

# Tutorial Letter 101/3/2018

**Our Living Earth**

**GGH1503**

**Semesters 1 & 2**

**Department of Geography**

**IMPORTANT INFORMATION**

This tutorial letter contains important information  
about your module.

BAR CODE

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Dear Student

## 1 INTRODUCTION

I have the pleasure of welcoming you to the module Our Living Earth. This module was originally developed for the first year of the study programme for the BA degree with specialisation in environmental management, but has subsequently been included in other study programmes as well. It deals with life on earth, the way nature works and how things in nature are interconnected. All natural processes are driven by energy and governed by physical laws, and all life on earth depends on certain chemical compounds. To understand the environmental issues of our time, we have to have some knowledge of energy, physical laws and life-sustaining chemical compounds, all of which are fundamental to our living environment. This module was specially developed to give you exactly that knowledge.

I hope that you will find Our Living Earth both interesting and rewarding. I will do my best to make your study of this module successful. You will be well on your way to success if you start studying early in the semester and resolve to do the assignments properly. The study guide was developed in conjunction with a customised prescribed textbook. So you will notice that references to the chapters in your prescribed book vary a little in order, so that they follow the study guide.

### Tutorial matter

When you registered, you received an inventory letter informing you of the contents of your study package and also showing items that were still outstanding. Tutorial matter that is not available when you register will be posted to you as soon as possible, but is **also available on myUnisa**. The Department of Despatch should supply you with the following study material for this module:

- Study guide
- Tutorial Letter 101 - General information and assignments

A tutorial letter is our way of communicating with you about teaching, learning and assessment.

Please note that I cannot help you with missing study material.

**You can access the study guides and tutorial letters for all your modules on myUnisa, at <http://my.unisa.ac.za>. All tutorial material is loaded onto this website as soon as it leaves the department – it will therefore be available online long before you will receive it by post. I suggest that you check the Official Study Material link on myUnisa regularly.**

Apart from the tutorial letters mentioned above, you will receive other tutorial letters during the semester. These will be despatched to you as soon as they are available and when you need them (for instance for feedback on assignments).

Tutorial Letter 101 (this tutorial letter) contains important information about GGH1503. I urge you to read it carefully and to keep it at hand when working through the study material, preparing your assignments, preparing for the examination and directing any questions to me. In this tutorial letter, you will find the assignments and assessment criteria, as well as instructions on preparing and submitting the assignments. It also provides all the information you need about the prescribed study material and other resources, including where they can be

obtained. Study this information carefully and make sure that you obtain the prescribed material as soon as possible.

I have also included some general and administrative information about this module. Study sections 3 and 4 of this tutorial letter carefully.

I would like to point out that **you must read all the tutorial letters** you receive during the semester **immediately and carefully**, as they always contain important and possibly urgent information.

I hope that you will enjoy this module and I wish you success with your studies.

Kind regards

Your lecturer  
Ryan L Anderson

## **2 PURPOSE AND OUTCOMES OF THE MODULE**

### **2.1 Purpose**

The formal purpose of this module is to provide you with sufficient knowledge and skills and the required attitudes that will enable you to identify and explain the impact of human activities on the physical environment on global, regional and local scales and to identify measures that can be taken to reduce environmental degradation. In simple terms, the purpose of this module is to teach you how nature works and how things in nature are interconnected. All natural processes are driven by energy and governed by physical or natural laws, and all life on earth depends on certain chemical compounds. To understand the environmental issues of our time and the effect of human actions on our natural environment, we have to have some knowledge of energy, scientific laws and life-sustaining chemical compounds, all of which are fundamental to our environment. These basic scientific fundamentals usually form part of most courses in the natural and life sciences (they are compulsory for a BSc Geography major), but not in the human and social sciences. The module Our Living Earth was developed to fill this gap.

Students in the human and social sciences often get a fright when chemistry, physics and biology are mentioned. They typically regard them as “difficult”. Rest assured that there is nothing difficult about this module. The chemistry, physics and biology here are very elementary and are taught within the context of the natural environment and life processes. You may not even realise that you are learning basic chemistry, physics or biology. The scientific knowledge you acquire from this module will deepen your understanding of environmental concepts and issues, of which sustainability is the central theme.

### **2.2 Outcomes**

On completing this module, you should be able to

- explain what our most serious environmental problems are, how they were caused and how they might be solved
- define sustainability and discuss its importance in solving environmental problems
- explain what science is and what scientists do
- explain the importance of systems and scientific laws
- explain what ecosystems are, how they function and why life on earth is so diverse

- distinguish between life on land and life in the water and explain how both could be conserved
- explain the ecology of biological communities
- explain why the production of food for the world's population is a serious environmental problem
- explain why clean fresh water is the earth's most precious resource
- distinguish between renewable and non-renewable energy resources and describe the environmental impacts of energy use
- discuss the different types of air pollution and explain how air pollution might be reduced and prevented
- explain the effects of chemicals and pathogens on life
- discuss the problem of solid waste
- explain the extinction crisis
- collect, process, interpret and represent data on the environment and environmental issues

### 3 LECTURER AND CONTACT DETAILS

#### 3.1 Lecturer

My contact details are available on myUnisa and will also be provided in Tutorial Letter 102.

#### 3.2 Department

If you experience any problems in contacting any of the lecturers in the department, you may leave a message on our voicemails or you can contact the secretary at 011 471 3689 and leave a message for us.

If you prefer to write to me, letters should be sent to:

The Module Leader GGH1503  
 Department of Geography  
 Private Bag X6  
 Florida  
 1710

If you want to contact me via e-mail, please make sure that you mention the module code (GGH1503) and your student number. Note that the lecturers at Unisa work on a number of modules each semester, and we get many e-mails to which we must reply. Therefore, make sure that your subject line is descriptive, like "GGH1503 - Student Number - Query about Assignment 2". If your subject is something like "hello", your message may be viewed as junk e-mail by the system and deleted before it even gets to us.

All queries that are not of a purely administrative nature, but that are about the content of this module, should be directed to me.

#### 3.3 University

If you have to contact the university about matters not related to the content of this module, consult the publication *Study @ Unisa* which you have received with your study material. This booklet contains information on how to contact the university (e.g. to whom you can write for

different queries, important telephone and fax numbers, the addresses of certain facilities and details of the times they are open).

Always have your student number at hand when you contact the university.

Note that all administrative enquiries should be directed to the correct department. The details are as follows:

- Assignment enquiries: assign@unisa.ac.za
- Examination enquiries: exams@unisa.ac.za
- Study material enquiries: despatch@unisa.ac.za
- Student account enquiries: finan@unisa.ac.za
- Application and registration-related enquiries: study-info@unisa.ac.za
- Online address: <http://my.unisa.ac.za>

## 4 RESOURCES FOR THIS MODULE

### 4.1 Prescribed book

The only prescribed book for this module is the following:

Miller, GT & Spoolman, S. 2011. *Our living earth*. Custom edition. Massachusetts: Brooks/Cole Cengage Learning.

You can obtain the prescribed book from the university's official booksellers. See the list of official booksellers and their addresses in the *Study @ Unisa* brochure. If you have difficulty in locating your book at these booksellers, contact the Prescribed Book Section at telephone number 012 429 4152 or e-mail [vospresc@unisa.ac.za](mailto:vospresc@unisa.ac.za).

### 4.2 Recommended books

There are no recommended books for this module, but you may use the two books below to broaden your knowledge. A limited number of copies are available in the library.

