

Exemplar Book on Effective Questioning

Geography

Compiled by the Statistical Information and Research (SIR) Unit

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PREFACE

The National Senior Certificate (NSC) examinations are set and moderated in part using tools which specify the types of cognitive demand and the content deemed appropriate for Geography at Grade 12 level. Until recently, the level of cognitive demand made by a question was considered to be the main determinant of the overall level of cognitive challenge of an examination question.

However, during various examination evaluation projects conducted by Umalusi from 2008-2012, evaluators found the need to develop more complex tools to distinguish between questions which were categorised at the same cognitive demand level, but which were not of comparable degrees of difficulty. For many subjects, for each type of cognitive demand a three-level degree of difficulty designation, *easy, moderate and difficult* was developed. Evaluators first decided on the type of cognitive process required to answer a particular examination question, and then decided on the degree of difficulty, *as an attribute of the type of cognitive demand*, of that examination question.

Whilst this practice offered wider options in terms of *easy, moderate and difficult* levels of difficulty for each type of cognitive demand overcame some limitations of a one-dimensional cognitive demand taxonomy, other constraints emerged. Bloom's Taxonomy of Educational Objectives (BTEO) (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) and the Revised Bloom's Taxonomy are based on the assumption that a cumulative hierarchy exists between the different categories of cognitive demand (Bloom et al., 1956; Bloom, Hastings & Madaus, 1971). The practice of 'levels of difficulty' did not necessarily correspond to a hierarchical model of increasing complexity of cognitive demand. A key problem with using the level of difficulty as an attribute of the type of cognitive demand of examination questions is that, questions recognised at a higher level of cognitive demand are not

necessarily categorised as more difficult than other questions categorised at lower levels of cognitive demand. For example, during analyses a basic recognition or recall question could be considered more difficult than an easy evaluation question.

Research further revealed that evaluators often struggled to agree on the classification of questions at so many different levels. The finer categorization for each level of cognitive demand and the process of trying to match questions to pre-set definitions of levels of difficulty made the process of making judgments about cognitive challenge overly procedural. The complex two-dimensional multi-level model also made findings about the cognitive challenge of an examination very difficult for Umalusi Assessment Standards Committee (ASC) to interpret.

In an Umalusi Report, *Developing a Framework for Assessing and Comparing the Cognitive Challenge of Home Language Examinations* (Umalusi, 2012), it was recommended that the type and level of cognitive demand of a question and the level of a question's difficulty should be analysed separately. Further, it was argued that the ability to assess cognitive challenge lay in experts' abilities to recognise subtle interactions and make complicated connections that involved the use of multiple criteria simultaneously. However, the tacit nature of such judgments can make it difficult to generate a common understanding of what constitutes criteria for evaluating the cognitive challenge of examination questions, despite descriptions given in the policy documents of each subject.

The report also suggested that the Umalusi external moderators and evaluators be provided with a framework for thinking about question difficulty which would help them identify where the main sources of difficulty or ease in questions might reside. Such a framework should provide a common language for evaluators and moderators to discuss and justify decisions about question difficulty. It should also be used for building the capacity of novice or less experienced moderators and evaluators to exercise the

necessary expert judgments by making them more aware of key aspects to consider in making such judgments.

The revised Umalusi examination moderation and evaluation instruments for each subject draw on research and literature reviews, together with the knowledge gained through the subject workshops. At these workshops, the proposed revisions were discussed with different subject specialists to attain a common understanding of the concepts, tools and framework used; and to test whether the framework developed for thinking about question difficulty 'works' for different content subjects. Using the same framework to think about question difficulty across subjects will allow for greater comparability of standards across subjects and projects.

An important change that has been made to the revised examination evaluation instrument is that the analysis of *the type of cognitive demand* of a question and analysis of *the level of difficulty* of each question are now treated as two separate judgments involving two different processes. Accordingly, the revised examination evaluation instrument now includes assessment of difficulty as well as cognitive demand.

LIST OF ABBREVIATIONS

Abbreviation	Full name
ASC	Assessment Standards Committee
BTEO	Bloom's Taxonomy of Educational Objectives
CAPS	Curriculum Assessment Policy Statement
DBE	Department of Basic Education
FET	Further Education and Training
IEB	Independent Examinations Board
NSC	National Senior Certificate
NQF	National Qualifications Framework
QAA	Quality Assurance of Assessment
QCC	Qualifications, Curriculum and Certification
SIR	Statistical Information and Research

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This Geography exemplar book is informed by Umalusi Research Reports of previous years, especially the report by Reeves (Umalusi, 2012) entitled '*Developing a framework for assessing and comparing the cognitive challenge of Home Language examinations*'.

In addition, Geography subject experts and practitioners are acknowledged for their contribution to the content of this exemplar book. Included in this group are: Umalusi External Moderators and Maintaining Standards Subject Teams and Team Leaders; together with the South African Comprehensive Assessment Institute and the Independent Examinations Board (IEB) Examiners and Internal Moderators.

We also acknowledge the contributions of the members of the Umalusi Quality Assurance of Assessment (QAA); Qualifications, Curriculum and Certification (QCC) and Statistical Information and Research (SIR) Units. We specifically acknowledge the contribution made by the individuals listed below:

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This exemplar book was prepared by Dr Susan Cohen.

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1. INTRODUCTION

The rules of assessment are essentially the same for all types of learning because, to learn is to acquire knowledge or skills, while to assess is to identify the level of knowledge or skill that has been acquired (Fiddler, Marienau & Whitaker, 2006). Nevertheless, the field of assessment in South Africa and elsewhere in the world is fraught with contestation. A review of the research literature on assessment indicates difficulties, misunderstanding and confusion in how terms describing educational measurement concepts, and the relationships between them, are used (Frisbie, 2005).

Umalusi believes that if all role players involved in examination processes can achieve a common understanding of key terms, concepts and processes involved in setting, moderating and evaluating examination papers, much unhappiness can be avoided. This exemplar book presents a particular set of guidelines for both novice and experienced Geography national examiners, internal and external moderators, and evaluators to use in the setting, moderation and evaluation of examinations at the National Senior Certificate (NSC) level.

The remainder of the exemplar book is organised as follows: First, the context in which the exemplar book was developed is described (Part 2), followed by a statement of its purpose (Part 3). Brief summaries of the roles of moderation and evaluation (Part 4) and cognitive demand (Part 5) in an assessment. Examination questions selected from the NSC Geography examinations of assessment bodies, the Department of Basic Education (DBE), and/or the Independent Examinations Board (IEB) are used to illustrate how to identify different levels of cognitive demand as required by the Curriculum and Assessment Policy Statement (CAPS) Geography document (Part 6). Part 7 explains the protocols for identifying different levels of difficulty within a question paper. Application of the Umalusi framework for determining difficulty described in Part 7 is illustrated, with reasons, by another set of

questions from a range of Geography examinations (Part 8). Concluding remarks complete the exemplar book (Part 9).

2. CONTEXT

Umalusi has the responsibility to quality assure qualifications, curricula and assessments of National Qualification Framework (NQF) levels 1 - 5. This is a legal mandate assigned by the *General and Further Education and Training Act (Act 58 of 2001)* and the *National Qualification Framework Act (Act 67 of 2008)*. To operationalize its mandate, Umalusi, amongst other things, conducts research and uses the findings of this research to enhance the quality and standards of curricula and assessments.

Since 2003, Umalusi has conducted several research studies that have investigated examination standards. For example, Umalusi conducted research on the NSC examinations, commonly known as 'Matriculation' or Grade 12, in order to gain an understanding of the standards of the new examinations (first introduced in 2008) relative to those of the previous NATED 550 Senior Certificate examinations (Umalusi, 2009a, 2009b). Research undertaken by Umalusi has assisted the organisation to arrive at a more informed understanding of what is meant by assessing the cognitive challenge of the examinations and of the processes necessary for determining whether the degree of cognitive challenge of examinations is comparable within a subject, across subjects and between years.

Research undertaken by Umalusi has revealed that different groups of examiners, moderators and evaluators do not always interpret cognitive demand in the same way, posing difficulties when comparisons of cognitive challenge were required. The research across all subjects also showed that using the type and level of cognitive demand of a question *only* as measure for judging the cognitive challenge of a question is problematic because

cognitive demand levels on their own do not necessarily distinguish between degrees of difficulty of questions.

The new Umalusi framework for thinking about question difficulty described in this exemplar book is intended to support all key role players in making complex decisions about what makes a particular question challenging for Grade 12 examination candidates.

3. THE PURPOSE OF THE EXEMPLAR BOOK

The overall goal of this exemplar book is to ensure the consistency of standards of examinations across the years in the Further Education and Training (FET) sub-sector and Grade 12, in particular. The specific purpose is to build a shared understanding among teachers, examiners, moderators, evaluators, and other stakeholders, of methods used for determining the type and level of cognitive demand as well as the level of difficulty of examination questions.

Ultimately, the common understanding that this exemplar book seeks to foster is based on the premise that the process of determining the type and level of cognitive demand of questions and that of determining the level of difficulty of examination questions are two separate judgements involving two different processes, both necessary for evaluating the cognitive challenge of examinations. This distinction between cognitive demand and difficulty posed by questions needs to be made in the setting, moderation, evaluation and comparison of Geography examination papers.

The exemplar book includes an explanation of the new Umalusi framework which is intended to provide all role-players in the setting of Geography examinations with a common language for thinking and talking about question difficulty. The reader of the exemplar book is taken through the

process of evaluating examination questions; first in relation to determining the type and level of cognitive demand made by a question, and then in terms of assessing the level of difficulty of a question. This is done by providing examples of a range of questions which make different types of cognitive demands on candidates, and examples of questions at different levels of difficulty.

Each question is accompanied by an explanation of the reasoning behind why it was judged as being of a particular level of cognitive demand or difficulty, and the reasoning behind the judgements made is explained. The examples of examination questions provided were sourced by Geography evaluators from previous DBE and the IEB Geography question papers, pre- and post- the implementation of CAPS during various Umalusi workshops.

This exemplar book is an official document. The process of revising the Umalusi examination evaluation instrument and of developing a framework for thinking about question difficulty for both moderation and evaluation purposes has been a consultative one, with the DBE and the IEB assessment bodies. The new framework for thinking about question difficulty is to be used by Umalusi in the moderation and evaluation of Grade 12 Geography examinations, and by all the assessment bodies in the setting of the question papers, in conjunction with the CAPS documents.

4. MODERATION AND EVALUATION OF ASSESSMENT

A fundamental requirement, ethically and legally, is that assessments are fair, reliable and valid (American Educational Research Association [AERA], American Psychological Association [APA] and National Council on Measurement in Education [NCME], 1999). Moderation is one of several quality assurance assessment processes aimed at ensuring that an assessment is fair, reliable and valid (Downing & Haladyna, 2006). Ideally,

moderation should be done at all levels of an education system, including the school, district, provincial and national level in all subjects.

The task of Umalusi examination **moderators** is to ensure that the quality and standards of a particular examination are maintained each year. Part of this task is for moderators to alert examiners to details of questions, material and/or any technical aspects in examination question papers that are deemed to be inadequate or problematic and that therefore, challenge the validity of that examination. In order to do this, moderators need to pay attention to a number of issues as they moderate a question paper – these are briefly described below.

Moderation of the technical aspects of examination papers includes checking correct question and/or section numbering, and ensuring that visual texts and/or resource material included in the papers are clear and legible. The clarity of instructions given to candidates, the wording of questions, the appropriateness of the level of language used, and the correct use of terminology need to be interrogated. Moderators are expected to detect question predictability, for example, when the same questions regularly appear in different examinations, and bias in examination papers. The adequacy and accuracy of the marking memorandum (marking guidelines) need to be checked to ensure that they reflect and correspond with the requirements of each question asked in the examination paper being moderated.

In addition, the task of moderators is to check that papers adhere to the overall examination requirements as set out by the relevant assessment body with regard to the format and structure (including the length, type of texts or reading selections prescribed) of the examination. This includes assessing compliance with assessment requirements with regard to ensuring that the content is examined at an appropriate level and in the relative proportions (weightings) of content and/or skills areas required by the assessment body.

The role of Umalusi examination **evaluators** is to perform analysis of examination papers after they have been set and moderated and approved by the Umalusi moderators. This type of analysis entails applying additional expert judgments to evaluate the quality and standard of finalised examination papers before they are written by candidates in a specific year. However, the overall aim of this evaluation is to judge the comparability of an examination against the previous years' examination papers to ensure that consistent standards are being maintained over the years.

The results of the evaluators' analyses, and moderators' experiences provide the Umalusi Assessment Standards Committee (ASC) with valuable information which is used in the process of statistical moderation of each year's examination results. Therefore, this information forms an important component of essential qualitative data informing the ASC's final decisions in the standardisation of the examinations.

In order for the standardisation process to work effectively, efficiently and fairly, it is important that examiners, moderators and evaluators have a shared understanding of how the standard of an examination paper is assessed, and of the frameworks and main instruments that are used in this process.

5. COGNITIVE DEMANDS IN ASSESSMENT

The *Standards for educational and psychological testing* (AERA, APA, & NCME, 1999) require evidence to support interpretations of test scores with respect to cognitive processes. Therefore, valid, fair and reliable examinations require that the levels of cognitive demand required by examination questions are appropriate and varied (Downing & Haladyna, 2006). Examination papers should not be dominated by questions that require

reproduction of basic information, or replication of basic procedures, and under-represent questions invoking higher level cognitive demands.

Accordingly, the Grade 12 CAPS NSC subject examination specifications state that examination papers should be set in such a way that they reflect proportions of marks for questions at various level of cognitive demand. NSC examination papers are expected to comply with the specified cognitive demand levels and weightings. NSC examiners have to set and NSC internal moderators have to moderate examination papers as reflecting the proportions of marks for questions at different levels of cognitive demand as specified in the documents. Umalusi's external moderators and evaluators are similarly tasked with confirming compliance of the examinations with the CAPS cognitive demand levels and weightings, and Umalusi's revised examination evaluation instruments continue to reflect this requirement.

Despite that, subject experts, examiners, moderators and evaluators are familiar with the levels and explanations of the types of cognitive demand shown in the CAPS documents, Umalusi researchers have noted that individuals do not always interpret and classify the categories of cognitive demand provided in the CAPS the same way. In order to facilitate a common interpretation and classification of the cognitive demands made by questions, the next section of this exemplar book provides a clarification of each cognitive demand level for Geography followed by illustrative examples of examination questions that have been classified at that level of cognitive demand.

6. EXPLANATIONS AND EXAMPLES OF QUESTIONS ASSESSED AT THE DIFFERENT COGNITIVE DEMAND LEVELS IN THE GEOGRAPHY TAXONOMY ACCORDING TO CAPS

The taxonomies of cognitive demand for each school subject in the CAPS documents are mostly based on the Revised Bloom's Taxonomy (Anderson and Krathwohl, 2001) but resemble the original Bloom's taxonomy in that categories of cognitive demand are arranged along a single continuum. Bloom's Taxonomy of Educational Objectives (BTEO) (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) and the Revised Bloom's Taxonomy imply that each more advanced or successive category of cognitive demand subsumes all categories below it. The CAPS Taxonomies of Cognitive Demand make a similar assumption (Crowe, 2012).

Note:

In classifying the type and level of cognitive demand, each question is classified at the highest level of cognitive process involved. Thus, although a particular question involves recall of knowledge, as well as comprehension and application, the question is classified as an 'analysis' question if that is the highest level of cognitive process involved. If 'evaluating' is the highest level of cognitive process involved, the question as a whole should be classified as an 'evaluation' question. On the other hand, if one of more sub-sections of the question and the marks allocated for each sub-section can stand independently, then the level of cognitive demand for each sub-section of the question should be analysed separately.

