determining impact that a product has on the environment while being disposed of

U A person or company designated by a project proponent to manage the EIA process (9) (9)

[9]

TOTAL: 100