Miller, GT & Spoolman, S. 2008. *Environmental science: principles, connections and solutions*. 12th edition. London: Thomson.

Miller, GT. 2010. *Living in the environment: principles, connections and solutions*. 17th edition. London: Brooks/Cole and Thomson.

### 4.3 Electronic reserves (e-reserves)

There are no e-reserves for this module.

## 5 STUDENT SUPPORT SERVICES

For information on the various student support systems and services available at Unisa (e.g. student counselling, tutorial classes, language support), consult the publication *Study @ Unisa*, which you received with your study material.

## 5.1 Contact with fellow students: study groups

It is advisable to have contact with your fellow students. A very good way to do this is to form study groups. You can obtain the addresses of students in your area from the following department:

Directorate: Student Administration and Registration  
 PO Box 392  
 Unisa  
 0003

## 5.2 myUnisa

If you have access to a device that is linked to the internet, you can quickly access resources of and information about the university through its website <http://www.unisa.ac.za>. The myUnisa system is Unisa's online campus that will help you communicate with other students, your lecturers and the administrative departments of the university.

To go to the myUnisa website, start at the main Unisa website, <http://www.unisa.ac.za> and then click on **Login to myUnisa** on the right-hand side of the screen. This should take you to the myUnisa website. You can also go there directly by typing in <http://my.unisa.ac.za>. Consult the publication *Study @ Unisa*, which you received with your study material, for more information on myUnisa.

The myUnisa learning management system webpage is dedicated to supporting your learning for GGH1503. If you make a regular habit of checking your module webpages, you can take full advantage of these features:

1. **Announcements**. This page contains information about important course-related issues or special meetings and local conferences. When an announcement is posted, you may also receive an e-mail reminding you to check the website.
2. **Assignments**. This page allows you to see whether your assignments have been submitted. You can also select **Assignments** under **My Admin** on myUnisa and this will display a list of all your subjects and their assignments, as well as show you the due dates and received dates. When you submit your assignment online, you will be prompted to print/save the screen as proof that your assignment has been submitted. Note that this is very important and can only be to your benefit.
3. **Discussions**. Here you will find various discussion topics and have the opportunity to communicate with other students and your lecturers in an open forum. Under the topic called **General discussions** you can talk to your fellow students about this course. Other topics can be added and I encourage you to discuss the questions among yourselves. I will monitor your answers to keep you on the right track.
4. **Self-assessment**. This page is intended to help you learn in an open distance learning environment. The self-assessment "tests" are completely voluntary and can be done many times over. I urge you to utilise this resource in preparation for the examination.
5. **Official Study Material**. Here you can find the PDF files containing your tutorial letters and study guide. If you are experiencing trouble with the postal delivery of tutorial letters, you can easily download your tutorial letters here.
6. **Additional Resources**. This page contains any other documents I might provide. These might include the material used during the discussion class and will assist you greatly with exam preparations.
7. **Prescribed Textbooks**. Consult this page for the details of the prescribed textbook for this module.

8. **Learning Units.** This page provides a summary of the various learning units presented in the course. Each learning unit contains a link to a presentation highlighting key points and you can listen to a verbal summary of the chapters.

Another important site is the **e-Bookshop**, which you can access on the myUnisa site before logging on to your account. Here you will find ads placed by other students wanting to sell their old textbooks.

I trust that you will take full advantage of these additional features to make your studies more exciting and successful.

### **5.3 Lecturer contact sessions**

No discussion classes will be arranged for this module. Instead, a video conference for this module will be conducted in both semesters in 2018. You will be informed of the date, time and venues in a tutorial letter for each semester.

### **5.4 Repeat students**

Just a word of warning to any students who are repeating this module: please ensure that you contact me as soon as possible, so that we can work out a strategy for your studies together. Do not wait — you need to start working immediately and I would like to support you. If I find out only in April or September that you are experiencing difficulty, then it is too late for me to be of any real help.

I want to ask every one of you to register on myUnisa and to check in on the site at least once a week (or choose the option to have e-mail alerts sent to you). Engage in the online discussion forums and with your e-tutor. This will aid in your studies during this course.

Online education is where Unisa is headed, even if we are not quite there yet.



## 6 STUDY PLAN

Study unit (learning unit)	Title	Chapters in your prescribed textbook	To be completed by (first semester students)	To be completed by (second semester students)
	Introduction		27 January	14 July
1	Environmental problems, their causes, and sustainability	Ch 1: 5-27 Ch 25: 28-43	3 February	21 July
2	Science, matter, energy and systems	Ch 2: 44-65 Supplement 6: S39-S45	10 February	28 July
3	Ecosystems: what are they and how do they work?	Ch 3: 66-92 Supplement 7: S46	17 February	4 August
4	Biodiversity and evolution	Ch 4: 93-115	24 February	11 August
5	The ecology of biological communities	Ch 5: 116-137 Ch 7: 138-160	3 March	18 August
6	Humankind: the ultimate consumer	Ch 6: 160-178 Ch 12: 179-216	10 March	25 August
7	Fresh water	Ch 13: 217-247	17 March	1 September
8	Energy drives it all	Ch 15: 248-276 Ch 16: 277-315	24 March	8 September
9	The air we breathe	Ch 18: 316-343 Ch 19: 344-379	31 March	15 September
10	Destroying the earth with waste	Ch 21: 380-408	7 April	22 September
11	In for the kill	Ch 9: 409-439	14 April	29 September
12	For those who come after us	Ch 10: 440-474; Supplement 3: S10-19	21 April	6 October

Use your *Study @ Unisa* brochure for general time management and planning skills.

## 7 PRACTICAL WORK AND WORK-INTEGRATED LEARNING

There are no practicals for this module.

## 8 ASSESSMENT

### 8.1 Assessment plan

#### 8.1.1 Criteria for marking of assignments

Assignments are seen as part of the learning material for this module. As you do the assignments, study the reading texts, consult other resources, discuss the work with fellow students or do research, you are actively engaged in learning. Looking at the assessment criteria given for each assignment will help you to understand more clearly what is required of you.

#### 8.1.2 Comments and feedback on assignments

You will receive the correct answers to multiple-choice questions automatically. For written assignments, the markers will comment constructively on your work. However, feedback on all the assignments **will be sent to all students registered for this module** in a follow-up tutorial letter, and not only to those students who submitted their assignments. The tutorial letter numbers will be 201, 202, etc. I strongly suggest that you check myUnisa weekly for new tutorial letters: the PDF version of a tutorial letter appears online weeks before the postal system can get it to you. As soon as you have received the feedback, check your answers. The assignments and the feedback on them constitute an important part of your learning and should help you to be better prepared for the examination.

#### 8.1.3 Semester mark

The assignments (the semester mark) will make up 30% of your year mark, so it is important that you submit all your assignments before their respective due dates. **Please note that the assignments are not the same for the first and second semesters.** Assignments are seen as an integral part of the learning experience for this module. As you do an assignment, study the texts, consult other resources, discuss the work with your fellow students or tutors, or do research, you are actively engaged in learning. Study the assessment criteria given for each assignment beforehand to see precisely what is required of you.

In some instances, additional assessment opportunities might be available on the myUnisa site for your module. For students attending tutorial sessions, tutors may also set additional tasks and give feedback in class.

#### 8.1.4 Year mark

As indicated, your semester mark contributes 30% to your year mark (i.e. your final mark). The other 70% of your year mark/final mark is made up of your examination mark. You have to have a final mark (a combined semester mark and examination mark) of 50% to pass this module.