The CAPS documents for many subjects also give examples of descriptive verbs that can be associated with each of the levels of cognitive demand. However, it is important to note that such 'action verbs' can be associated with more than one cognitive level depending on the context of a question.

The Geography CAPS document states that Grade 12 NSC Geography examination papers should examine three levels of cognitive demand (Table 1).

TABLE 1: THE GEOGRAPHY TAXONOMY OF COGNITIVE DEMAND LEVELS FOR THE GEOGRAPHY NSC EXAMINATIONS

Lower order	Middle order	Higher order
(Knowledge/ Remembering)	(Understanding, Applying)	(Analysing, Evaluating, Creating)

SOURCE: CAPS GEOGRAPHY FET (2011) P.52

To facilitate reading of this section, each of the cognitive demand levels in the Geography Taxonomy is explained, and the explanation is followed by at least **three** examples of questions from previous Geography NSC examinations classified at each of the levels of cognitive demand shown in **Table 1**. These examples were selected to represent the **best and clearest** examples of each level of cognitive demand that the Geography experts could find. The discussion below each example question explains the reasoning processes behind the classification of the question at that particular type of cognitive demand (Table 2 to Table 7).

Note:

Be mindful that analyses of *the level of cognitive process* of a question and *the level of difficulty* of each question are to be treated as two separate judgments involving two different processes. Therefore, whether the question is easy or difficult should not influence the categorisation of the question in terms of the type and level of cognitive demand. Questions should NOT necessarily be categorised as higher order evaluation/synthesis questions because they are difficult questions. Some questions involving the cognitive process of recall or recognition may be more difficult than other recall or recognition questions. Not all comprehension questions are easier than questions involving analysis or synthesis. Some comprehension questions may be very difficult, for example explanation of complex scientific processes. For these reasons, you need to categorise the level of difficulty of questions separately from identifying the type of cognitive process involved.

TABLE 2: EXAMPLES OF LOWER ORDER QUESTIONS: KNOWLEDGE/ REMEMBERING

Remembering refers to the ability to retrieve information from long term memory.

Learners demonstrate the ability to remember knowledge when they:

- recall details, facts, formulas, terms, definitions, representations from memory
- recognise, locate, identify, extract or retrieve explicitly stated or readily observable information from source material.

Example 1:

Question 1.1: November 2009 DBE P1

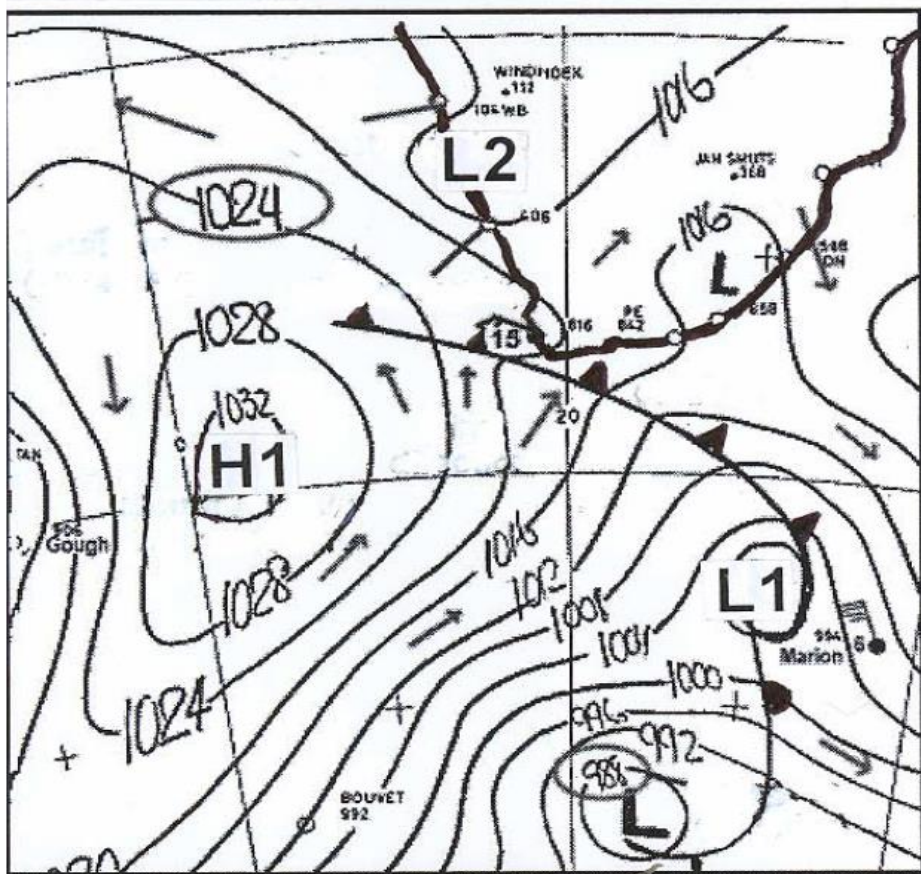
Refer to Figure 1.1 on the attached annexure, showing a simplified synoptic weather map of South Africa. Various options are given as possible answers to the following question. Choose the answer and write only the letter (A-D) next to the question number in the answer book.

1.1.1 High pressure cell H1 is the ... high pressure cell. (2)

- A. South Pacific
- B. South Atlantic
- C. South Indian
- D. Kalahari

FIGURE 1.1

FIGUUR 1.1



Discussion:

Grade 12 candidates should have learnt the names of the three subtropical high-pressure cells that dominate South African weather and climate. They should also have learnt their positions on the synoptic map. Here they are directed toward a high-pressure cell, H1. They do not have to interpret or analyse the map in order to identify the feature as a high-pressure cell, they have learnt about this cell, and its location, and they are told that H1 is such a feature. All they have to do is recall what they have learnt about the high-pressure cells to choose/recognise the correct option for the one referred to on the map.

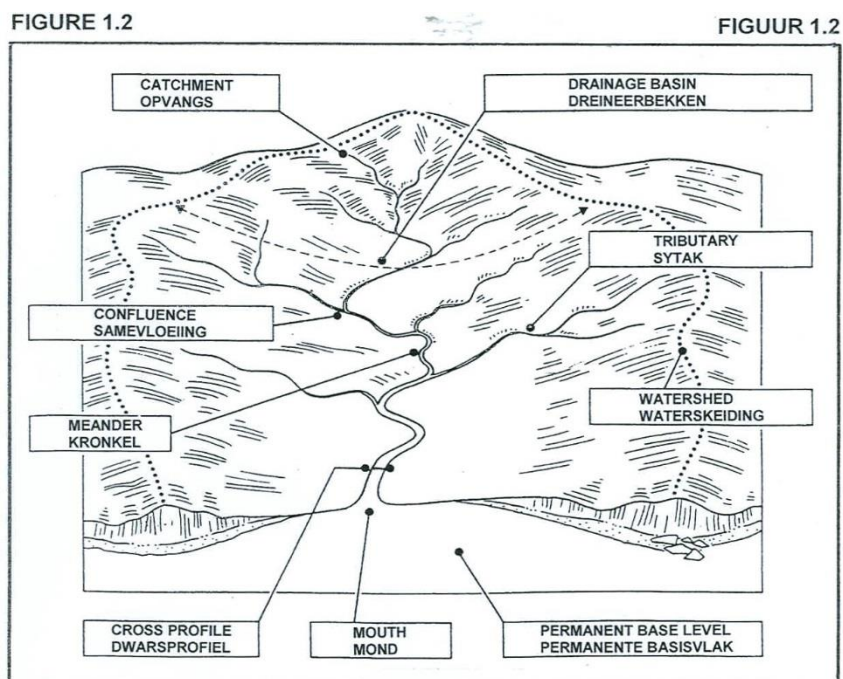
Memorandum/Marking guidelines

1.1.1 B (2)

Example 2:

Question 1.2: November 2008 DBE P1

Use FIGURE 1.2 which shows the different fluvial processes and characteristics of a drainage basin to assist you to give ONE term for each of the descriptions below. Write only the term next to the question number (1.2.1 – 1.2.5) in the ANSWER BOOK, for example 1.2.6 base flow. (5 x2) (10)



- 1.2.1 Area where a river gets its water from
- 1.2.2 Area drained by a river and its tributaries
- 1.2.3 The point where a tributary meets the main stream
- 1.2.4 Section of a stream from one bank to another

Discussion:

In this question, candidates are provided with a diagram illustrating various features of a drainage basin, all clearly labelled. They are also provided with a definition of various terms. They need to match the terms with the definitions/descriptions of each feature. In order to do this, they must recall what they have learnt about the features of the basin – what they look like, what they are called, and how they are defined. Although they are provided with a

diagram, they do not have to interpret or analyse it, they must simply name each feature asked about by remembering what it looks like and recognizing the term that is used for it.

Memorandum/Marking guidelines

- 1.2.1 catchment area (2)
- 1.2.2 drainage basin (2)
- 1.2.3 confluence (2)
- 1.2.4 cross profile (2)
- 1.2.5 watershed (2) 5x2 = (10)

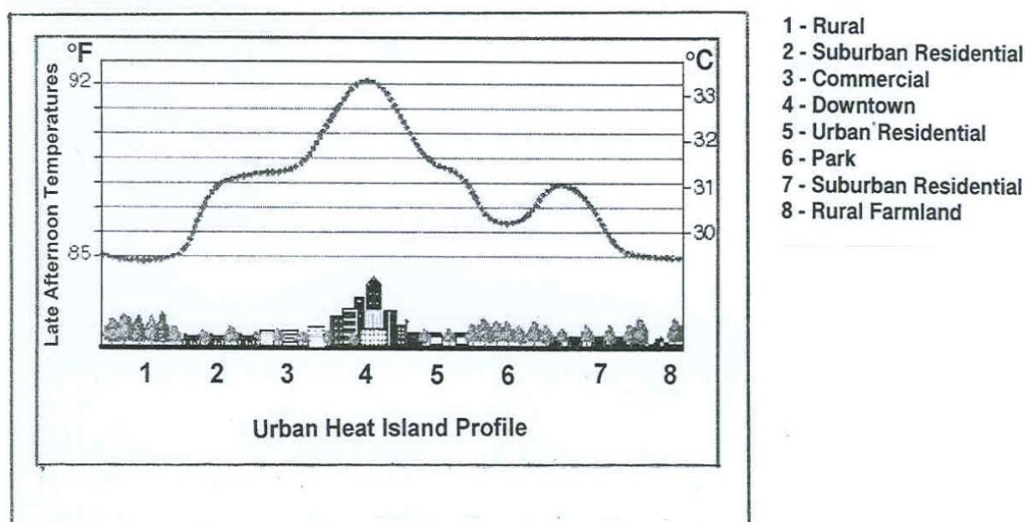
Example 3:

Question 1.4: November 2008 DBE P1

1.4 Geographers discovered many years ago that heat emissions in urban areas affect climate. Use your knowledge of heat islands and refer to FIGURE 1.4 to answer the questions below.

- 1.4.1 Explain what is meant by the term heat island (1 x 2) (2)
- 1.4.4 Give TWO reasons why modern buildings have an effect on heat islands. (2 x 2) (4)
- 1.4.5 Suggest TWO measures that can be taken to reduce high temperatures in the city centre. (2 x 2) (4)

FIGURE 1.4



Discussion:

In part 1.4.1, candidates are required to recall what a heat island is, and give this information. The use of the instruction 'explain' suggests that this might be an 'understanding' question, but in fact, candidates do not have to link any information in any novel way to show that they understand it; they need only state what a heat island is. The question could as well have been phrased as: State what is meant by the term urban heat island. The fact that only 1 mark is awarded for the answer is a clue to the question being a recall question.

In part 1.4.4, candidates have to recall two reasons why modern buildings have an effect on heat islands; this is curriculum content which they should have learnt.

In part 1.4.5, candidates have to recall two measures which they should have learnt about in class. Although the question asks them to suggest these measures,

they do not have to think of two solutions to a new problem, but must just recall curriculum content; ways of mitigating the effects of a heat island are part of the curriculum.

Memorandum/Marking guidelines

1.4.1 An urban area that records higher temperatures than the surrounding rural areas (2)

[Concept] 1x2 = (2)

1.4.4

- Modern buildings are made of a lot of glass/steel which results in the multiple reflection of heat (2)
- Buildings create a greater surface area which absorbs/reflects heat (2)
- Buildings are made of concrete which absorbs/reflects more heat (2)
- Tall buildings trap heat as wind cannot disperse the heat (2)
- More air conditioners/heaters (2)
- More buildings therefore less vegetation to play cooling role (2)

[Any TWO] 2x2 = (4)

1.4.5

- Industrial decentralisation (2)
- Laws to control/restrict air pollution (2)
- Reduce building density (2)
- Introduce open spaces / green belts / parks to absorb carbon dioxide (2)
- Measures to reduce pollutants / greenhouse gases as they trap heat (2)
- Public transport to reduce emissions (2)
- Cleaner fuels (2)
- Flexi-time (2)
- Erect green buildings (2)
- Law enforcement to ensure sustainable units/local agenda 21 (2)

[Any TWO. Accept reasonable alternatives] 2x2 = (4)

TABLE 3: EXAMPLES OF MIDDLE ORDER QUESTIONS: UNDERSTANDING

Understanding refers to the ability of learners to see the relationships between ideas, and the way in which concepts are organised or structured in explanations, models or theories which they have learnt or which are in new material which is presented to them.

Learners demonstrate understanding when they are able to: create a model or version, or re-organise information, data, ideas, facts or details that are explicitly stated or observable in material provided or which have been learnt, in a different way or form from what was presented (e.g. summarise the main idea, restate the main ideas in their own words, paraphrase, categorise, draw, classify, explain or consolidate the information).

Example 1:

Question 2.5: November 2016 IEB Paper 1

2.5 Valley climate within the Cradle of Humankind

Refer to Photograph 4, on page (iii) of the Colour Insert and the map, Figure 6 (page 14), for the location of the Cradle of Humankind. (not provided here as not needed to answer the question)

A hot-air balloon safari flight departs from the Cradle of Humankind at sunrise, which, during early summer (October), is **around 05:30**.

2.5.1 Balloon passengers experience a drop in temperature of about 2°C as the balloon drifts down from higher lying ground into the river valley, as seen in Photograph 4. (not provided here) Account for the lower valley temperatures in the early morning. (4)

Discussion:

In this question, candidates have to account for low temperature conditions in a valley in the early morning, in essence, they have to explain why temperatures are lower in a valley there at 5.30 in the morning. They will have learnt about how temperatures in the valley change from day to night, and will need to draw on this knowledge to explain the low early morning temperatures encountered by the balloonists. In giving this explanation, in their own words, they demonstrate their understanding of the processes affecting valley temperatures by reorganizing theoretical knowledge they have learnt. Although the question is set in a particular context, no feature of the particular valley into which the balloon flies are provided; thus, there is no specific situation to which the learners must apply their knowledge – they only need to reorganize their knowledge of general principles to provide a coherent explanation of the early morning low temperatures.

Memorandum/Marking guidelines

2.5.1 Cool air will drain into the bottom of the valley at night (2); this is due to the katabatic air flow due to gravity (2). Cooler, denser air will collect at the bottom of the valley at night. In the early morning, the valley has not warmed up as yet. (4)

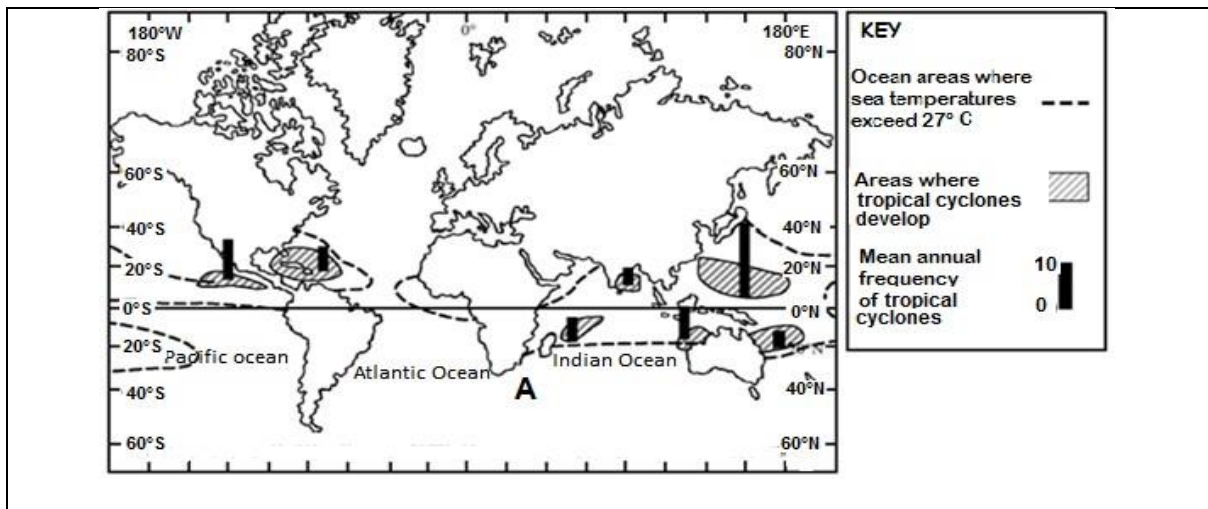
Example 2:

Question 2.3.5: November 2012 DBE Paper 1

2.3 Study Figure 2.3 which shows the frequency of occurrence of tropical cyclones.

2.3.5 Explain why tropical cyclones dissipate when they move overland. (2 x 2) (4)

FIGURE 2.3: FREQUENCY OF OCCURRENCE OF TROPICAL CYCLONES



Discussion:

To answer this question candidates have to show that they understand the conditions that provide tropical cyclones with energy, and why, when they move over land, these conditions do not exist, leading to the cyclone dissipating. Although this is knowledge that candidates should have gained from studying the relevant section of the curriculum, here they have to express the ideas in their own words by linking conditions for a cyclone being sustained/dissipating to its location over the sea/land. The question requires them to explain – not to give two reasons why a tropical cyclone dissipates over land, which would make the question a remembering one. Note that although a map is provided, it is used to answer other parts of this question. It is not a useful resource for finding the answer to this particular part of the question (2.3.5), and so no analysis of this source material is required.

Memorandum/Marking guidelines

2.3.5 Lack of moisture (2)

Therefore, less latent heat produced during condensation (2)

Friction over land slows the system down (2)

[Any TWO]

Example 3:

Question 4.2.1: November 2012 DBE Paper 2

4.2.1 Differentiate between spatial and attribute data. (2 x 2) (4)

Discussion:

Grade 12 candidates should have learnt the meaning of 'spatial' and attribute 'data' in class. Here they are asked to differentiate between them. This means they must show that they understand what each concept is by identifying and making clear the similarities and differences between them. They cannot simply provide a learnt definition for each, which would be a 'remembering' task. In differentiating between them, they show that they can explain the meaning of these concepts in a new way, not simply as they have learnt them, and that they understand the key aspects of each that distinguishes one from the other.

Adjusted Memorandum/Marking guidelines

4.2.1 **Spatial data** provides information about the location (such as co-ordinates) and shape of geographic features (2) whilst **attribute data** is non-spatial and provides information about the other characteristics of the phenomena, such as the name of a river (2) (4)

TABLE 4: EXAMPLES OF MIDDLE ORDER QUESTIONS: APPLYING

Applying refers to the ability of learners to use their knowledge in a new situation or in a new way, or to transfer knowledge learned in one situation to another.

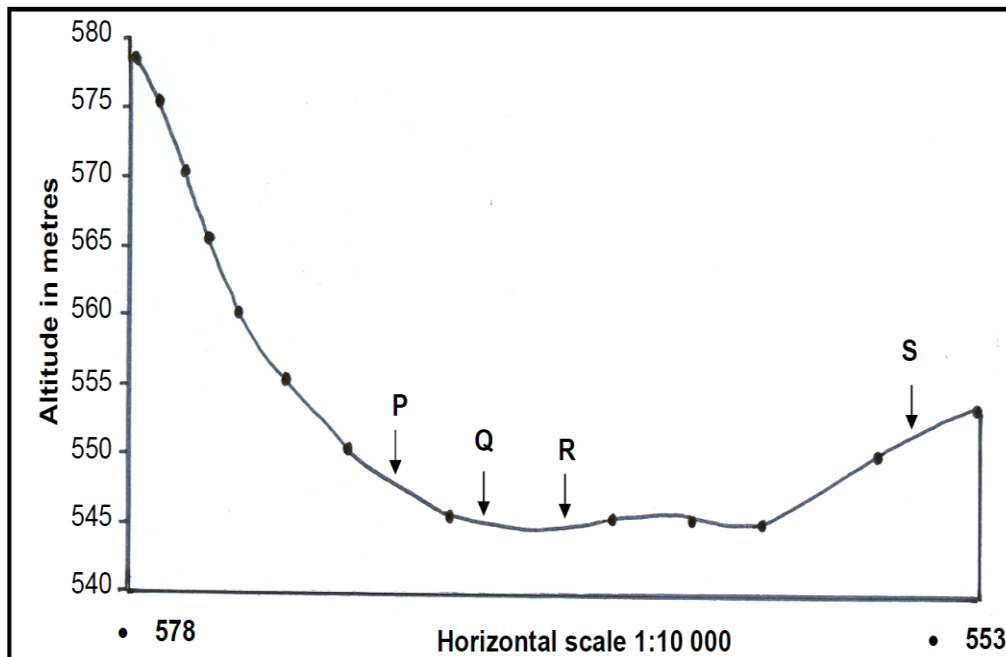
Learners demonstrate their ability to apply knowledge when they:

- use, perform or follow a procedure/rule/method/ operation. These may be simple, or more complex, with several steps
- use understanding of Geography concepts, facts, or processes as a basis for interpreting **given** details, relationships, patterns and results in **unfamiliar contexts or material**.

Example 1:

Question 2.1.4: November 2009 DBE Paper 2

The diagram (below) is a cross-section from spot height 578 (A) to spot height 553 (B) on the orthophoto map (provided in the paper, but not here). Calculate the vertical exaggeration for the given cross-section. Show all your calculations. (4)



Discussion:

There is a standard procedure for calculating vertical exaggeration. Candidates need to follow the steps they should have learnt and practised in class to calculate the vertical

exaggeration of the cross section provided. However, there are several steps to be followed – measuring horizontal distance; calculating vertical interval and then calculating a ratio. Furthermore, candidates would not have learnt the vertical exaggeration for this particular cross section. Thus, this question is an example of applying a complex procedure. On the other hand, they do not have to do not have to explain why they are doing what they are doing (understanding), nor do they have to find their own way to calculate the vertical exaggeration (creating). They must remember the steps they have learnt, and how to implement them in a new situation, i.e., they must apply a procedure that they have learnt. (Note: All the information they need is in the cross section provided; they do not need to refer to the orthophoto in order to do the calculation, thus the orthophoto is not shown here).

Memorandum/Marking guidelines

$$\begin{aligned}
 \text{Vertical exaggeration} &= \frac{\text{vertical scale}}{\text{horizontal scale}} \quad \checkmark \\
 &= \frac{1:500/555}{1:10\,000} \quad \checkmark \\
 &= \frac{1}{500/555} \times \frac{10\,000}{1} \quad \checkmark \\
 &= 18 - 20 \text{ times} \quad \checkmark
 \end{aligned}$$

[ONLY answer give FULL marks. If answer is incorrect mark steps.] (4)

Example 2:

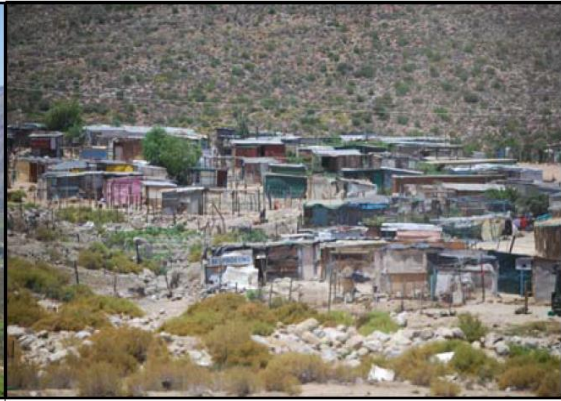
Question 4.2: November 2013 IEB Paper 1

4.2 Rural issues

Study the satellite image of De Doorns (Photograph 9 on page iv of the Insert). Refer to Photographs 10 and 11 below which show various settlement and land-use features in the Hex River Valley. Read the Fact File on De Doorns.



Photograph 10: Looking down the Hex River Valley from the eastern side of De Doorns



Photograph 11: Informal settlements outside De Doorns

[Source: Examiner's photographs]

Fact File on De Doorns, Western Cape

The small town of De Doorns lies at the centre of the Hex River Valley, just off the N1, 32 km north-east of Worcester and 40 km south-west of Touwsrivier. It lies in the centre of a grape growing region, surrounded by 200 farms. The harvest season is from December to April. Many of the farm workers come in to do seasonal work. In 2013 farm workers went on strike over the minimum wage per day.

Photograph 9: A satellite image of De Doorns, Hex River Valley, Western Cape – Question 4.2



[Source: Google Earth]

Photograph 9 from Page iv of the insert

4.2.2 (a) Describe TWO site factors that make the Hex River Valley an ideal farming

area.

Discussion:

To answer this question, candidates have to recall what they have learnt about the meaning of 'site' to identify key features of the site shown in the picture. In doing this, they apply or 'use their understanding of a geographic concept (site) as the basis for interpreting given details in an unfamiliar context' (the Hex River Valley). They should also have learnt about factors that make a site suitable for different purposes. In order to describe two features that make this particular site suitable for farming, they have to apply this knowledge to the site of the Hex River Valley.

Memorandum/Marking guidelines

4.2.2 (a) Two site factors that make the Hex River Valley an ideal farming area.

- Along the Hex River – where water is available.
- Fertile soils of the flood plain.
- Foot of the Hex River Mountains – flat land.

Any two (4)

Example 3:

Q3.1.2: November 2009 DBE Paper 2

The Limpopo River indicated on the topographical map (provided in the examination, but not here) forms an international boundary. What is the general direction of flow of the Limpopo River in the mapped area? (1 x 2) (2)

Discussion:

Grade 12 candidates should know that rivers flow from higher to lower ground. They should know that on a topographical map the contours indicate the height of the land, and the contour pattern associated with a river valley. They should also have practised reading a map to identify contour patterns and the heights of land shown by the contours in class. In order to know in which direction the river in this question is flowing, they need to apply their knowledge and the map reading skills they have practised to the unfamiliar context of the area of the map in question.

Memorandum/Marking guidelines

3.1.2 West to east/northwest to southeast/eastwards

TABLE 5: EXAMPLES OF HIGHER ORDER QUESTIONS: ANALYSING

Analysing refers to the ability of learners to engage in more abstract interpretation or reasoning, or use conjecture, background knowledge and understanding, clues or implicit information, facts, details, ideas or concepts, in material provided, or from memory as a basis for forming hypotheses, predicting consequences, deducing reasons, suggesting a possible explanation, inferring causes, drawing conclusions, interpreting relationships, patterns, results, or ideas.

Example 1

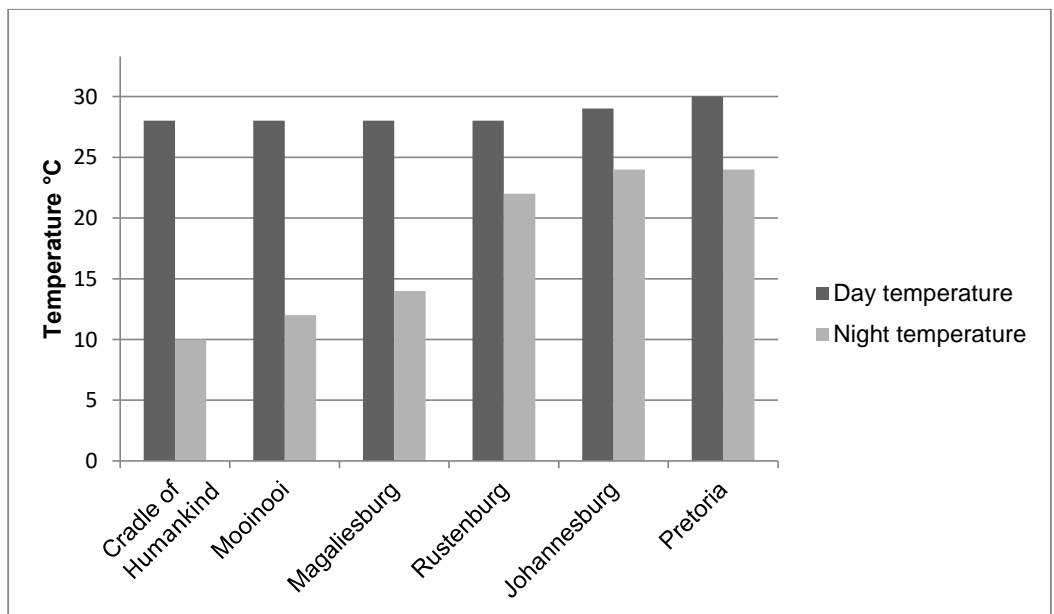
Question 2.4: November 2016 IEB Paper 1

2.4 Urban Climate

Study Figure 7 below, a graph illustrating January day and night temperatures in Magaliesburg and surrounding areas as represented in figure 6 page 1 and a map of the Magaliesburg area and surrounding urban regions in Gauteng and NW Provinces (map not show here).

2.4.1 Describe the general trends the graph, Figure 7, is illustrating

Figure 7: Average day and night temperatures recorded in the month of January for Magaliesburg and surrounding area.



[Source: Examiner's data]

Discussion:

In order to answer this question, candidates need to interpret the information provided in the graph as the answer is not provided directly. The graph uses differently coloured bars to show the day and night time temperature of various places; the map shows which places are urban, and which are rural, and the locations of the place relative to each other.

Candidates need to find the pattern in the graphs; they know this is an urban climate question, so should realise that they must look for patterns related to the rural/urban nature of the places. The need firstly to identify that the graph shows two aspects of the temperature of the places – day and night time temperatures – and the differences between them – or range. They then need to identify the trends or patterns shown – how day and night time temperatures and temperature range vary over space. None of this information is given directly. By looking carefully at this information, candidates should note that the day time temperatures of all the places are very similar; and that night time temperatures are always lower than day time temperatures; that night time temperatures are highest in the largest centres and lowest in places that are most rural, and that, the temperature range is thus highest in rural and lowest in urban areas. As candidates had to engage in interpretation of the information provided to identify the trends, this is an example of a question that requires analysis.