### Composition of the year mark (final mark)

Component	Percentage
Semester mark	30
Examination	70

If you submit all your assignments on time and you get, say, an average mark of 66%, you will have earned a semester mark of 19.8% (66% of 30 = 19.8). Let's assume that you then write the examination and get 50%.

Exam mark	50 out of 100 recalculated to 35 out of 70 for the final exam mark
Semester mark	19.8 out of 30
Final mark	54.8%

**NB:** It must be clear to you that it is very **important** and in your best interest to do well in all the assignments in order to earn a good semester mark. In addition, note that this module has a sub-minimum of 40% for the examination, meaning that if you receive less than 40% in the exam, you will forfeit your semester mark and fail the module.

## 8.2 Assignment numbers

### 8.2.1 General assignment numbers

Assignments are numbered consecutively per module, starting from 01, 02 (Assignment 01, Assignment 02, etc.)

#### **NOTE:**

Refer to the assignment information in *Study @ Unisa* for general assignment information and rules. Enquiries about assignments (e.g. whether or not the university has received your assignment or the date on which an assignment was returned to you) must be addressed to

- assign@unisa.ac.za

Assignments should be posted to:  
 Assignments Department  
 Unisa Science Campus  
 Private Bag X11  
 Florida  
 1710

### 8.2.2 Unique assignment numbers

In addition to the *general* assignment number (e.g. 01), each assignment (whether it is a written assignment or one that has to be completed on a mark-reading sheet, i.e. multiple-choice questions) also has its own *unique* assignment number (provided in the next section). Make sure that you use the correct unique number and complete the information as required.

## 8.3 Due dates for assignments

### First semester assignments

Assignment	Assignment type	Unique number	Due date	Remarks
01	Multiple-choice questions	896893	19 Feb	This assignment counts 10% towards your <b>semester mark</b> .
02	Written	870736	5 March	This assignment counts 50% towards your <b>semester mark</b> .
03	Multiple-choice questions	775190	9 April	This assignment counts 40% towards your <b>semester mark</b> .

### Second semester assignments

Assignment	Assignment type	Unique number	Due date	Remarks
01	Multiple-choice questions	814827	13 Aug	This assignment counts 10% towards your <b>semester mark</b> .
02	Written	881243	3 Sept	This assignment counts 50% towards your <b>semester mark</b> .
03	Multiple-choice questions	677756	25 Sept	This assignment counts 40% towards your <b>semester mark</b> .

## 8.4 Submitting assignments

I urge you to submit **all** your assignments online. It's quick and easy. However, you may submit written assignments and assignments completed on mark-reading sheets either by post or electronically on myUnisa. Assignments may **not** be submitted by fax or e-mail.

### 8.4.1 myUnisa website

You may submit written assignments and assignments done on mark-reading sheets either by post, or electronically via myUnisa. Assignments may **not** be submitted directly to me by fax or e-mail. For detailed information and requirements as far as assignments are concerned, see the brochure *Study @ Unisa*, which you received with your study material.

To submit an assignment **via myUnisa**:

- Go to myUnisa.
- Log in with your student number and password.
- Select the module.
- Click on **Assignments** in the left-hand menu.
- Click on the number of the assignment you want to submit.
- Follow the instructions on the screen.

I **strongly** urge you to submit your assignments electronically. After all, this module deals specifically with environmental science and aims to make you aware not only of the grounding concepts and principles of environmental science, but also of your environmental footprint and

strategies that will help you reduce it. Online submission of your assignment is one way to lessen your environmental footprint because it limits the carbon emissions produced to get your assignment to Unisa through the post, and also limits the amount of paper used to print out your assignment, process it and mark it.

It is very easy to submit your assignments (in PDF) via myUnisa. Instructions on how to download and use software to convert Word documents to PDF are given on myUnisa via the following link: <https://my.unisa.ac.za/portal/site/!gateway/page/c919799a-6cdd-4ec2-0019-839c23c198f8> under **Electronic Resources**. You can also download a PDF convertor from <http://www.primopdf.com/index.aspx>. Note that the *free version* is sufficient for the purpose of submitting your assignments. Also, you can download your tutorial letters directly from the myUnisa website (see *Study @ Unisa*) – yet another easy way to lessen your environmental footprint.

If you have any difficulty submitting an assignment on myUnisa, phone 012 429 3689, or contact the helpline at [myUnisaHelp@unisa.ac.za](mailto:myUnisaHelp@unisa.ac.za). For detailed information and requirements as far as assignments are concerned, see the brochure *Study @ Unisa*.

### 8.4.2 Plagiarism

An assignment is supposed to be the product of your own study and your own thought. It is not intended to be a piece of work which merely reproduces details, information or ideas from a study guide, from books or articles, or from the internet.

If you do this, you commit plagiarism. Plagiarism is the act of copying word for word from study sources (e.g. from books, articles, or the internet) – *with or without acknowledgment*. In other words, you must submit your own ideas in your own words, sometimes interspersing them with relevant short quotations that are properly referenced.

Yes, simply copying a few pages from the prescribed book is plagiarism. Pasting paragraphs from Wikipedia or any other website into your assignment is also plagiarism. And it does not stop being plagiarism if you mention the source.

Skilled scientific writers may use direct block quotations to make a specific point. They know what they are doing. You still need to develop your own voice, your own style of arguing the point. Do not plagiarise.

Note that you are also committing plagiarism if you copy the assignment of another student. Although I do encourage you to work together and form study groups, I still expect you to prepare and submit your own assignments. When I receive two or more identical assignments and am not able to work out who copied from whom, I will penalise all the students involved.

**If you commit plagiarism, you will be penalised and given no marks for your assignment. This will seriously diminish your chances to succeed in your studies because you will have no (or a very poor) semester mark.** Furthermore, you may be penalised or subjected to disciplinary proceedings by the university. Plagiarism is also an offence in terms of the law.

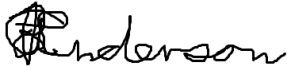
### 8.4.3 Referencing guide

Note that a full referencing guide will be available on myUnisa under **Additional Resources**.

#### 8.4.4 Signed declaration

Every essay-type assignment I receive must include the following declaration, along with your name, date and signature:

***I, Ryan Anderson, declare that Assignment 02 for GGH1503 is my own work and that all sources quoted have been acknowledged by appropriate references.***



**2012-06-21**

Please ensure that you proofread your assignments, because we **will** subtract marks if this declaration of authenticity is absent from your assignment, just as we will subtract marks if your assignment does not have a list of references cited.

For typed assignments, the format of each page must be as follows:

- Use A4-sized paper.
- Use one column of text.
- The margin size should be approximately 2.5 cm for the left and right margins and 2 cm for the top and bottom margins (most word processor packages have margins of 2.54 cm as the default for all the margins – this is acceptable). **Do not** leave a 5 cm marking margin when submitting an assignment online (via myUnisa) for onscreen marking.
- Use a simple font, for example Arial. This document was compiled using the Arial font, as it is the "cleanest" font and photocopies best.
- Write **headings** in bold and *sub-headings* in italics.
- Type the body of the report (including the headings and sub-headings) in 11-point font with 1.5 line spacing.
- An open line must separate each paragraph.
- Type and duplicate on one side of the page only.
- Justify the text to both margins.
- Page numbers must appear at the bottom right-hand corner of the page and must be printed in 10- or 11-point font.

#### 8.4.5 Ethics statement

All students who register for this module should take note that your lecturer may or may not require information from you for research purposes. The information required may be from the assignments you complete or additional activities your lecturer may asked you to take part in or comment on or the marks you achieved for your assignment or anything related to the teaching of the module you registered for. In all these instances the information provided by you will not identify you in any way. Your identify will remain anonymous and the information you provide will also remain confidential. The lecturer will not use your information in any way that is unethical or does not abide by the Unisa Policy on Research Ethics. The lecturer will also apply to the College Ethics Research Committee for ethics clearance to do research on specific data from the module after which approval will be obtained from the Research Permission Sub-Committee of Unisa to use Unisa student data. Through this research the lecturer will be able to improve and develop this module for future students. If you cannot consent to your lecturer using the information indicated above, please let your lecturer know via email.

## 8.5 Assignments

### 8.5.1 Semester 1

## ASSIGNMENT 01

**Due date:** 19 February 2018

**Unique assignment number:** 896893

**Contribution to semester mark:** 10%

**Also note the following concerning the assignment:**

- Unisa must have received your assignment by the due date.
- Assignment 01 covers study units (learning units) 1 to 3 and consists of 15 multiple-choice questions – five questions on each of the study units.
- **No** extension for submission will be granted.
- Answer the assignment on a mark-reading sheet.
- For each question, select only one alternative, unless otherwise indicated.
- A feedback tutorial letter with comments on this assignment will be sent out after the due date of this assignment.

### Questions

#### ***Study unit 1 - The root of the rot***

- 1 Which one of the following alternatives cannot be regarded as a renewable resource?
  - (1) groundwater
  - (2) trees in a forest
  - (3) crude oil (petroleum)
  - (4) fertile soil
  - (5) crops
  
- 2 Which one of the following fields of science does not relate to environmental science?
  - (1) social sciences and the humanities
  - (2) earth sciences
  - (3) biology
  - (4) chemistry
  - (5) None of the above.
  
- 3 Which one of the following alternatives is an example of **reuse**?
  - (1) using a plastic butter tub to store leftovers
  - (2) melting aluminium cans to make new ones
  - (3) making compost out of kitchen scraps
  - (4) using waste heat to warm a room
  - (5) making paper goods from previously used paper

- 4 The Industrial Revolution was characterised by a shift from ... .
- (1) reliance on non-renewable energy resources to reliance on potentially renewable energy resources
  - (2) higher crop productivity to lower crop productivity
  - (3) farming employment to factory employment
  - (4) large-scale production to small-scale production
  - (5) fast population growth to slow population growth
- 5 Which one of the following corollaries would **not** result from an anthropocentric worldview?
- (1) Animals are for shooting.
  - (2) People first, increasing their wants without limit, results in loss of biodiversity.
  - (3) The world is for exploiting.
  - (4) Pollution is not an issue.
  - (5) Good earth stewards preserve ecological integrity.

**Study unit 2 - The basics: matter, energy and the scientific laws**

- 6 Which one of the following statements about a matter-recycling society is **false**?
- (1) The goal of a matter-recycling society is to allow economic growth to continue without depleting matter resources.
  - (2) A matter-recycling society is limited by the environment's capacity to absorb and disperse waste heat and to dilute and degrade waste matter.
  - (3) One limitation of a matter-recycling society is dependence on high-quality energy to recycle materials.
  - (4) A matter-recycling society is independent of high-quality matter because materials can continue to be recycled indefinitely.
- 7 Of the options listed below to deal with non-degradable pollutants, the **least** effective would be to ... .
- (1) reuse them
  - (2) recycle them
  - (3) refrain from introducing them into the environment
  - (4) remove them from contaminated air, water and/or soil
- 8  $N_2$  and  $O_2$  are examples of ... .
- (1) compounds consisting of two different elements
  - (2) molecules consisting of two elements of the same compound
  - (3) molecules consisting of two atoms of the same element
  - (4) molecules consisting of two atoms of different elements
- 9 Which one of the following behaviours would be least appreciated by the scientific community?
- (1) observing patterns in nature
  - (2) hypothesising about evidence
  - (4) arguing over alternative interpretations
  - (3) overstating a claim



(5) doing multiple experiments

10 A distinctive building block of matter is called ... .

- (1) a mixture
- (2) an element
- (3) a compound
- (4) an isotope
- (5) an atom

### **Study unit 3 - The living wholeness**

11 The largest numbers of species of organisms on earth are currently ... .

- (1) microorganisms and fungi
- (2) amphibians and reptiles
- (3) insects and microorganisms
- (4) insects and fungi
- (5) mammals

12 The **most** common gas in the atmosphere is ... .

- (1) nitrogen
- (2) carbon dioxide
- (3) oxygen
- (4) hydrogen
- (5) helium

13 The cycle **most** responsible for linking the other biogeochemical cycles is the ... .

- (1) carbon cycle
- (2) nitrogen cycle
- (3) phosphorus cycle
- (4) hydrological cycle
- (5) geological cycle

14 Organisms that complete the final breakdown and recycling of organic materials from the remains or wastes of organisms are called ... .

- (1) detritivores
- (2) carnivores
- (3) decomposers
- (4) scavengers
- (5) omnivores

15 Which of the following ecosystems has the highest average net primary productivity?

- (1) swamps and marshes
- (2) deserts
- (3) forests
- (4) permafrost
- (5) taiga

## Semester 1

### ASSIGNMENT 02

**Due date:** 5 March 2018

**Unique assignment number:** 870736

**Contribution to semester mark:** 50%

**Also note the following concerning the assignment:**

- Unisa must have received your assignment by the due date.
- You must **answer any TWO** of these questions.
- **No** extension for submission will be granted.
- Answer each question on **only** one page (written or typed) and this excludes the list of references, declaration of authenticity, etc.
- You will be **heavily penalised** if you do not include a declaration of authenticity (the declaration on plagiarism) and a list of references for each question, and if your answer exceeds one (written or typed) page.
- A feedback tutorial letter with comments on this assignment will be sent out after the due date of this assignment.

### Questions

#### Question 1

Explain why you agree or disagree that each member of the human species has a right to use as many resources as they want. Relate your answer to the environmental worldviews that you have learnt about in this module.

[20]

OR

#### Question 2

a What is the difference between undernutrition, malnutrition and overnutrition? (6)

b From what you have learnt from study unit 6 about food provision for society, discuss what you think are the top three effects of food production on the environment. (14)

[20]

OR

**Question 3**

Environmental groups in a heavily forested region want to restrict logging in some areas to save the habitat of an endangered squirrel. Timber company officials argue that the survival of one type of squirrel is not as important as the wellbeing of the families who will be affected if the restriction causes the company to lay off hundreds of workers. If you had the power to decide this issue, explain what would you do and why. Can you come up with a compromise?