Memorandum/Marking guidelines

2.4.1

- The graph indicates that the areas that are more developed and built up, e.g. Johannesburg, Pretoria and Rustenburg, have a lower temperature range.
- There is little discrepancy in day time temperatures, all of which are around 28–30 °C.
- Built up areas have higher night time temperatures than do less built up places.
- Less built-up areas of the Cradle of Humankind and Moolenaar have a higher temperature range. (4)

Example 2:

Question 4.5.2: February/March 2009 DBE Paper 1

Agriculture is an important pillar in the South African economy. Below is a balance sheet showing the supply and demand (consumption) for wheat in South Africa.

PROJECTED ANNUAL CEREAL BALANCE SHEET FOR WHEAT FOR THE 2007/08 MARKETING SEASON

Wheat	(1 000 tons)
Supply	
Opening stock	850
Commercial production	1 727
Subsistence agriculture	9
Total domestic supply	2 586
Consumption	
Human	2 798
Animal	14
Other	15
Total domestic consumption	2 827
Plus: Exports	125
Total demand	2 952
Net shortage/surplus	?

4.5.2 Will South Africa be able to meet its total demand for wheat? Explain your answer. (2 x 2) (4)

Discussion:

In order to decide whether or not South Africa will be able to meet its demand for wheat, candidates need to compare the amount of wheat produced with that consumed. They need to identify the appropriate information in the table, read the values and then consider whether or not the amount supplied is smaller or larger than the amount demanded. The answer to this question is not provided explicitly, but must be deduced from the information in the table. As candidates must use implicit information to interpret a relationship this question requires analysis. As they are required to explain their answer, they cannot guess but must be able to explain the reasoning they used to arrive at their answer.

Memorandum/Marking guidelines

4.5.2 No (2)

The amount produced is lower than the demand (2) (2 x 2) (4)

Example 3:

Question 3.1: November 2012 DBE Paper 2

3.1 The Sterkfontein Dam forms an important part of the Tugela-Vaal Scheme. Refer to the diagram below (FIGURE 3.1) as well as the dam on the topographical map to answer the questions that follow.

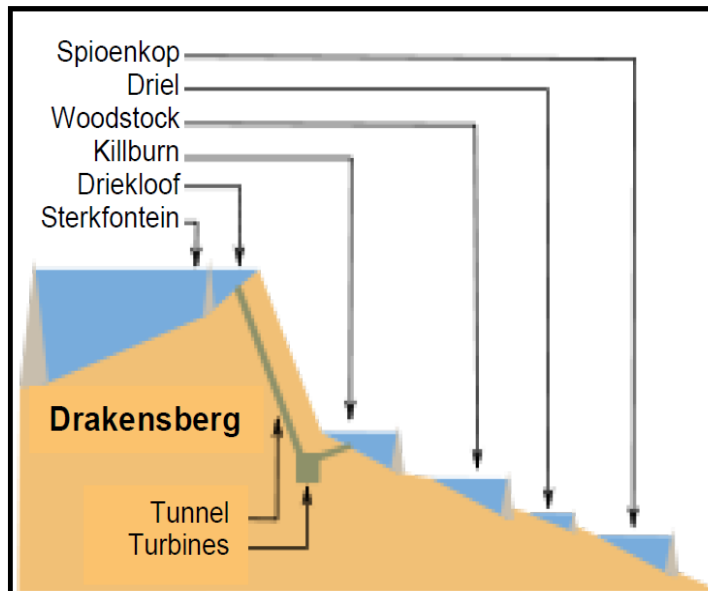


FIGURE 3.1

3.1.2 The Sterkfontein Dam has an ideal location for the storage of water. Give ONE reason to support this statement. (1 x 2) (2)

Discussion:

In order to answer this question candidates must recall the characteristics of a location that make it an excellent one for a dam, and consider the Sterkfontein dam's location in the light of these characteristics. In this sense, they need to apply their knowledge of characteristics of good dam locations to this particular dam. However, they are not given explicit information about its location; instead, they have to interpret the diagram and map provided to 'discover' the key features of the location of the Sterkfontein dam. Once they have done this analysis, they can apply their knowledge of the factors that make a location suitable for a dam, and consider which apply to the Sterkfontein dam. They can give any relevant factors as a reason why this dam's site is an excellent one. Note that the question requires application as well as analysis, but as analysis is at the higher level, the question as a whole is classified as being an analysis question. Note also that candidates do not have to give their opinion as to whether or not the dam has an ideal location, and so this is not an 'evaluating' question.

Memorandum/Marking guidelines

- In an area with low evaporation rates. √√
- Natural flow of water into the area. √√
- It is deep. √√
- Has a small surface area. √√
- Gravitational flow/hydro-power. √√
- Contained by high area with narrow opening. √√
- Basaltic area therefore forms aquiclude. √√
- Ideal to store water before its pumped to Vaal Dam. √√

[Any ONE] (1 x 2)

TABLE 6: EXAMPLES OF HIGHER ORDER QUESTIONS: EVALUATING

Evaluating refers to the ability of learners to make a critical judgement on qualities of accuracy, consistency, acceptability, desirability, worth, plausibility, or probability of a given argument, or proposed solution, outcome or strategy, **using background knowledge** of the subject **and/or evidence/ information provided by sources to motivate the judgement.**

Example 1

Question 1.5.6: November 2012 IEB Paper 1

1.5 People and Places: settlement and economy

Refer to Figure 1 (page 3) and Photographs 1 and 2 (on page i in the examination paper Insert but not provided here as not needed to answer this part of the question).

1.5.6 The settlement of kwaNonqaba was part of the RDP scheme to provide housing and services in the area. Write an essay of approximately 1 – 1½ pages in which you:

- Explain and review the purpose of the RDP
- Refer to other strategies aimed at improving urban settlements and evaluate their impact. (16)

Discussion:

The task word of the question in the second bullet indicates that this is an evaluation question. Candidates are required to think of strategies besides the RDP which are intended to improve services in urban areas. In evaluating their impact, they need to describe what they were intended to do, and to judge how well they have done this. They need to comment on what has been successful and what has not and give an opinion or judgement on the overall effectiveness of each strategy in achieving improvements. They need to draw on facts and figures (evidence from case studies and examples) to support their judgements.

Memorandum/Marking guidelines

1.5.6 Explain and review the purpose of the RDP:

- Reconstruction and development programme was implemented in 1994. It was an integrated socio-economic policy framework. Focused on meeting basic needs, developing human resources, building human resources and democratising the state and society. Has been discontinued.
- Was replaced by GEAR, then ASGISA (Accelerate Shared Growth Initiative of South) and now New Growth Path
- Criticised as housing provision was of poor quality, water provision insufficient and land reform not addressed properly. Delivery and performance seen as weak. Unfulfilled promises.

Other strategies aimed at improving urban settlements + evaluate:

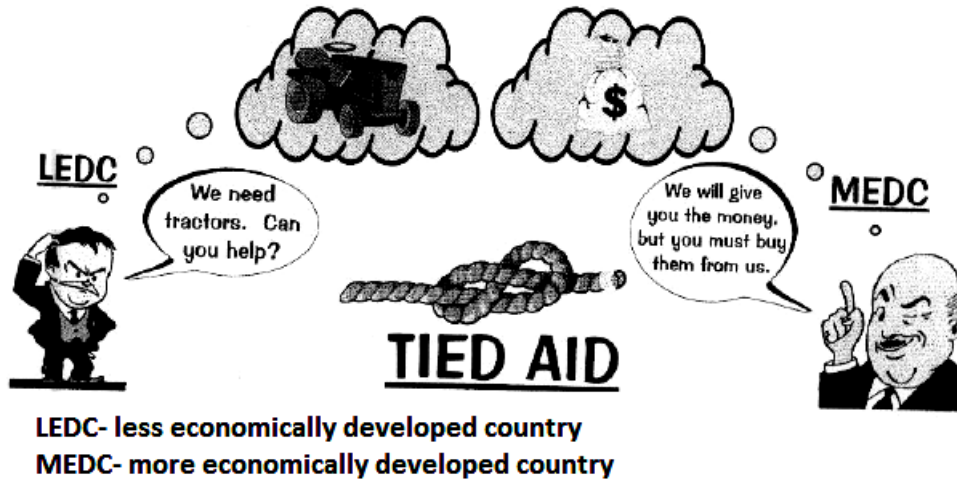
- Government strategies such as SDIs/IDZs/New Growth Path
- Urban development zones/Precincts/Crime fighting interventions/ Targeted interventions, e.g. Hillbrow Renewal Project.
- Local Agenda 21/Sustainable strategies such as 'greening' cities/ improving urban transport
- NGOs (case studies such as Markets of Warwick/other) (16)

Example 2:

Question 3.6.1: November 2011 DBE Paper 1

3.6 Refer to the cartoon labelled 'Tied Aid' in FIGURE 3.6.

3.6.1 Would you describe the relationship between the developing and developed countries in the cartoon as free trade? Explain your answer. (2 x 2) (4)



Source: Excel Geography A

Discussion:

Here the cartoon depicts an agreement between a more and a less developed country. According to the cartoon, financial aid will be given, but must be used to buy tractors from the donor country – creating a trading agreement. Candidates must analyse the proposed agreement, and give their opinion on whether or not this is an instance of 'free trade'. To do this, they draw on their knowledge of the characteristics of 'free trade' and trade which is not 'free', apply this to the information in the cartoon, and make a judgement about whether or not this instance meets the criteria for being considered 'free'. They must give their reasons. As candidates are making a judgement, and motivating it, this question is an example of an evaluation task. Notice again that candidates have to work at several cognitive levels – remembering, analysing, applying and evaluating. As 'evaluating' is the highest level, the question as a whole is classified as being at Level 5.

Memorandum/Marking guidelines

3.6.1 No (2)

Developed countries demands that developing countries will get assistance from them only if they will buy the tractors from them (2)

Example 3

Question 2.4.5: February /March 2009 DBE Paper 1

2.4.5 In your opinion, do you think the signing of the Kyoto Protocol was successful in reducing global warming? Give reasons for your answer. (3 x 2) (6)

Discussion:

In this question, candidates are required to give a well-motivated opinion about whether or not the signing of the Kyoto Protocol was successful in reducing global warming. In forming their view-point, candidates have to draw on their knowledge of whether or not global warming has decreased since the Protocol was signed, and the extent to which any decrease can be said to be as a result of the signing of the Protocol. In effect, they are being asked to consider the evidence that it has been successful, and the evidence that it has not, and, in the light of all this evidence make a judgement about its success. They must give their reasons for their judgement – in other words, they must motivate it. When they give a well-motivated critical judgement about the worth of something, candidates are evaluating it, making this an evaluation task. Candidates must recall knowledge about the impact of the Protocol on global warming, analyse it to see what information suggests it has been successful and what suggests that it has not, and then weigh up the evidence to make a judgement. Again, several cognitive levels are involved in answering this question but as evaluating is the highest level, the question is classified at Level 5.

Memorandum/Marking guidelines

2.4.5 No (2)

- Large quantities of greenhouse gases still emitted (2)
- Less developed countries cannot afford less harmful methods to generate energy (2)
- General rise in temperatures still evident (2)
- USA not part of Protocol (2)
- USA has largest percentage of world's industries (2)

Yes (2)

- Coal fired power stations reduced in developing countries (2)
- Pollution controlled more effectively in developed countries (2)
- Energy saving appliances used in developed countries (2)
- Environmentally friendly power sources used in developed countries (2)
- Using biogas as alternative (2)

[Any TWO reasons for answer] (3 x 2) (6)

Table 7: EXAMPLES OF HIGHER ORDER QUESTIONS: CREATING

Creating refers to the ability of learners to:

- adapt a variety of appropriate strategies to solve novel/ non-routine/complex/ open-ended problems.
- integrate Geography concepts, principles, ideas and information, make connections and relate parts of material, ideas, information or operations to one another and to an overall structure or purpose.
- engage in original thought, generate and support own ideas/arguments and put elements together to form a coherent whole.

Example1:

Question 1.4.3: November 2010 IEB Paper 1

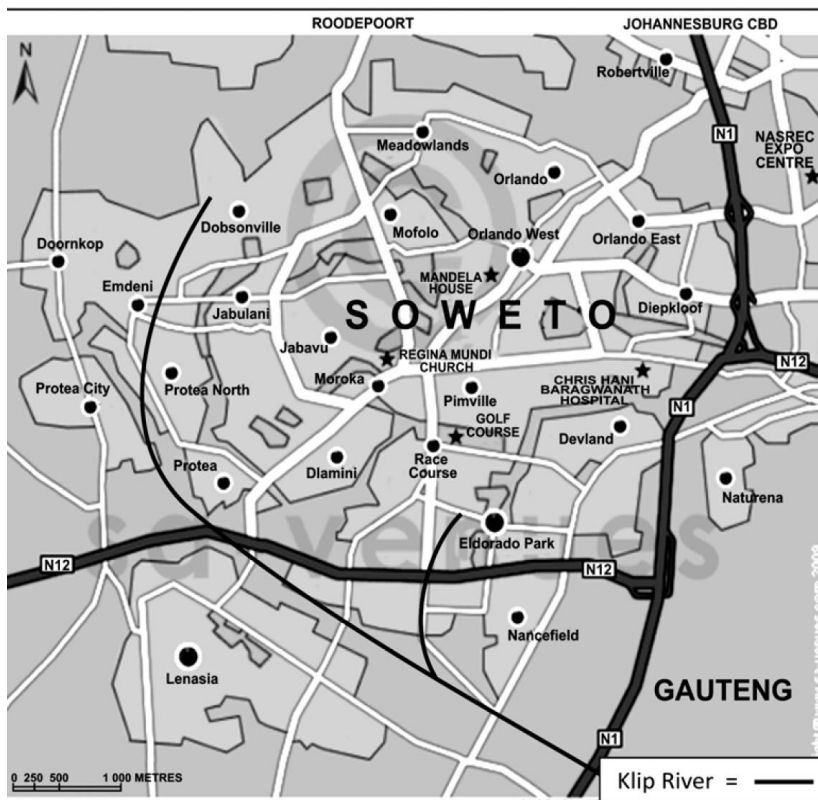
Refer to Figure 1 on Page 3

The Klip River meanders through the western areas of Soweto and Lenasia, forming numerous wetlands in the townships, merging with the Klipspruit just beyond Lenasia, before it flows into the Vaal River. [Source: <<http://www.joburg.org.za/>>]

1.4.3 Using the principles of Agenda 21, formulate a plan of action the local Soweto municipality could adopt to conserve and protect the wetlands and Klip River catchment area. (6)

Figure 1: Map of Soweto

FACT FILE



Soweto at a glance

- 301 000 households.
- Main type of land use is housing.
- Brick houses are the main type with formal/informal backyard structures.
- 30% of Sowetans own their own homes.
- Historically little demand for office space – this is a changing trend.
- Population densities vary from 20/ha – 130/ha.

[Source: <<http://www.sa-venues.com/maps/gauteng/soweto.php>>] [Adapted from: *Urban Greenfile*, December 2008]

[Source: <<http://www.sa-venues.com/mapsgauteng/soweto.php>>]

Discussion:

In this question, candidates are required to put forward a plan of action that the municipality could use to protect and conserve an environmentally important area of wetlands and the Klip River catchment area. No such plan exists, so they have to create something original, integrating Geography concepts, principles, ideas and information that they already know and which are provided in the source material. Creating is the highest order of cognitive process in the taxonomy, and incorporates all other levels of cognitive demand. In this question, for instance, candidates need to remember what they know of Agenda 21, they also have to understand why wetlands and catchment areas are important, why they need to be conserved and recall some possible conservation strategies. They have to analyse the given sources, and

understand the information, concepts and terms contained in them. They must apply the background knowledge they have, and the information gleaned from the map and text provided to generate an original plan of action – a complex 'creating' task! Although several levels of cognitive demand are embedded in this task, the highest level is 'creating', and so the question is classified as Level 6.

Memorandum/Marking guidelines

Agenda 21 principles – plan must be sustainable and must incorporate needs of community members.

- Community clean-up projects – school groups/churches, etc.
- Declare some of the larger wetlands as protected sanctuaries/parks – people can enjoy the birdlife, river, etc.
- Strict laws about development and destruction of wetlands – implement serious penalties.
- Education campaigns at school.
- Working for water.
- Eco-tourism.
- Fences to protect.

(3 well described points – relevant to the context/principles of Agenda 21)

Example 2:

Question 2.7.2: November 2010 IEB Paper 1

Read the extract below on climate change

'The climate of the world varies from one decade to another, and a changing climate is natural and expected. However, there is a well-founded concern that the unprecedented industrial and development activities by humans over the past two centuries have caused changes over and above natural variation'.

[Source: <weathersa.co.za>]

At the recent Copenhagen climate change conference (2009), the following statements were made:

Wangari Maathai, the Kenyan environmental Nobel Prize winner 'sees the indicators of quality of life as: health, food security, electricity, water and sanitation. For future life on Earth, we simply have to take better care of these life-support systems'.

The environmentalist James Lovelock has predicted that: '*climate change will wipe out most of Earth before the end of this century. He foresees crop failures, drought and death on an unprecedented scale*'.

[Adapted from *The Witness*, 16 December 2009, comments by Dr Jim Taylor]

Write a report on Climate Change for the South African Environmental Journal. In this report, you should

- Examine reasons for climate change;
- Give evidence for climate change;
- Discuss the impact climate change will have on primary economic activities such as agriculture and address the issue of food security; and
- Outline ONE strategy the South African government could use to reduce the

impact on these critical resources (20).

Your report will also be assessed on the structure and use of the suggested headings.

Discussion:

This question requires candidates to put a great deal of information together (synthesise) into one coherent report. They have to recall information about climate change and read, comprehend and interpret the information provided. To create the report, they have to decide what information is relevant in relation to each of the subheadings, systematically organise the relevant facts and ideas, and 'put the elements together so that they form a coherent whole'. Again, while the question makes other cognitive demands on candidates - knowing, comprehending, analysing and evaluating, the highest order of demand is 'creating', thus the question is classified as being at this level.

Memorandum/Marking guidelines

2.7.2 Climatic hazards and human response: risk and vulnerability

Report on Climate Change for The South African Environmental Journal.

Introduction:

Climate change is taking place fast, noticeable from the increasing number of severe weather phenomena.

Examine reasons for climate change:

- unprecedented industrial and development activities by humans over the past two centuries have caused changes over and above natural variation';
- Industrial nations use fossil fuels for vehicular transport; place a high demand on energy production (from fossil fuels); air travel is commonplace and much jet fuel is used; and
- The driver of climate change is the global atmospheric levels of carbon dioxide (CO₂) which is creating an increased greenhouse effect – seen in the increase in the average atmospheric temperatures and the change in climatic patterns.

Evidence of climate change

- Most severe weather patterns/storms, e.g. fires in Australia; recent snow blizzards across Europe and Asia;
- Drought becoming more common and devastating, e.g. in Africa and Australia;
- Coral bleaching, e.g. along East African coast; and
- Increased rates of evaporation leading to desertification on the increase, e.g. in Australia (evidence from fires) and Sahel – cattle dying.

Any other evidence, backed and relevant

Discuss the impact climate change will have on primary economic activities such as agriculture and address the issue of food security.

'Food security, crop failures, drought and death on an unprecedented scale'

- Crop failure occurs because of changing rainfall patterns; less water available for farming – worsened drought conditions;
- More than half the farmers in Africa are subsistence farmers and this is their main food source and livelihood. Reduction in crop production leads to less

access to food and distribution suffers;

- Countries cannot afford to import large quantities of food; and
- Drought conditions prolonged, becoming more severe

Outline ONE strategy the South African government could use to reduce the impact on these critical resources.

- Reduce CO₂ levels nationally – reducing carbon footprint by using renewable energy;
- Farmers could use the no tilling method of farming – no ploughing or using herbicides; less erosion and better soil quality;
- Use crops that have high yields and are less water intensive; and
- Rainwater harvesting – collecting runoff via roof runoff or storage tanks/JoJo tanks.

Or any other method of collecting mist/dew in dry area.

Conclusion (reference to viewpoint chosen).

My viewpoint is supported clearly by the evidence and reasons presented on climate change. (20)

Example 3:

Question 4.6: November 2012 IEB Paper 2

Study the collage of photographs below which show the various activities offered to the locals and tourists visiting Memel. (Note: Candidates also have access to the 1:50 000 map extract and an orthophoto which they have used in other questions on this paper, but these are not reproduced here).

The town is known for its outdoor and adventure activities, for example, the annual Mahem festival. Design a geographical advertisement which promotes this weekend festival highlighting the many attractions that Memel and the Mahem festival offer. (see Figure 2)

You will be awarded marks for the:

- Geography of the advertisement (location actors, geographical details and map.) (4)
- Marketing or focus of the advertisement (the festival and other related activities). (4)
- Presentation of the advertisement. (2)

Figure 2: Collage of photographs showing activities offered in Memel

Figure 2: Collage of photographs showing activities offered in Memel



Discussion:

In designing their poster candidates have to draw on information provided in the map and the aerial photograph, as well as in the photographs provided in the actual question. They have to deal with two key aspects of Memel – its location and other geographical details, and the activities it offers to tourists. All the information provided in the resources must be analysed to identify what information is relevant to the purpose of the question. The selected information must then be brought together, organised and integrated to create an effective and visually attractive poster which will attract people to the village for the Mahem festival. Information is thus integrated in a new way, for a specific purpose – two of the features of a 'creating' question. Note that this question also requires analysis and evaluation as candidates analyse all the information and use their judgement to choose information which is appropriate for the poster they must create. However, as 'creating' is at the highest level, the whole task is classified as being at Level 6.

Memorandum/Marking guidelines

Advertisement for Memel and the annual Mahem Festival



Outline map of SA with Memel located -2 marks

Location: (4) Either fully labelled map or description

- Mention surrounding towns (1)
- NE Free State (1)
- Close to Drakensberg (1)
- GPS 'Co-ordinates' (if give latitude and long - 2 marks – skill)
- Junction of routes/rout marker (1)
- Contact details/website (1)

Marketing or focus: (4)

- MTB Race • road races 10 + 26 km, 46 km bike race
- Arts and crafts;
- Antiques: De blaauwe huijs;
- Food: Butchery/Slaghuis;
- Accomodation: Memel Hotel, Mahem Guest House;
- Seekoeivlei Nature Reserve: Bird watching, trails; and
- Entertainment –singer - look for 4 different types of activities.

Presentation: (2) excellent (1) good/tried (0) nothing

- Eye-catching;
- Attractive;
- Visually pleasing; and
- Not too cluttered.

Credit awarded for any correct/relevant geographical information

To accomplish the goal of discriminating between high achievers, those performing very poorly, and all candidates in between, examiners need to vary the challenge of examination questions. Until recently, the assumption has been that 'alignment' with the allocated percentage of marks for questions at the required cognitive demand levels meant that sufficient

examination questions were relatively easy; moderately challenging; and difficult for candidates to answer.

However, research and candidate performance both indicate that a range of factors other than type of cognitive demand contributes to the cognitive challenge of question. Such factors include the level of content knowledge required, the language used in the question, and the complexity or number of concepts tested. In other words, cognitive demand levels on their own do not necessarily distinguish between degrees of difficulty of questions.

This research helps, to some extent, explain why, despite that some NSC examination papers have complied with the specified cognitive demand weightings stipulated in the policy, they have not adequately distinguished between candidates with a range of academic abilities in particular between higher ability candidates. As a result, examiners, moderators and evaluators are now required to assess the difficulty of level of each examination question in addition to judging its cognitive demand.

Section 7 explains the new protocol introduced by Umalusi for analysing examination question difficulty.

7. ANALYSING THE LEVEL OF DIFFICULTY OF EXAMINATION QUESTIONS

When analysing the level of difficulty of each examination question, there are six important protocols to note. These are:

1. Question difficulty is **assessed independently** of the type and level **of cognitive demand**.
2. Question difficulty is assessed against **four levels of difficulty**.
3. Question difficulty is determined against the assumed capabilities of the **envisaged** Grade 12 Geography NSC examination **candidate**.
4. Question difficulty is determined using **a common framework** for thinking about question difficulty.

5. Question difficulty entails **distinguishing unintended sources of difficulty** or ease **from intended sources of difficulty** or ease.
6. Question difficulty entails identifying **differences** in levels of difficulty **within a single question**.

Each of the above protocols is individually explained and discussed below.

7.1 Question difficulty is assessed independently of the type and level of cognitive demand

As emphasised earlier in this exemplar book, the revised Umalusi NSC examination evaluation instruments separate the analysis of the type of cognitive demand of a question from the analysis of the level of difficulty of each examination question. Cognitive demand describes the *type of cognitive process* that is required to answer a question, and this does not necessarily equate or align with the *level of difficulty* of other aspects of a question, such as the difficulty of the content knowledge that is being assessed. For example, a recall question can ask a candidate to recall very complex and abstract scientific content. The question would be categorised as Level 1 in terms of the cognitive demand taxonomy but may be rated as 'difficult' (Level 3 Table 8 below).

7.2 Question difficulty is assessed at four levels of difficulty

Note:

Cognitive demand is just one of the features of a question that can influence your comparative judgments of question difficulty. The type and level of cognitive process involved in answering a question does not necessarily determine how difficult the question would be for candidates. Not all evaluation/synthesis /analysis questions are more difficult than questions involving lower-order processes such as comprehension or application.

The revised Umalusi NSC examination evaluation instruments require evaluators to exercise expert judgments about whether each examination

question is 'Easy', 'Moderately challenging', 'Difficult' or 'Very difficult' for the envisaged Grade 12 learner to answer. Descriptions of these categories of difficulty are shown in Table 9.

TABLE 8: LEVELS OF DIFFICULTY OF EXAMINATION QUESTIONS

1	2	3	4
Easy for the envisaged Grade 12 student to answer.	Moderately challenging for the envisaged Grade 12 student to answer.	Difficult for the envisaged Grade 12 student to answer.	Very difficult for the envisaged Grade 12 student to answer. The skills and knowledge required to answer the question allow for the top students (<i>extremely high-achieving/ability students</i>) to be discriminated from other high achieving/ability students).

Note:

The fourth level, 'very difficult' has been included in the levels of difficulty of examination questions to ensure that there are sufficient questions that discriminate well amongst higher ability candidates.

7.3 Question difficulty is determined against the assumed capabilities of the envisaged Grade 12 Geography NSC examination candidate

The revised Umalusi NSC examination evaluation instruments require evaluators to exercise expert judgments about whether each examination question is 'Easy', 'Moderately challenging', 'Difficult' or 'Very difficult' for the '**envisaged**' Grade 12 learner to answer (Table 9). In other words, assessment of question difficulty is linked to a particular target student within the population of NSC candidates, that is, the Grade 12 candidate of average intelligence or ability.

The Grade 12 learners that you may have taught over the course of your career cannot be used as a benchmark of the 'envisaged' candidate as we cannot know whether their abilities fall too high, or too low on the entire spectrum of all Grade 12 Geography candidates in South Africa. The revised Umalusi NSC examination evaluation instruments thus emphasise that, when rating the level of the difficulty of a particular question, your conception of the 'envisaged' candidate needs to be representative of the entire population of candidates for all schools in the country, in other words, of the overall Grade 12 population.

Most importantly, the conception of this 'envisaged' candidate is a learner who has been taught the whole curriculum adequately by a teacher who is qualified to teach the subject, in a functioning school. There are many disparities in the South African education system that can lead to very large differences in the implementation of the curriculum. Thus this 'envisaged' learner is not a typical South African Grade 12 learner – it is an intellectual construct (an imagined person) whom you need to imagine when judging the level of difficulty of a question. This envisaged Grade 12 learner is an aspirational ideal of where we would like all Geography learners in South Africa to be.

Note:

The concept of the **envisaged Grade 12 candidate** is that of an imaginary learner who has the following features:

- a. Is of average intelligence or ability
- b. Has been taught by a competent teacher
- c. Has been exposed to the entire examinable curriculum

This envisaged learner represents an imaginary person who occupies the middle ground of ability and approaches questions *having had all the necessary schooling*.

7.4 Question difficulty is determined using a common framework for thinking about question difficulty

Examiners, moderators and evaluators **in all subjects** are now provided with a common framework for thinking about question difficulty to use when identifying sources of difficulty or ease in each question, and to provide their reasons for the level of difficulty they select for each examination question.

The framework described in detail below provides the main sources of difficulty or 'ease' inherent in questions. The four sources of difficulty which must be considered when thinking about the level of difficulty of examination questions in this framework are as follows.

1. **'Content difficulty'** refers to the difficulty inherent in the subject matter and/or concept/s assessed.
2. **'Stimulus difficulty'** refers to the difficulty that candidates confront when they attempt to read and understand the question and its source material. The demands of the reading required to answer a question thus form an important element of 'stimulus difficulty'.
3. **'Task difficulty'** refers to the difficulty that candidates confront when they try to formulate or produce an answer. The level of cognitive demand of a question forms an element of 'Task difficulty', as does the demand of the written text or representations that learners are required to produce for their response.
4. **'Expected response difficulty'** refers to difficulty imposed by examiners in a marking guideline, scoring rubric or memorandum. For example, mark allocations affect the amount and level of answers students are expected to write.

This framework derived from Leong (2006) was chosen because it allows the person making judgments about question difficulty to grapple with nuances and with making connections. The underlying assumption is that judgment of question difficulty is influenced by the interaction and overlap of different aspects of the four main sources of difficulty. Whilst one of the above four sources of difficulty may be more pronounced in a specific question, the other three sources may also be evident. Furthermore, not all four sources of difficulty need to be present for a question to be rated as difficult.

The four-category conceptual framework is part of the required Umalusi examination evaluation instruments. Each category or source of difficulty in this framework is described and explained in detail below (Table 9). Please read the entire table very carefully.

TABLE 9: FRAMEWORK FOR THINKING ABOUT QUESTION DIFFICULTY

CONTENT/CONCEPT DIFFICULTY
<p>Content/concept difficulty indexes the difficulty in the subject matter, topic or conceptual knowledge assessed or required. In this judgment of the item/question, difficulty exists in the academic and conceptual demands that questions make and/or the grade level boundaries of the various 'elements' of domain/subject knowledge (topics, facts, concepts, principles and procedures associated with the subject).</p>
<p>For example:</p>
<p>Questions that assess 'advanced content', that is, subject knowledge that is considered to be in advance of the grade level curriculum, are <i>likely</i> to be difficult or very difficult for most candidates. Questions that assess subject knowledge which forms part of the core curriculum for the grade are <i>likely</i> to be moderately difficult for most candidates. Questions that assess 'basic content' or subject knowledge candidates would have learnt at lower grade levels, and which would be familiar to them are <i>unlikely</i> to pose too much of a challenge to most candidates.</p> <p>Questions that require general everyday knowledge or knowledge of 'real life' experiences are <i>often</i> easier than those that test more specialized school knowledge. Questions involving only concrete objects, phenomena, or processes are <i>usually</i> easier than those that involve more abstract constructs, ideas, processes or modes.</p> <p>Questions which test learners' understanding of theoretical or de-contextualised issues or topics, rather than their knowledge of specific examples or contextualised topics or issues <i>tend</i> to be more difficult. Questions involving familiar, contemporary/current contexts or events are <i>usually</i> easier than those that are more abstract or involve 'imagined' events (e.g. past/future events) or contexts that are distant from learners' experiences.</p> <p>Content difficulty may also be varied by changing the number of knowledge elements or operations assessed. <i>Generally</i>, the difficulty of a question increases with the number of knowledge elements or operations assessed. Questions that assess learners on two or more knowledge elements or operations are <i>usually</i> (but not always) more difficult than those that assess a single knowledge element or operation.</p> <p>Assessing learners on a combination of knowledge elements or operations that are seldom combined <i>usually</i> increases the level of difficulty.</p>

EXAMPLES OF INVALID OR UNINTENDED SOURCE OF CONTENT DIFFICULTY

- Testing obscure or unimportant concepts or facts that are not mentioned in the curriculum, or which are unimportant to the curriculum learning objectives.
- Testing very advanced concepts or operation that candidates are extremely unlikely to have had opportunities to learn.