**[20]****OR****Question 4**

- a Explain the acronym HIPPCO, which conservation biologists use to summarise the most important causes of premature species extinction. (10)
- b Based on figure 1, which of the two animals, the panda or the raccoon, is considered a generalist? Also, which graph (A or B) is representative of a specialist species? (2)
- c What does area C in figure 1 represent? (2)
- d Notice the letter D in figure 1. It points to a characteristic of this niche. What is this characteristic? Also, what advantage does the characteristic indicated by the letter D give to the animal occupying this niche, as opposed to the animal occupying the other niche? (6)

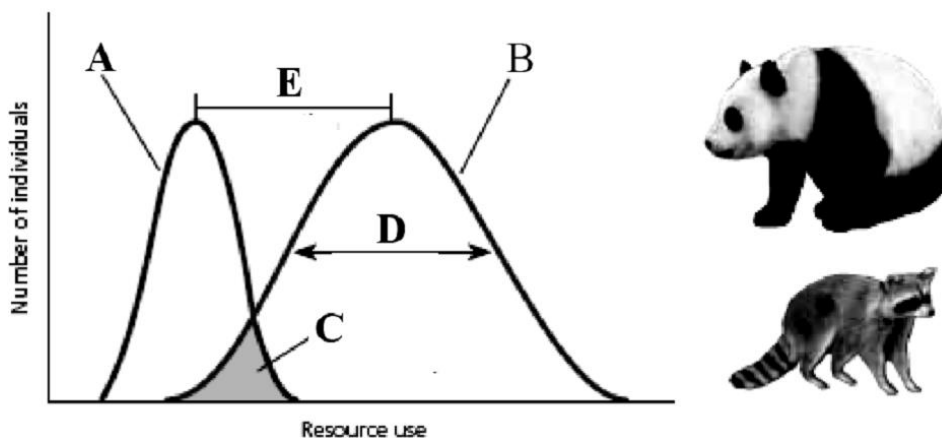
**[20]**

Figure 1: The niche of the panda and raccoon (<http://www.cengage.com>, accessed on 02/06/2009)

## Semester 1

### ASSIGNMENT 03

**Due date:** 9 April 2018

**Unique assignment number:** 775190

**Contribution to semester mark:** 40%

#### **Also note the following concerning the assignment:**

- Unisa must have received your assignment by the due date.
- This assignment covers study units (learning units) 4 to 10. It consists of 30 multiple-choice questions – approximately four questions on each of the study units. Note that study units 11 and 12 are not covered in the assignments – you can use the self-assessment quizzes on myUnisa to test your knowledge of these two study units.
- **No** extension for submission will be granted.
- Answer the assignment on a mark-reading sheet.
- For each question, select only one alternative, unless otherwise indicated.
- A feedback tutorial letter with comments on this assignment will be sent out after the due date of the third assignment.

#### **Questions**

##### ***Study unit 4 – How it started, changed and might end***

- 1 When natural selection results in a shift towards the average of a range of genetic expressions for a particular trait, an evolutionary biologist would credit ... .
  - (1) disruptive natural selection
  - (2) discontinuous natural selection
  - (3) stabilising natural selection
  - (4) directional natural selection
  - (5) co-evolution
- 2 Mutations can be caused by ... .
  - (a) ultraviolet light
  - (b) X-rays
  - (c) certain chemicals
  - (d) radioactivity

The correct alternative/combination of alternatives is

- (1) only (a)
- (2) only (b) and (c)
- (3) only (a) and (d)
- (4) (a), (b), (c) and (d)
- (5) only (d)

- 3 Mineralised or petrified replicas of skeletons, bones, teeth, shells, leaves and seeds are known as ... .
- (1) raw evidence
  - (2) native relics
  - (3) hominids
  - (4) fossils
  - (5) pleaks
- 4 Over the course of time, a change in the gene pool of one species may lead to a change in the gene pool of another species. This process is called ... .
- (1) diversifying natural selection
  - (2) micro-evolution
  - (3) convergent evolution
  - (4) macro-evolution
  - (5) co-evolution
- 5 Patterns of speciation and extinction are **least** likely to be affected by ... .
- (1) day-to-day weather fluctuations
  - (2) climate changes
  - (3) continental drift
  - (4) meteorites crashing into the earth
  - (5) human activities

***Study unit 5 – No being is an island: the ecology of biological communities***

- 6 The **fragility** of the desert ecosystem is indicated by ... .
- (1) the rapid growth rate of plants
  - (2) high species diversity
  - (3) the presence of succulent plants
  - (4) a long regeneration time after vegetation destruction has occurred
  - (5) the shallow roots of plants
- 7 Which one of the following alternatives is **not** a characteristic of desert plants?
- (1) deep root systems
  - (2) succulent leaves or stems
  - (3) becoming dormant during dry periods
  - (4) large leaves that droop in the bright sunlight
- 8 Mature temperate deciduous forests ... than tropical rainforests.
- (1) have more different tree species
  - (2) have more different animal species
  - (3) have more plant life at ground level
  - (4) have less sunlight penetrating to lower levels
  - (5) have more leaves that drop in winter seasons

9 When a bee feeds on a male flower's nectar, it picks up pollen in the process, and then pollinates female flowers when it feeds on them as well. **Both** parties benefit in this interaction. This is an example of ... .

- (1) mutualism
- (2) commensalism
- (3) parasitism
- (4) co-evolution
- (5) natural selection

10 The biome threatened by motorcycles and off-road vehicles is the ... biome.

- (1) grassland
- (2) desert
- (3) tropical rainforest
- (4) taiga
- (5) tundra

### ***Study unit 6 – Humankind: the ultimate consumer***

11 Imagine that you are a wheat farmer in the Boland region of South Africa. You decide to plant several different varieties of wheat. A student from Unisa studying sustainable agriculture makes the observation that you are practising ... .

- (1) agroforestry
- (2) polyculture
- (3) intercropping
- (4) mixed cultivation
- (5) monoculture

12 Of the following human activities, the one which probably contributes the **least** to soil erosion is ... .

- (1) urbanisation
- (2) off-road vehicles
- (3) sustainable agriculture
- (4) logging
- (5) clearing forests

13 In many developing countries, poor farmers plough up marginal land in order to survive. The resulting soil erosion and land degradation increase poverty. The relationship between poverty and soil erosion is **best described** as a ... feedback cycle.

- (1) constructive positive
- (2) constructive negative
- (3) destructive positive
- (4) destructive negative
- (5) balanced

- 14 In your garden plot, you plant corn next to nitrogen-restoring alfalfa. The local extension agent comes out and says, "Nice work on your ...".
- (1) polyculture
  - (2) agroforestry
  - (3) intercropping
  - (4) monoculture
  - (5) polyvarietal cultivation

### **Study unit 7 – Water resources**

- 15 Water scarcity from soil drying up because of deforestation or overgrazing is called ... .
- (1) water stress
  - (2) aridity
  - (3) drought
  - (4) desiccation
  - (5) acute shortage
- 16 Dams ... .
- (1) are relatively inexpensive to build
  - (2) destroy agricultural land and scenic areas
  - (3) facilitate the migration of fish
  - (4) provide downstream areas with nutrients
  - (5) are ecologically sound as water management schemes
- 17 Which one of the following conditions in the Himalayan watershed contributes to flooding in Bangladesh?
- (1) forest conservation
  - (2) dam construction
  - (3) rapid population growth
  - (4) sustainable farming practices
  - (5) low population growth
- 18 It is most economically and environmentally sound to focus water resource management on ... .
- (1) increasing the water supply
  - (2) controlling the "mining" of groundwater
  - (3) increasing the efficiency of the way we use water
  - (4) developing desalination plants
  - (5) cloud seeding and towing icebergs to arid regions

### **Study unit 8 – The energy that drives it all**

19 The burning of biomass ... .

- (1) releases more carbon dioxide per ton burnt than does coal
- (2) releases more air pollution per unit of energy produced than does the uncontrolled burning of coal
- (3) requires little land
- (4) may cause soil erosion, water pollution and loss of wildlife habitats

20 Oil is widely used because it ... .

- (a) is relatively cheap
- (b) is easily transported
- (c) has a high net useful energy yield
- (d) has an artificially low cost

The correct alternative/combination of alternatives is

- (1) only (a)
- (2) only (b) and (c)
- (3) only (c) and (d)
- (4) only (a), (c) and (d)
- (5) (a), (b), (c) and (d)

21 A sustainable energy future is **least likely** if ... .

- (1) there is no government influence on personal decisions about purchases of energy-consuming goods
- (2) the use of perpetual and renewable resources is greatly increased
- (3) the phasing out of government subsidies for non-renewable resources is encouraged
- (4) the taxing of fossil fuels with energy assistance to the poor is encouraged
- (5) tax credits for buying efficient cars is encouraged

22 Compared to oil-burning, coal-burning and nuclear plants, production of electricity with combined-cycle natural gas systems ... .