STIMULUS DIFFICULTY

Stimulus difficulty refers to the difficulty of the linguistic **features of the question** (**linguistic** complexity) and the challenge that candidates face when they attempt to read, interpret and understand the words and phrases in the question AND when they attempt to read and understand the **information or 'text' or source material (diagrams, tables and graphs, pictures, cartoons, passages, etc.) that accompanies the question.**

For example:

Questions that contain words and phrases that require only simple and straightforward comprehension are *usually* easier than those that require the candidate to understand **subject specific phraseology and terminology** (e.g. idiomatic or grammatical language not usually encountered in everyday language), or that require more technical comprehension and specialised command of words and language (e.g. everyday words involving different meanings within the context of the subject).

Questions that contain information that is 'tailored' to an expected response, that is, questions that contain no irrelevant or distracting information, are *generally* easier than those that require candidates to select relevant and appropriate information or **unpack a large amount of information** for their response. A question **set in a very rich context** can increase question difficulty. For example, learners *may* find it difficult to select the correct operation when, for example, a mathematics or accountancy question is set in a context-rich context.

Although the level of difficulty in examinations is *usually* revealed most clearly through the questions, text complexity or the degree of **challenge or complexity in written or graphic texts** (such as a graph, table, picture, cartoon, etc.) that learners are required to read and interpret in order to respond *can* increase the level of difficulty. Questions that depend on reading and selecting content from a text *can* be more challenging than questions that do not **depend on actually reading the accompanying text** because they test reading comprehension skills as well as subject knowledge. Questions that require candidates to **read a lot** *can* be more challenging than those that require limited reading. Questions that tell learners where in the text to look for relevant information are *usually* easier than those where **learners are not told where to look.**

The level of difficulty *may* increase if texts set, and reading passages or other **source material** used are challenging for the grade level, and make **high reading demands** on learners at the grade level. Predictors of textual difficulty include:

- **semantic content** - for example, if vocabulary and words used are typically outside the reading vocabulary of Grade 12 learners, 'texts' (passage, cartoon, diagram, table, etc.) are *usually* more difficult. 'Texts' are *generally* easier if words or images are made accessible by using semantic/context, syntactic/structural or graphophonic/visual cues.
- **syntactic or organisational structure** - for example, sentence structure and length. For example, if learners are likely to be *familiar with the structure* of the 'text' or resource, for example, from reading newspapers or magazines, etc. 'texts' are *usually* easier than when the structure is unfamiliar.
- **literary techniques** - for example, abstractness of ideas and imagery - and **background knowledge required**, for example, to make sense of allusions.
- if the **context** is **unfamiliar** or remote, or if candidates do not have or are **not provided with access to the context** which informs a text (source material, passage, diagram, table, etc.) they are expected to read, and which informs the question they are supposed to answer and the answer they are expected to write, then constructing a response is likely to be more difficult than when the context is provided or familiar.

Questions which require learners to **cross-reference different sources** are *usually* more difficult than those which deal with one source at a time.

Another factor in stimulus difficulty is presentation and visual appearance. For example, type face and size, use of headings, and other types of textual organisers etc. can aid '**readability**' and make it easier for learners to interpret the meaning of a question.

EXAMPLES OF INVALID OR UNINTENDED SOURCES OF STIMULUS DIFFICULTY

- Meaning of words unclear or unknown.
- Difficult or impossible to work out what the question is asking.
- Questions which are ambiguous.
- Grammatical errors in the question that could cause misunderstanding.
- Inaccuracy or inconsistency of information or data given.
- Insufficient information provided.
- Unclear resource (badly drawn or printed diagram, inappropriate graph, unconventional table).
- Dense presentation (too many important points packed in a certain part of the stimulus).

TASK DIFFICULTY

Task difficulty refers to the **difficulty that candidates confront when they try to formulate or produce an answer.**

For example:

In most questions, to generate a response, candidates have to work through the steps of a solution. *Generally*, questions that **require more steps in a solution** are more difficult than those that require fewer steps. Questions involving only one or two steps in the solution are *generally* easier than those where several operations required for a solution.

Task difficulty may also be mediated by the **amount of guidance present in the question**. Although question format is not necessarily a factor and difficult questions can have a short or simple format, questions that provide guided steps or cues (e.g. a clear and detailed framework for answering) are *generally* easier than those that are more open ended and require candidates to form or tailor their **own response strategy** or argument, work out the steps **and maintain the strategy for answering** the question by themselves. A high degree of prompting (a high degree of prompted recall, for example) *tends* to reduce difficulty level.

Questions that test specific knowledge are *usually* less difficult than **multi-step, multiple-concept or operation questions**.

A question that requires the candidate to **use a high level of appropriate subject specific, scientific or specialised terminology** in their **response** *tends* to be more difficult than one which does not.

A question requiring candidates to **create a complex abstract (symbolic or graphic) representation** is *usually* more challenging than a question requiring candidates to create a concrete representation.

A question requiring writing a one-word answer, a phrase, or a simple sentence is *often* easier to write than **responses that require more complex sentences, a paragraph or a full essay or composition**.

Narrative or descriptive writing, for example where the focus is on recounting or ordering a sequence of events chronologically, is *usually* easier than **writing discursively (argumentatively or analytically)** where ideas need to be developed and ordered logically. Some questions reflect task difficulty simply by **'creating the space' for A-grade candidates** to demonstrate genuine insight, original thought or good argumentation, and to write succinctly and coherently about their knowledge.

Another element is the **complexity in structure of the required response**. When simple connections between ideas or operations are expected in a response, the question is *generally* easier to answer than a question in which the significance of the relations between the parts and the whole is expected to be discussed in a response. In other words, a question in which an unstructured response is expected is *generally* easier than a question in which **a relational response** is required. A response which involves **combining or linking a number of complex ideas or operations** is *usually* more difficult than a response where there is no need to combine or link ideas or operations.

On the other hand, questions which require continuous prose or extended writing *may* also be easier to answer correctly or to get marks for than questions that require no writing at all or single letter answer (such as multiple choice), or a brief response of one or two words or short phrase/s because they **test very specific knowledge**.

The **cognitive demand** or **thinking processes** required form an aspect of task difficulty. Some questions test thinking ability, and learners' capacity to deal with ideas, etc. Questions that assess inferential comprehension or application of knowledge, or that require learners to take ideas from one context and use it in another, for example, *tend* to be more difficult than questions that assess

recognition or retrieval of basic information. On the other hand, questions requiring recall of knowledge are *usually* more difficult than questions that require simple recognition processes.

When the **resources for answering** the question are included in the examination paper, then the task is *usually* easier than when candidates have to **use and select their own internal resources** (for example, their own knowledge of the subject) or transform information to answer the question.

Questions that require learners to take or **transfer** ideas, **skills or knowledge from one context/subject area and use them in another** *tend* to be more difficult.

EXAMPLES OF INVALID OR UNINTENDED SOURCES OF TASK DIFFICULTY

- Level of detail required in an answer is unclear.
- Context is unrelated to or uncharacteristic of the task than candidates have to do.
- Details of a context distract candidates from recalling or using the right bits of their knowledge.
- Question is unanswerable.
- Illogical order or sequence of parts of the questions.
- Interference from a previous question.
- Insufficient space (or time) allocated for responding.
- Question predictability or task familiarity. If the same question regularly appears in examination papers or has been provided to schools as exemplars, learners are likely to have had prior exposure, and practised and rehearsed answers in class (for example, when the same language set works are prescribed each year).
- Questions which involve potential follow-on errors from answers to previous questions.

EXPECTED RESPONSE DIFFICULTY

Expected response difficulty refers to difficulty imposed by examiners in a **mark scheme and memorandum**. This location of difficulty is more applicable to 'constructed' response questions, as opposed to 'selected' response questions (such as multiple choice, matching/true-false).

For example:

When examiners expect few or no details in a response, the question is *generally* easier than one where the mark scheme implies that **a lot of details are expected**.

A further aspect of expected response difficulty is the clarity of the **allocation of marks**. Questions are *generally* easier when the allocation of marks is explicit, straight-forward or logical (i.e. 3 marks for listing 3 points) than when the **mark allocation is indeterminate or implicit** (e.g. when candidates need all 3 points for one full mark or 20 marks for a discussion of a concept, without any indication of how much and what to write in a response). This aspect affects difficulty because candidates who are unclear about the mark expectations in a response may not produce a sufficient number of answers in their response that will earn the marks that befit their ability.

Some questions are more difficult/easy to mark accurately than others. Questions that are **harder to mark and score objectively** are *generally* more difficult for candidates than questions that require simple marking or scoring strategies on the part of markers. For example, recognition and recall questions are *usually* easier to test and mark objectively because they usually require the use of matching and/or simple scanning strategies on the part of markers. More complex questions requiring analysis (breaking down a passage or material into its component parts), evaluation (making judgments, for example, about the worth of material or text, or about solutions to a problem), synthesis (bringing together parts or elements to form a whole), and creativity (presenting own ideas or original thoughts) are *generally* harder to mark/score objectively. The best way to test for analysis, evaluation, synthesis and creativity is usually through extended writing. Such extended writing *generally* requires the use of more cognitively demanding *marking* strategies such as interpreting and evaluating the logic of what the candidate has written.

Questions where **a wide range of alternative answers or response/s** is possible or where the correct answer may be arrived at through different strategies *tend* to be more difficult. On the other hand, questions may be so open-ended that learners will get marks even if they engage with the task very superficially.

EXAMPLES OF INVALID OR UNINTENDED SOURCES OF EXPECTED RESPONSE DIFFICULTY

- Mark allocation is unclear or illogical. The weighting of marks is important in questions that comprise more than one component when components vary in levels of difficulty. Learners may be able to get the same marks for answering easy component/s of the item as other learners are awarded for answering the more difficult components.
- Mark scheme and questions are incongruent. For example, there is no clear correlation between the mark indicated on the question paper and the mark allocation of the memorandum.
- Question asked is not the one that examiners want candidates to answer. Memorandum spells out expectation to a slightly different question, not the actual question.
- Impossible for candidate to work out from the question what the answer to the question is (answer is indeterminable).
- Wrong answer provided in memorandum.
- Alternative correct answers from those provided or spelt out in the memorandum are also plausible.
- The question is 'open' but the memo has a closed response. Memo allows no leeway for markers to interpret answers and give credit where due.

The framework described above does not provide you with explicit links between the different sources of difficulty, or show relationships and overlaps between the different categories and concepts in the framework. This is because it is impossible to set prescribed rules or pre-determined

combinations of categories and concepts used for making judgments about the source of difficulty in a particular examination question.

The intention behind the framework is to allow you to exercise your sense of judgment as an expert. The complexity of your judgment lies in your ability as an expert to recognise subtle interactions and identify links between different categories of a question's difficulty or ease. For example, a question that tests specific knowledge of your subject can actually be more difficult than a multi-step question because it requires candidates to explain a highly abstract concept, or very complex content. In other words, although questions that test specific knowledge are *usually* less difficult than multiple-concept or operation questions, the level of difficulty of the content knowledge required to answer a question can make the question more difficult than a multi-step or multi-operation question.

Not all one-word response questions can automatically be assumed to be easy. For example, multiple-choice questions are not automatically easy because a choice of responses is provided – some can be difficult. As an expert in your subject, you need to make these types of judgments about each question.

Note:

It is very important that you become extremely familiar with the framework explained in Table 9, and with each category or source of difficulty provided (i.e. content difficulty, task difficulty, stimulus difficulty, and expected response difficulty). You need to understand the examples of questions which illustrate each of the four levels (Table 10 to Table 14). This framework is intended to assist you in discussing and justifying your decisions regarding the difficulty level ratings of questions. You are expected to **refer to all four categories or sources of difficulty** in justifying your decisions.

When considering question difficulty ask:

- How difficult is the **knowledge** (content, concepts or procedures) that is being assessed for the envisaged Grade 12 candidate? (*Content difficulty*)
- How difficult is it for the envisaged Grade 12 candidate to formulate the answer to the question? In considering this source of difficulty, you should **take into account the type of cognitive demand** made by the task. (*Task difficulty*)
- How difficult is it for the envisaged Grade 12 candidate to **understand the question and the source material** that need to be read to answer the particular question? (*Stimulus difficulty*)
- What does the **marking memorandum and mark scheme** show about the difficulty of the question? (*Expected response difficulty*)..

7.5 Question difficulty entails distinguishing unintended sources of difficulty or ease from intended sources of difficulty or ease

Close inspection of the framework for thinking about question difficulty (Section 7.4, Table 9) above, shows that, for each general category or source of difficulty, the framework makes a distinction between 'valid' or intended, and 'invalid' or unintended sources of question difficulty or ease. Therefore, defining question difficulty entails identifying whether sources of difficulty or ease in a question were intended or unintended by examiners. Included in Table 9 are examples of unintended sources of difficulty or ease for each of the four categories.

Valid difficulty or 'easiness' in a question has its source in the requirements of the question, and is **intended** by the examiner (Ahmed and Pollit, 1999). Invalid sources of difficulty or 'easiness' refer to those features of question difficulty or 'easiness' that were **not intended** by the examiner. Such unintended 'mistakes' or omissions in questions can prevent the question from

assessing what the examiner intended, and are likely to prevent candidates from demonstrating their true ability or competence, and can result in a question being easier or more difficult than the examiner intended.

For example, grammatical errors in a question that could cause misunderstanding for candidates are unintended sources of question difficulty because the difficulty in answering the question could lie in the faulty formulation of the question, rather than in the intrinsic difficulty of the question itself (for example, because of stimulus difficulty). Candidates “may misunderstand the question and therefore not be able to demonstrate what they know” (Ahmed and Pollit, 1999, p.2). Another example is question predictability (when the same questions regularly appear in examination papers or textbooks) because familiarity can make a question which was intended to be difficult, less challenging for examination candidates.

Detecting unintended sources of difficulty or ease in examinations is largely the task of moderators. Nevertheless, evaluators also need to be vigilant about detecting sources which could influence or alter the intended level of question difficulty that moderators may have overlooked.

Note:

When judging question difficulty, you should distinguish **unintended sources of question difficulty or ease** from those sources that are intended, thus ensuring that examinations have a range of levels of difficulty that does not include invalid sources of difficulty. The framework for thinking about question difficulty allows you to systematically identify technical and other problems in each question. Examples of problems might be: unclear instructions, poor phrasing of questions, the provision of inaccurate and insufficient information, unclear or confusing visual sources or illustrations, incorrect use of terminology, inaccurate or inadequate answers in the marking memorandum, and question predictability. You should **not** rate a question as difficult/easy if the source of difficulty/ease lies in the ‘faultiness’ of the question or memorandum. Instead, as moderators and evaluators, you need to alert examiners to unintended sources of difficulty/ease so that they can improve questions and remedy errors or sources of confusion before candidates write the examination.