- (1) is more expensive
- (2) contributes more to global warming
- (3) is more energy efficient
- (4) contributes more to air pollution
- (5) is not energy efficient

### **Study unit 9 – The air we breathe**

23 Pollutants that can penetrate the lung's natural defences include ... .

- (1) large suspended particles
- (2) fine and ultra-fine suspended particles
- (3) stratospheric ozone
- (4) acid rain

24 Photochemical smog is characteristic of urban areas with many vehicles and a climate that



is ... .

- (1) cool, wet and cloudy
- (2) cool, dry and sunny
- (3) warm, dry and sunny
- (4) warm, wet and cloudy
- (5) warm, wet and sunny

25 Which one of the following strategies would help to protect the atmosphere?

- (1) Use a city-by-city rather than a regional approach to air quality control.
- (2) Shift from renewable to more efficient non-renewable energy resources.
- (3) Integrate air pollution, water pollution, energy, land use and population regulation policies.
- (4) Exclude the social costs of air pollution from pricing strategies.
- (5) Decrease the usage of renewable energy.

26 Primary pollutants from burning coal include all of the following **except** ... .

- (1) carbon monoxide
- (2) sulphur dioxide
- (3) ozone
- (4) soot
- (5) carbon dioxide

### ***Study unit 10 – Wasting the earth***

27 Of the following methods of reducing hazardous wastes, the **most** desirable is ... .

- (1) recycling and reuse of hazardous wastes
- (2) substitution with safer products that do not produce hazardous wastes
- (3) conversion into less hazardous and non-hazardous materials
- (4) incineration
- (5) perpetual storage

28 Partially biodegradable plastics need ... to be broken down.

- (1) light
- (2) oxygen and moisture
- (3) anaerobic conditions
- (4) cool conditions
- (5) heat

29 The Love Canal incident demonstrates that ... .

- (1) preventing pollution is safer and cheaper than cleaning it up
- (2) political officials are alert and sympathetic to their constituents
- (3) pollutants can be stored underground for a long time
- (4) polluting companies can escape from the costs and responsibility of their actions

30 In a low-waste approach, which one of the following strategies should be given **top** priority?

- (1) incinerate
- (2) reuse
- (3) bury
- (4) reduce
- (5) recycle

## 8.5.2 Semester 2

### ASSIGNMENT 01

**Due date:** 13 August 2018

**Unique assignment number:** 814827

**Contribution to semester mark:** 10%

**Also note the following concerning the assignment:**

- Unisa must have received your assignment by the due date.
- Assignment 01 covers study units (learning units) 1 to 3 and consists of 15 multiple-choice questions – five questions on each of the study units.
- **No** extension for submission will be granted.
- Answer the assignment on a mark-reading sheet.
- For each question, select only one alternative, unless otherwise indicated.
- A feedback tutorial letter with comments on this assignment will be sent out after the due date of this assignment.

### Questions

#### ***Study unit 1 – The root of the rot***

1 The environmental impact of hunter-gatherer societies was kept low by ... .

- (1) the exponential growth of their populations
- (2) their reliance on fossil fuels as an energy source
- (3) giving nature time to recuperate after they moved on
- (4) their intensive use of land

2 Which **one** of the following is **not** a goal of *environmental science*?

- (1) to learn how nature works
- (2) to learn how the environment affects us
- (3) to learn how to deal with environmental problems
- (4) to learn how to live more sustainably
- (5) to learn how to persuade politicians to endorse sustainability legislation

3 All non-renewable resources can theoretically be ... .

- (1) converted to non-metallic minerals
- (2) converted to renewable resources
- (3) exhausted or depleted
- (4) recycled or reused

- 4 What is the primary difference between renewable resources and non-renewable resources?
- (1) how easily they are discovered
  - (2) the amount of the resource that is available
  - (3) the length of time it takes for them to be replenished
  - (4) how fast they are being used up
  - (5) None of the above.
- 5 Most of the environmental problems we face are ... .
- (1) increasing linearly
  - (2) decreasing linearly
  - (3) increasing exponentially
  - (4) decreasing exponentially

**Study unit 2 - The basics: matter, energy and the scientific laws**

- 6 A positive feedback loop is illustrated by all of the following **except** ... .
- (1) compound interest in a savings account
  - (2) exponential population growth
  - (3) a thermostat maintaining a certain temperature in your house
  - (4) the greenhouse effect
  - (5) None of the above.
- 7 In a low-throughput economy, all of the following actions would be acceptable to perform **except to** ... .
- (1) use energy more efficiently
  - (2) shift to perpetual and renewable energy resources
  - (3) recycle and reuse most matter that is now discarded
  - (4) create goods with a short life cycle to increase recycling
- 8 Liquids, solids and gases are ... .
- (1) physical forms of matter
  - (2) hydrogen bonds
  - (3) isotopes of the same element
  - (4) organic compounds
  - (5) molecules
- 9 In any heat-to-work conversion, the quality of the energy available after the work has been performed will always be ... the initial energy quality.
- (1) equal to
  - (2) higher than
  - (3) equal to or higher than
  - (4) lower than
  - (5) slightly higher than
- 10 Which **one** of the following statements is **false**?

- (1) Energy can be converted from one form to another.
- (2) Energy and matter can generally be converted into each other.
- (3) Energy input always equals energy output.
- (4) The laws of thermodynamics can be applied to living systems.

### **Study unit 3 - The living wholeness**

- 11 The transfer of carbon between organisms depends **primarily** on ... .
- (1) fuel combustion and decomposition
  - (2) photosynthesis and cellular respiration
  - (3) soil bacteria and precipitation
  - (4) volcanic activity and organic decay
  - (5) the rock cycle
- 12 The **most** important factor in determining which biome is found in a particular area is ... .
- (1) soil type
  - (2) topography
  - (3) magnetic fields
  - (4) climate
  - (5) longitude
- 13 The total of all the different species that live in a certain area at the same time is called ... .
- (1) an organism
  - (2) a population
  - (3) a community
  - (4) an ecosystem
  - (5) a biosphere
- 14 If something is biodegradable, it means that it ... .
- (1) can be broken down by autotrophs
  - (2) can be broken down by heterotrophs
  - (3) can be broken down by decomposers
  - (4) cannot be broken down by any processes involving living organisms
  - (5) cannot be broken down by sunlight
- 15 Humans remove nitrogen from the soil by all of the following processes **except** ... .
- (1) leaching water-soluble nitrate ions from soil through irrigation
  - (2) harvesting nitrogen-rich crops
  - (3) applying organic fertilizers to agricultural land
  - (4) mining nitrogen-rich mineral deposits

## Semester 2

### ASSIGNMENT 02

**Due date:** 3 September 2018

**Unique assignment number:** 881243

**Contribution to semester mark:** 50%

**Also note the following concerning the assignment:**

- Unisa must have received your assignment by the due date.
- You must **answer any TWO** of these questions.
- **No** extension for submission will be granted.
- Answer each question on **only** one page (written or typed) and this excludes a list of references, declaration of authenticity, etc.
- You will be **heavily penalised** if you do not include a declaration of authenticity (the declaration on plagiarism) and a list of references for each question, and if your answer exceeds one (written or typed) page.
- A feedback tutorial letter with comments on this assignment will be sent out after the due date of this assignment.

### Questions

#### Question 1

- a Briefly differentiate between passive and active solar heating systems. (4)
- b List four ways you can save energy in your current place of residence. (2)
- c Miller (2011) lists a number of renewable energy options as an alternative for non-renewable energy sources. In a well-motivated essay, discuss which renewable energy option, in your opinion, is best for South Africa currently. (14)

**[20]**

**OR**

#### Question 2

Congratulations! You are in charge of preventing the premature extinction of the world's existing species from human activities. What three things would you do to accomplish this goal? Explain each.

**[20]**

**OR**

**Question 3**

Explain why reduction is a better strategy than cleanup to cope with solid and hazardous waste problems.

**[20]**

OR

**Question 4**

a What is an ecological footprint? What useful information does it give us?

(4)

b Based on figure 1 below, explain why the total and per capita ecological footprints of India and the United States are so different from one another.

(16)

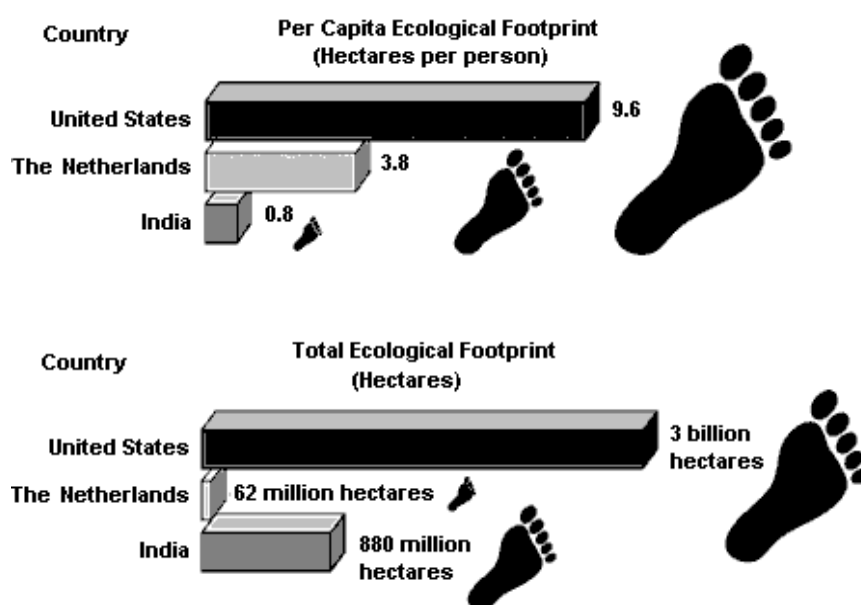
**[20]**

Figure 1: The ecological footprints of a collection of countries. Note: The size of the populations of India and the United States is 1 181 and 309 million people, respectively. The areas of India and the United States are 328.7 and 962.9 million hectares, respectively (<http://www.wikipedia.co.za>, accessed on 07/07/2010).

## Semester 2

### ASSIGNMENT 03

**Due date:** 25 September 2018

**Unique assignment number:** 677756

**Contribution to semester mark:** 40%

#### Also note the following concerning the assignment:

- Unisa must have received your assignment by the due date.
- This assignment covers study units (learning units) 4 to 10. It consists of 30 multiple-choice questions – approximately four questions on each of the study units. Please note that study units 11 and 12 are not covered in the assignments – you can use the self-assessment quizzes on myUnisa to test your knowledge of these two study units.
- **No** extension for submission will be granted.
- Answer the assignment on a mark-reading sheet.
- For each question, select only one alternative, unless otherwise indicated.
- A feedback tutorial letter with comments on this assignment will be sent out after the due date of this assignment.

#### Questions

##### *Study unit 4 - How it started, changed and might end*

- 1 An ecological niche includes all of the following variables **except** the ... .
  - (1) nutrient relationships with other species
  - (2) location where a species lives
  - (3) types of resource requirements
  - (4) range of tolerance to different physical and chemical conditions
- 2 If a species of frogs becomes threatened because they can only live in a narrow range of temperatures, they would be classified as ... .
  - (1) a generalist species
  - (2) a species with a broad niche
  - (3) a species without a niche
  - (4) a specialised species
  - (5) an extinct species
- 3 Which **one** of the following statements is **false**?
  - (1) Genetic diversity helps prevent a species from becoming extinct.
  - (2) The phenomenon in which animals with favourable adaptation reproduce more rapidly is called differential reproduction.
  - (3) Geographic isolation is a common mechanism contributing to speciation.
  - (4) By definition, the fittest animals are also the largest and the strongest animals.
  - (5) Biologists estimate that 99% of all the species that have ever existed are now extinct.



4 Speciation, induced by geographic isolation, may be the result of ... .

- (a) volcanic eruptions
- (b) earthquakes
- (c) mountain ranges
- (d) rivers

The correct alternative/combination of alternatives is

- (1) only (a)
- (2) only (c)
- (3) only (b), (c) and (d)
- (4) only (a) and (d)
- (5) All of the above.

5 As you study a population of fruit flies, you notice that pink eyes are the most common, although white eyes and red eyes also occur. Over the course of time and many generations, you notice that the proportion of individuals with pink eyes is increasing steadily. You conclude that this population is undergoing ... .

- (1) continuous natural selection
- (2) disruptive natural selection
- (3) directional natural selection
- (4) stabilising natural selection
- (5) co-evolution

***Study unit 5 - No being is an island: the ecology of biological communities***

6 Emigration is ... .

- (1) the one-way movement of individuals into an established population
- (2) the one-way movement of individuals out of an uninhabited area
- (3) the one-way movement of individuals out of a population to another area
- (4) the repeated movement into and out of an area
- (5) the lack of immigration into an area

7 "The maximum population of a given species that a particular habitat can sustain indefinitely without being degraded" is the definition of ... .

- (1) logistic growth
- (2) environmental resistance
- (3) exponential growth
- (4) carrying capacity
- (5) biotic potential

8 Species that serve as early warnings of environmental damage are called ... species.

- (1) non-native
- (2) native
- (3) specialist
- (4) indicator
- (5) generalist

- 9 Changes such as depletion of underground aquifers and waterlogging of irrigated soils are considered to be ... .
- (1) natural and catastrophic
  - (2) natural and gradual
  - (3) anthropogenic and catastrophic
  - (4) anthropogenic and gradual
  - (5) anthropogenic, natural and catastrophic
- 10 Which **one** of the following would exhibit primary succession?
- (1) a rock exposed by a retreating glacier
  - (2) an abandoned farm
  - (3) a clear-cut forest
  - (4) newly flooded land
  - (5) a recently burnt forest