7.6 Question difficulty entails identifying differences in levels of difficulty within a single question

An examination question can incorporate more than one level of difficulty if it has subsections. It is important that the components of such questions are 'broken down' into their individual levels of difficulty.

Note:

Each subsection of a question should be analysed separately so that the percentage of marks allocated at each level of difficulty and the weighting for each level of difficulty can be ascertained as accurately as possible for that question.

8. EXAMPLES OF QUESTIONS AT DIFFERENT LEVELS OF DIFFICULTY

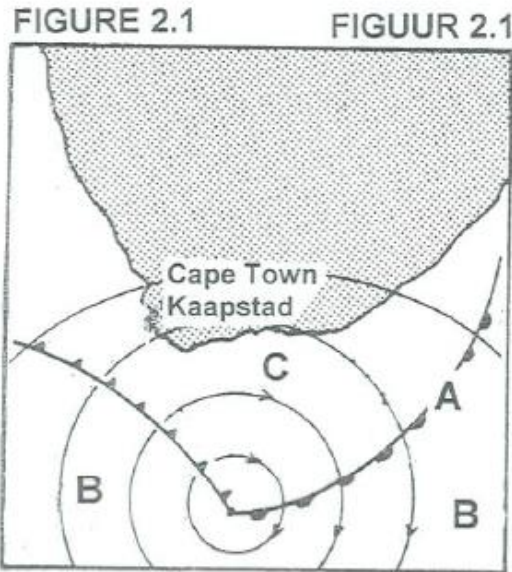
This section provides at least **three** examples of questions from previous Geography NSC examinations (Table 10 to Table 14) categorised at each of the four levels of difficulty described in Section 7 (Table 9) above. These examples were selected to represent the **best and clearest** examples of each level of difficulty that the Geography experts could find. The discussion below each example question tries to explain the reasoning behind the judgments made about the categorisation of the question at that particular level of difficulty.

TABLE 10: EXAMPLES OF QUESTIONS AT DIFFICULTY LEVEL 1 – EASY

Example 1:

Question 2.1: November 2008 DBE Paper 1

- a. Indicate whether the following statements are TRUE or FALSE. Choose the answer and write only 'true' or 'false' next to the question number (2.1.1 – 2.1.5) in the ANSWER BOOK. Refer to FIGURE 2.1. (2 marks)
- b.



2.1.1 The weather system illustrated in FIGURE 2.1 is a mid-latitude cyclone. (2 marks)

Discussion:

This is an easy question for several reasons. Candidates need only identify/recognise a feature that they should have specifically learnt about, and they need to provide its name (i.e. 'mid-latitude cyclone') in the question statement (**content**). They do not have to remember the term, just recognize and identify/recognise it (**task**). The diagram is very clear, and shows the mid latitude cyclone in a 'typical' mature stage, with two fronts clearly marked, and the typical isobar pattern (**stimulus**). Any candidate who has learnt the prescribed work should have no trouble declaring that the statement is true. The answer expected is a simple true or false, and so is very easy to write and get 2 marks (**expected response**). This question is easy in regard to all four sources of difficulty in the framework.

Memorandum/Marking guidelines

2.1.1 True (2)

Example 2:

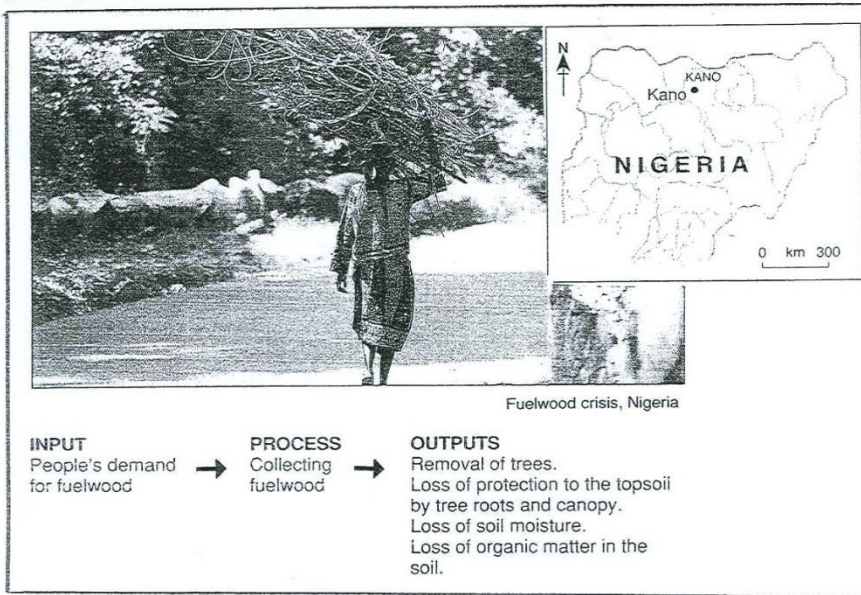
Question 3.4: November 2008 DBE Paper 1

3.4.1 Read the story below and refer to FIGURE 3.4, which is based on the town of Kano in Nigeria. People in Kano are cutting down trees and shrubs to meet their demands for

fuelwood. About 40 km around Kano has already been stripped of trees. Urban growth has increased pressure on the countryside and city. Farming patterns have been forced to change, where cash crops are grown on soils that are not suitable for them. Subsistence farmers are unable to pay their rent and are forced to leave their land. New landowners are reluctant to farm, as there is a greater demand for money to be made by selling the land for urban development.

3.4.1 What are the TWO main reasons for the removal of the trees around Kano? (2x2) (4)

FIGURE 3.4



Discussion:

This is an easy question for several reasons. The text provided as **stimulus** material is simply written, and while using technical terms such as 'subsistence farmers' and 'demand for fuelwood', these are terms that are in the curriculum at several grades and so should be familiar to candidates. The picture is a simple illustration, and the flow diagram beneath is conceptually simple. The **task** requires candidates to comprehend the material provided, but this is not difficult for them to do because the material is easily understood, and is also about a topic about which candidates should have learnt in class – they should be familiar with the general reasons why trees are cut down, and about the use trees for firewood (**content**). Candidates have only to state two reasons for trees being removed, so the answer expected is not a long or complex one to write. Two marks are allocated for each reason so the mark allocation is straightforward (**expected response**).

Memorandum/Marking guidelines

3.4.1 For fuel wood (2)

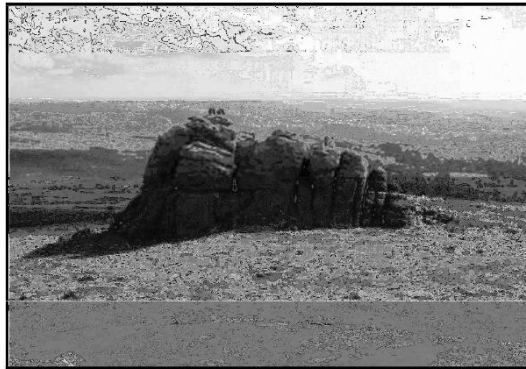
Growth of urban areas / urban expansion (2) 2x2 = (4)

Example 3:

Question 2.6.1: Nov 2011 DBE Paper 1

FIGURE 2.6 is a photograph of a tor. (2 marks)

FIGURE 2.6



Adapted from GCSE Version 1

2.6.1 From what type of rock do tors originate? (1 x2)

Discussion:

This question is easy as candidates only have to remember what they should have learnt in class about which rock tors form from (**content**), and to write down one word as their answer for 2 marks (**expected response**). Although they are provided with a picture, they do not have to interpret it (**stimulus**). The picture is a support for candidates who might have forgotten what a tor is, but in fact they do not even need to use this information to answer the question (**task**). This question is thus easy in terms of concept, stimulus material, task and expected response constructs of difficulty.

Memorandum/Marking guidelines

2.6.1 Massive igneous rock (2)
Granite (2)
[Any ONE of the above]

TABLE 11: EXAMPLES OF QUESTIONS AT DIFFICULTY LEVEL 2 – MODERATE

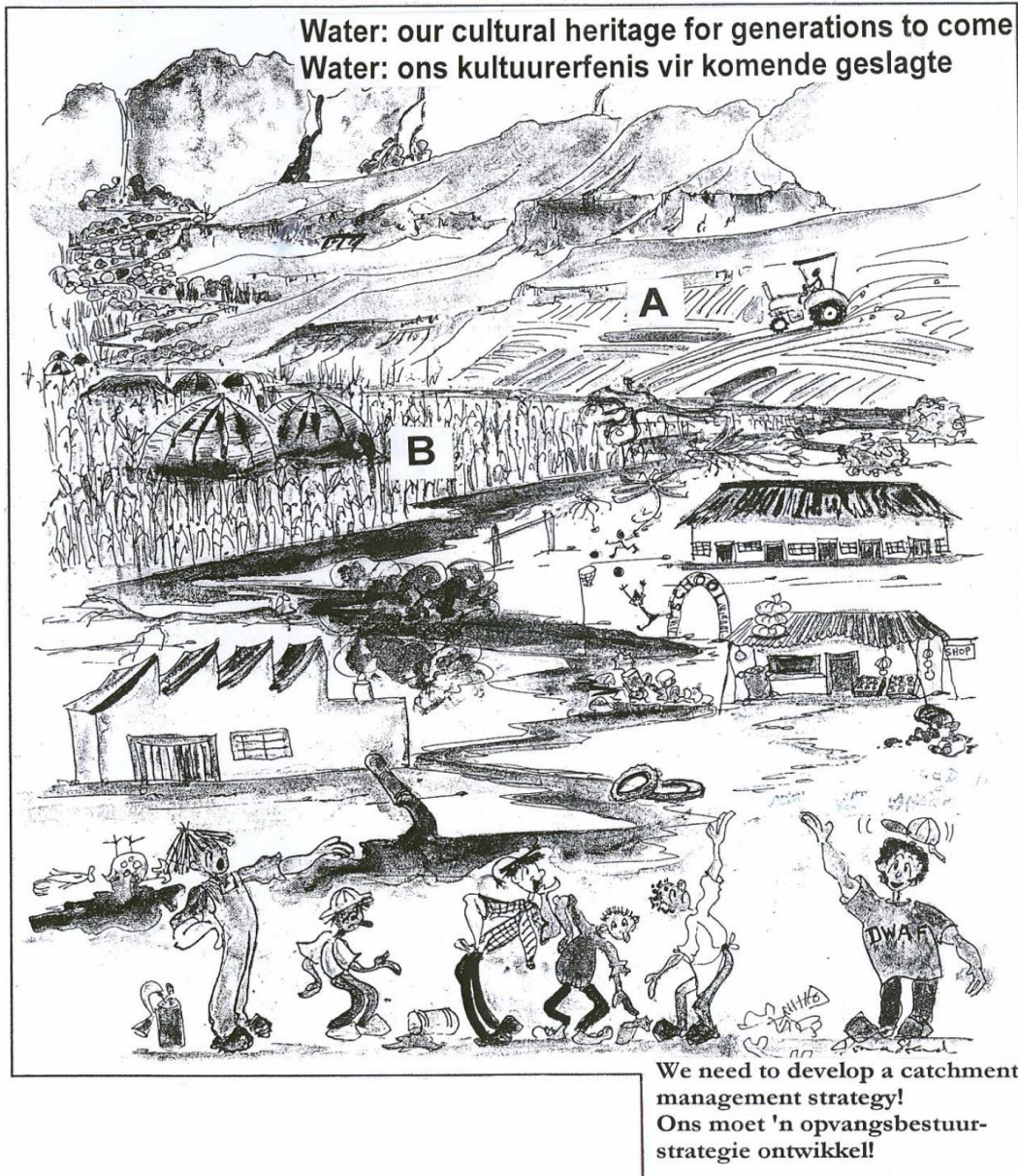
Example 1:

Question 4.4.3: November 2009 DBE Paper 1

4.4.3 The boy in the bottom right corner makes the following statement, 'We need to develop a catchment management strategy.' Write a short essay (no more than 12 lines) outlining why it is necessary to implement a catchment management strategy to preserve South Africa's scarce water supply. (6 x2=12 marks).

FIGURE 4.4

FIGUUR 4.4



Discussion:

The knowledge that candidates must draw on to answer this question is not difficult. Grade 12 candidates should all have learnt about the importance of water resources, factors that impact on the availability of water, why it is necessary to manage catchment areas effectively and the role of catchment management strategies in doing this (**content**). The information in the **stimulus** material is relatively easily accessible, as it comprises a number of drawings showing various ways in which people impact negatively on water resources – all of which lead to the need for a catchment management strategy. Candidates do not need to use the information in the stimulus material to suggest a strategy for a particular context, they merely have to show that they understand what is meant by a catchment management strategy and why is it necessary to implement such a strategy. Although the stimulus material provides information that they can use, they are not required to make reference directly to it in their answer.

which would have made the task more difficult (**task**). What makes the question moderately difficult for the envisaged Grade 12 is the fact that, for 12 marks they must write a sustained piece of writing, expressing what they have learnt in their own words ensuring that they include at least 6 points (for 2 marks each) (**expected response**).

Memorandum/Marking guidelines

4.4.3 Why implement a catchment management strategy:

- Low rainfall limits surface water (2)
- Unreliable rainfall limits surface water (2)
- Protection of groundwater reserves (2)
- High evaporation rates result in little surface water (2)
- High frequency of droughts (2)
- No permanent snowfields to feed catchment area (2)
- Safe / clean water for future generations (2)
- Keep catchment area clean (2)
- Secure balanced ecosystem (2)
- Protect habitat of living organisms (2)
- Protect biodiversity (2)
- Protect natural beauty (2)
- Sustainable use of water as a resource (2)
- Ensure availability of clean water for domestic purposes (2)
- Ensure availability of clean water for agricultural purposes (2)
- Protect scenic beauty of catchment area for ecotourism (2)

[Any SIX. Accept other]

[**Single marks only if answered in point form and not in paragraph/essay style**] 6x2 = (12)

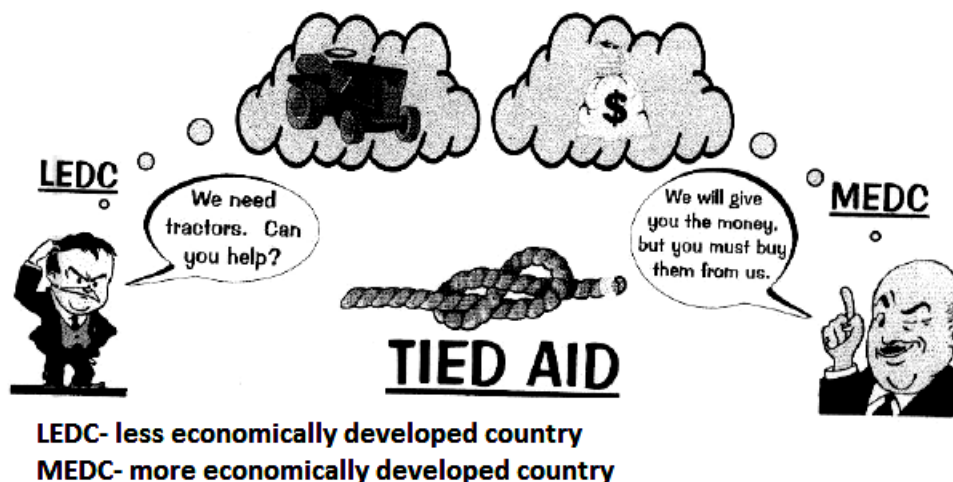
Example 2:

Question 3.6.1: November 2011 DBE Paper 1

3.6 Refer to the cartoon labelled 'Tied Aid' in FIGURE 3.6.

3.6.1 Would you describe the relationship between the developing and developed countries in the cartoon as free trade? Explain your answer. (2 x 2)

FIGURE 3.6



Discussion:

This question is at a high level of cognitive demand - 'evaluating'. However, it is not a 'difficult' question as, although candidates must interpret the information in the cartoon to decide whether or not the relationship depicted reflects a situation of 'tied aid', and justify their opinion (**task**), it is fairly obvious from the **stimulus** material that it does (the representative from the MEDC quite explicitly says that money will be given to the LEDC to buy tractors, but the tractors must be bought from the MEDC). 3.6.1 is a moderately difficult question rather than an easy question for the envisaged Grade 12 candidate because the concept of 'tied aid' is relatively abstract (**content**), and because they must write an explanation for their opinion for 4 marks, drawing together what they know theoretically to motivate (by giving at least 2 reasons) why the relationship depicted is one of tied aid (**expected response**). The task, content and expected response make the question moderately difficult.