**Study unit 6 - Humankind: the ultimate consumer**

- 11 Sustainable agriculture ... .
- (1) emphasises large-scale farms
  - (2) uses local inputs as much as possible
  - (3) maximises the use of fossil fuels
  - (4) promotes subsidies to farmers
  - (5) maximises the use of pesticides
- 12 The process **least** likely to conserve soil nutrients is ... .
- (1) crop rotation
  - (2) fertilizing with compost
  - (3) fertilizing with green manure
  - (4) irrigation
  - (5) fertilizing with animal manure
- 13 Which **one** of the following soil horizons is considered topsoil?
- (1) O
  - (2) A
  - (3) B
  - (4) C
  - (5) E
- 14 Which **one** of the following practices both reduces erosion and increases soil fertility?
- (1) strip cropping
  - (2) terracing
  - (3) contour farming
  - (4) row cropping
  - (5) line cropping

**Study unit 7 – Water resources**

- 15 Throughout the world, the majority of water is used for ... .
- (1) industrial purposes
  - (2) animals and humans
  - (3) transportation
  - (4) irrigation
  - (5) cooling towers of power plants
- 16 Ecologically, the best way to approach flooding is ... .
- (1) flood control dams
  - (2) artificial levees
  - (3) channelisation
  - (4) floodplain management
- 17 Withdrawing too much water from an aquifer can cause all of the following, **except** ... .
- (1) droughts
  - (2) land subsidence
  - (3) sinkholes
  - (4) fresh water contaminated with salt water
  - (5) having to dig deeper and deeper irrigation wells
- 18 One method of desalination uses high pressure to force salt water through a membrane filter. This method is called ... .
- (1) diffusion
  - (2) distillation
  - (3) reverse osmosis
  - (4) active transport
  - (5) passive transport

**Study unit 8 - The energy that drives it all**

- 19 Which **one** of the following is the most energy efficient?
- (1) nuclear power plant
  - (2) coal-burning power plant
  - (3) internal combustion engine
  - (4) passive solar heating
  - (5) incandescent (luminescent) light bulbs
- 20 The reasons why burning solid coal is a popular means of producing electricity and high-temperature heat are ... .
- (1) high heat content and low carbon dioxide output
  - (2) great abundance and high net useful energy yield
  - (3) low net useful energy yield and high versatility
  - (4) relative abundance and ease of pollution control

- 21 Which **one** of the following is our best **immediate** energy option?
- (1) Find and burn more forms of oil, natural gas and coal.
  - (2) Cut out unnecessary energy waste by improving energy efficiency.
  - (3) Build more and better conventional nuclear power plants.
  - (4) Increase efforts to develop breeder nuclear fission reactors.
  - (5) Discover a new form of energy.

22 The world's fastest growing energy resource is ... .

- (1) hydroelectric dams
- (2) wind power
- (3) nuclear power
- (4) coal-fired power plants
- (5) tidal energy

### **Study unit 9 - The air we breathe**

23 The correct sequence of layers of the atmosphere from innermost to outermost is ... .

- (1) mesosphere - stratosphere - thermosphere - troposphere
- (2) troposphere - stratosphere - mesosphere - thermosphere
- (3) stratosphere - thermosphere - troposphere - mesosphere
- (4) thermosphere - stratosphere - mesosphere - troposphere

24 The atmosphere is divided into spherical layers based on the ... .

- (1) density of each layer
- (2) concentration of ozone in each layer
- (3) temperature changes from variations in absorption of solar energy
- (4) concentration of oxygen in each layer
- (5) precipitation in each layer

25 Which **one** of the following statements is **true**?

- (1) Temperature inversion occurs when a layer of cold air prevents warm air from rising.
- (2) Temperature inversions make pollution problems worse.
- (3) Temperature inversions last only a few minutes to a few hours.
- (4) Normally, cool air near the earth's surface expands and rises, carrying pollutants higher into the troposphere.
- (5) Temperature inversions help prevent air pollution.

26 Acid deposition is properly defined as the ... deposition of ... pollutants onto the earth's surface.

- (1) wet; secondary
- (2) dry; secondary
- (3) wet and dry; primary
- (4) wet and dry; secondary
- (5) dry; primary

**Study unit 10 – Wasting the earth**

27 Toxic racism ... .

- (1) occurs only in South Africa
- (2) refers to the location of landfills and hazardous-waste incinerators in poor areas
- (3) occurs where land is cheap
- (4) occurs only in highly populated areas
- (5) occurs where land is expensive

28 The real cost of dumping hazardous waste is borne by the ... .

- (1) producer of the waste
- (2) disposer of the waste
- (3) people who live in affluent areas
- (4) taxpayers who pay to clean up disposal messes
- (5) people who recycle the waste

29 Which **one** of the following alternatives is **not** a property of hazardous waste?

- (1) flammable
- (2) unstable
- (3) soluble
- (4) corrosive
- (5) carcinogenic, mutagenic or teratogenic

30 At the checkout counter, an environmentalist is most likely to ... .

- (1) say, "plastic please"
- (2) say, "paper please"
- (3) say, "I brought my own bag"
- (4) walk out of the store
- (5) say, "either plastic or paper"

\*\*\*\*\*

## 9 OTHER ASSESSMENT METHODS

No other assessment methods will be used.

## 10 EXAMINATION

### 10.1 How the examination system works

Use your *Study @ Unisa* brochure for general examination guidelines and guidelines on how to prepare for the examination.

### 10.2 Examination admission

Submission of the first assignment before 22 February (first semester) or 15 August (second semester) will confirm your registration for that semester and you will be noted as an "active student". (This is so that Unisa will receive a subsidy from the Department of Education for you as a student.) This also provides you with admission to the examination. **Please note that you need to submit at least ONE assignment to gain admission to the exam. NO extensions will be given and NO exceptions will be made.** Historically, statistics show that those students who submitted all three assignments were the ones who more frequently passed the module.

### 10.3 A sub-minimum of 40%

Because you can earn a semester mark which will contribute to the final mark, the university requires you to achieve a sub-minimum of 40% in the examination to pass the module.

### 10.4 Examination period

This module is offered over a semester period of 15 weeks. This means that if you are registered for the first semester, you will write the examination in May/June 2018 and the supplementary examination will be written in October/ November 2018. If you are registered for the second semester, you will write the examination in October/November 2018 and the supplementary examination will be written in May/June 2019.

During the semester, Unisa's Examinations section will provide you with information about the examination in general and about the examination venues, dates and times. You have to have a final mark (combined semester mark and examination mark) of 50% to pass this module. If your final mark (taking the semester mark into account) is between 40% and 49%, you will be given an opportunity to rewrite the examination in the next examination period (the following semester). This examination will then count 100% and the semester mark will not be taken into account. However, if you write an aegrotat examination, the semester mark will count towards the final mark.

### 10.5 Duration of the examination

The examination will be **two hours** long.

### 10.6 A special tutorial letter on the examinations

You will receive a tutorial letter that will explain the format of the examination. It will also give you examples of the types of questions that you may expect and set out clearly what material

you have to study for examination purposes. This letter may be combined with one containing feedback on Assignments 01 and 02.

### **10.7 Previous examination papers**

Previous examination papers are available to you. Old examination papers will be loaded on the **Official Study Material** page on the myUnisa website. I advise you **not** to focus on old examination papers **only**, as the content of modules changes and therefore examination papers change from year to year. You may, however, accept that the structure and types of questions that will be asked in the examination will be similar to those of the activities in your study guide and in the assignments.

## **11 FREQUENTLY ASKED QUESTIONS**

The *Study @ Unisa* brochure contains an A-Z guide of the most relevant study information.

## **12 SOURCES CONSULTED**

Miller, TG, Jr. & Spoolman, ES. 2011. *Our living earth*. Massachusetts: Brooks/Cole.

## **13 CONCLUSION**

All the best for the module!