Memorandum/Marking guidelines

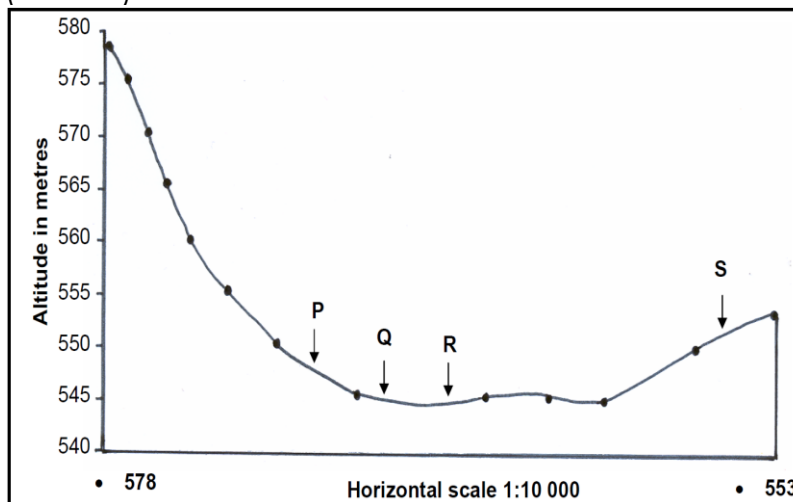
3.6.1 No (2)

Developed countries demands that developing countries will get assistance from them only if they will buy the tractors from them (2)

Example 3:

Question 2.1 .4: November 2009 DBE Paper 2

The diagram (below) is a cross-section from spot height 578 (A) to spot height 553 (B) on the orthophoto map (provided in the paper, but not provided here). Calculate the vertical exaggeration for the given cross-section. Show all your calculations. (4 marks)



Discussion:

This question is moderately difficult because candidates have to follow a number of steps in order to arrive at the answer and because they have to read and interpret the graph in order to calculate the vertical exaggeration. They are presented with a new situation, and need to recall the steps and do the measurements and calculations associated with each step accurately in order to arrive at the correct answer (**task**). The terms and phrases used in the question (spot height, vertical exaggeration, and cross-section) should all be familiar to Grade 12 Geography candidates (**stimulus**). The question is not classified as 'difficult' because Grade 12 candidates should have been taught the necessary

procedure and practiced the steps in class so the required procedure should be familiar (**content**). Furthermore, according to the marking memorandum, 4 marks are allocated for giving all four steps. Even though candidates will be penalized for giving the wrong answer they can still get some credit for correct steps (**expected response**). The task makes the question moderately difficult.

Memorandum/Marking guidelines

Calculate the vertical exaggeration for the given cross-section.
Show ALL your calculations.

$$\begin{aligned}
 \text{Vertical exaggeration} &= \frac{\text{vertical scale}}{\text{horizontal scale}} \quad \checkmark \\
 &= \frac{1:500/555}{1:10\,000} \quad \checkmark \\
 &= \frac{1}{500/555} \times \frac{10\,000}{1} \quad \checkmark \\
 &= 18 - 20 \text{ times} \quad \checkmark
 \end{aligned}$$

[ONLY answer give FULL marks. If answer is incorrect mark steps.] (4)

TABLE 12: EXAMPLES OF QUESTIONS AT DIFFICULTY LEVEL 3 – DIFFICULT

Example 1:

Question 1.4.2: 2011 IEB Paper 1

1.4 Economic activities, transport and trade Source material:

Durban's Aerotropolis*
The Dube TradePort (DTP) and new international airport

The DTP is located about 30 km north of Durban's city centre. Its location capitalises on the fast-growing tourism and business travel demand within the region, industrial property demand in the Durban North area, as well as the major freight corridor between Gauteng and the ports of Durban and Richards Bay.

The DTP is made up of three key elements: (a) King Shaka International Airport (KSIA), including a 3700m runway, a passenger terminal with initial capacity to handle four million passengers, and a number of retail and other related services. (b) Trade Zone, including Cargo Terminal (warehousing and handling for a variety of economic sectors). (c) Cyberport providing leading edge ICT (information, communication and technology) infrastructure and value-added services.

Environmentalists have expressed concern around the Dube Trade Port

development in that it is likely to cause an increase in noise pollution in the surrounding residential areas and affect the colony of over 2 million barn swallows which roost in the local area of Mount Moreland. The swallow flocks present huge safety concerns for the aircraft.

*Aerotropolis = Economic and infrastructural development around a major airport, providing economic and investment opportunities to the surrounding region.

[Source: <www.dubetradeport.co.za>]

Figure 4: Dube Trade Port Location



[Adapted from <www.dubetradeport.co.za>]

1.4.2 Write a short essay of approximately 1 page in which you predict the impact of the Dube Trade Port on future developments of this area. Refer to the source material and Figure 4. Reference must be made to the following factors:

- Economy of the area;
- Local environment; and
- Transport infrastructure.

Marks will be awarded for structure and planning. (16)

Discussion:

This question is a difficult one for the envisaged Grade 12 candidate because: The stimulus material is complex. It comprises both written and visual text, both of which must be read and understood in order to gain the background information needed for the task set. The written text contains a lot of technical terminology, which candidates need to understand; in addition, there are acronyms and their expansions which make the material difficult to access readily. The language is generally at a high level (e.g. the region capitalises on...). The question gives candidates pointers as to the kinds of broad areas of impact to consider, but no clues as to what information in the stimulus material is relevant or useful (**stimulus**). The task itself is complex, and has a high level of cognitive demand. Candidates must predict the impact of the DPT on future developments, but are given little information about what these impacts might be (the stimulus material is very factual, and relates to conditions at present). Candidates must combine information from both sources to get as full a picture of the situation as possible; then they have to rely on their own quite high-level interpretation of the situation, and their ability to draw inferences about future impacts. Although the question gives candidates pointers as to the kinds of broad areas of impact to consider, they must identify the salient points themselves (**task**). The concepts involved are fairly

difficult for the envisaged Grade 12 candidate as they have to engage with a number of factors, including economy, environment and infrastructure (**content**). The **expected response** is difficult. 16 marks are allocated for writing an essay response with no indication to candidates of how much to write in relation to each bulleted factor. According to the memo, candidates get 4 marks for each factor and another four marks for structure and use of sub-headings. Candidates could experience difficulty in deciding how much and what they need to write with regard to each factor. They have to condense what could be a long answer into one page, making sure their answer is well structured and contains relevant information from the sources which must be used to justify their predictions. The question is thus difficult in relation to all four sources of difficulty outlined in the framework.

Memorandum/Marking guidelines

	Excellent	Good	Satisfactory	Poor
Criteria	4 Well explained, accurate and insightful response.	3 Has explained, but response lacks sufficient insight and depth.	2 Attempts to answer the question. Points very superficial	1 Poorly explained; little attempt to answer the question.
Structure and use of sub-headings: (max of 2 marks can be awarded for structure) -Use of sub-headings -Use of paragraphs -2 if bullets used	4 Introduction shows understanding of Dube TradePort and sub-headings are effectively used.	3 A few flaws, but generally, a structure and use of most subheadings	2 Some attempt to structure report. Subheadings not clearly used.	1 No introduction or use of subheadings.
Contents:				
Economy of the Area: -Investment will lead to further investment opportunities – lead to further development of area. -Job creation. -Due to opportunity and services, people will move to the area making way for further economic opportunities – retail and commercial.	4 TWO or more suitable and relevant economic impacts discussed and explained.	3 TWO possible economic impacts mentioned, but with little explanation	2 Only ONE impact discussed.	1 Shows little understanding of the local economy of the area.

<i>[2 points relating to the economy must be discussed]</i>				
Transport and infrastructure: -N2 from Durban harbour up the north coast is likely to become a lot busier – investigate proper road maintenance/widening of road to cope with an increase in traffic. -N3 – main freight corridor between Durban and Jhb – this road is also likely to become busier. <i>[2 points relating to the transport</i>	4 TWO or more impacts on the transport infrastructure are explained and linked to the TradePort in the Durban area.	3 TWO impacts mentioned, but little explanation provided.	2 Only ONE impact given.	1 Shows little understanding of impact and consequences on the transport network.

Example 2:

Question 1.5.5d: November 2009 DBE Paper 1

Read the article on Causes and Management of Mass Movement in FIGURE 1.5C before answering the questions that follow:

(d) Poor management of slopes, such as deforestation and poor farming methods, has a detrimental effect on economic activities along these slopes. With reference to the article and sketch (ii) in FIGURE 1.5C, write a short essay (no more than 12 lines), highlighting man's contribution to increasing mass movements along slopes, the economic consequences thereof and what could be done to rectify the situation. (6 x 2) (12)

FIGURE 1.5C

CAUSE AND MANAGEMENT OF MASS MOVEMENTS

Landslides cause destruction of lives and property and also displacement of large numbers of people. There are instances where whole villages have been totally destroyed by landslides.

Apart from the natural factors, man's unwarranted intervention with the environment by way of deforestation, cultivation on slopes, non-engineered construction, obstructing natural drainage, improper drainage, mining and quarrying causing artificial vibration coupled with continuous heavy rainfall or excessive rainfall, may lead to landslides.

The National Building Research Organisation (NBRO) of Sri Lanka is an institution responsible for giving timely information of an impending landslide. In order to identify landslide-prone areas, a Landslide Hazard Zonation Mapping project is in progress in this country. Research has been undertaken in respect of hydrology, geology, slope and soil types for identification of different hazard potential. The NBRO promotes the following:

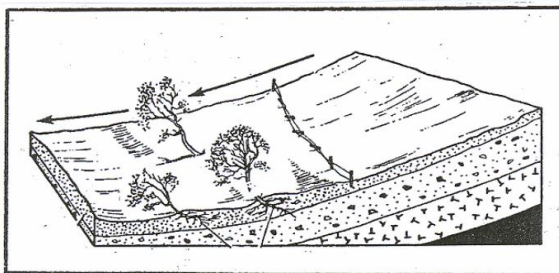
- Mapping of the distribution of landslides hazard potential in the highlands of Sri Lanka.
- Introduction of standard guidelines and codes on practices for planning human settlements and infrastructure in the landslide-prone areas.
- Establishment of sustained long-term and short-term mechanisms for landslide disaster management in Sri Lanka.

Landslide occurrences are closely associated with rainfall. Therefore, the Meteorology Department also plays an important role by providing weather-related information.

The NBRO also promotes the creation of public awareness about causative factors of landslides. The factors that should be considered, while being watchful during heavy rainfall, can be summarised as follows:

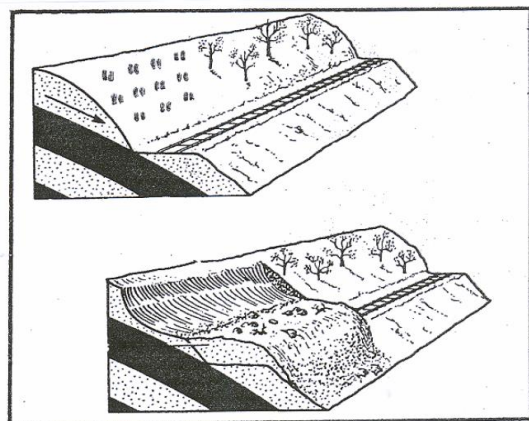
- Big boulders would start moving.
- Trees would slant towards the slope.
- Cracks would appear on the walls and other structures.
- Springs and water spouts would appear and there will be a rise in the water level.
- The earth itself would show cracks and fractures.

Sketch (i)



" " " "	Cultivated land Bewerkte landerye
■	Impermeable rock Nie-deurlaatbare rots

Sketch (ii)



Discussion:

Without the stimulus material provided, this question would be moderately difficult for the envisaged Grade 12 candidate as it is based on knowledge they should have learnt in class. The **content** is thus easy, but the stimulus material is quite complex, comprising both

written text and diagrams. The article is relatively long, and not all of it is relevant to the answer, nor is the relevant information's link to each part of the answer made explicit. Candidates need to sift through the information provided to select the content pertinent to each part of the answer. In addition, it is not immediately obvious how the diagram referred to is useful – candidates will need to interpret it carefully to extract from it information that is useful to them in answering the question. Secondly, the source material is only about landslides - one type of mass movement, while the question asks about mass movements in general (**stimulus**). The task is also difficult because it requires candidates to write an extended piece of writing, organising their information to answer three distinct questions on different aspects of mass movement. They have to draw on and interpret information presented in the stimulus material which is difficult because of the characteristics of the material provided (**task**). Twelve marks are allocated for a short essay of 12 lines in which 6 points are required (2 points highlighting man's contribution to increasing mass movements along slopes, 2 of the economic consequences thereof and 2 suggestions as to what could be done to rectify the situation) but candidates might be unsure whether or not to extend their answers beyond a consideration of landslide which is what the marking memorandum shows they need to do (**expected response**). The question is thus difficult in relation to the stimulus, task and expected response.

Memorandum/Marking guidelines

(d) **Man's contribution:**

- Deforestation destabilises slope (2)
- Cultivation on slopes destabilises slope (2)
- Non-engineered construction of roads / railways loosens rock particles (2)
- Obstructing natural drainage increases water in soil (2)
- Improper drainage increases water in soil (2)
- Mining and quarrying loosen the rock particles (2)

Economic consequences:

- Destruction of settlements (2)
- Destruction of infrastructure (2)
- Railway line blocked (2)
- Goods cannot be transported (2)
- Destruction of cultivated lands (2)
- Expensive to rebuild (2)
- Loss of property (2)

Measures:

- Concrete spraying on slopes (2)
- Building tunnel roofs (2)
- Wire mesh (2)
- Gabions (building of retaining walls) (2)
- Drilling of bolts into the side of slopes to stabilise slopes (2)
- Cause artificial rockfalls to clear debris (2)
- Reforestation or revegetation (2)
- Putting up wire nets to catch falling rock particles (2)
- Mapping of landslide hazards (2)
- Guidelines for planning human settlements and infrastructure (2)
- Landslide disaster management strategies (2)
- Avoid developing settlements on slopes (2)

- No cultivation on slopes (2)

[Must make at least ONE reference to each of the THREE aspects.]

[Single marks only if answered in point form and not in paragraph/essay style]

6x2=(12)

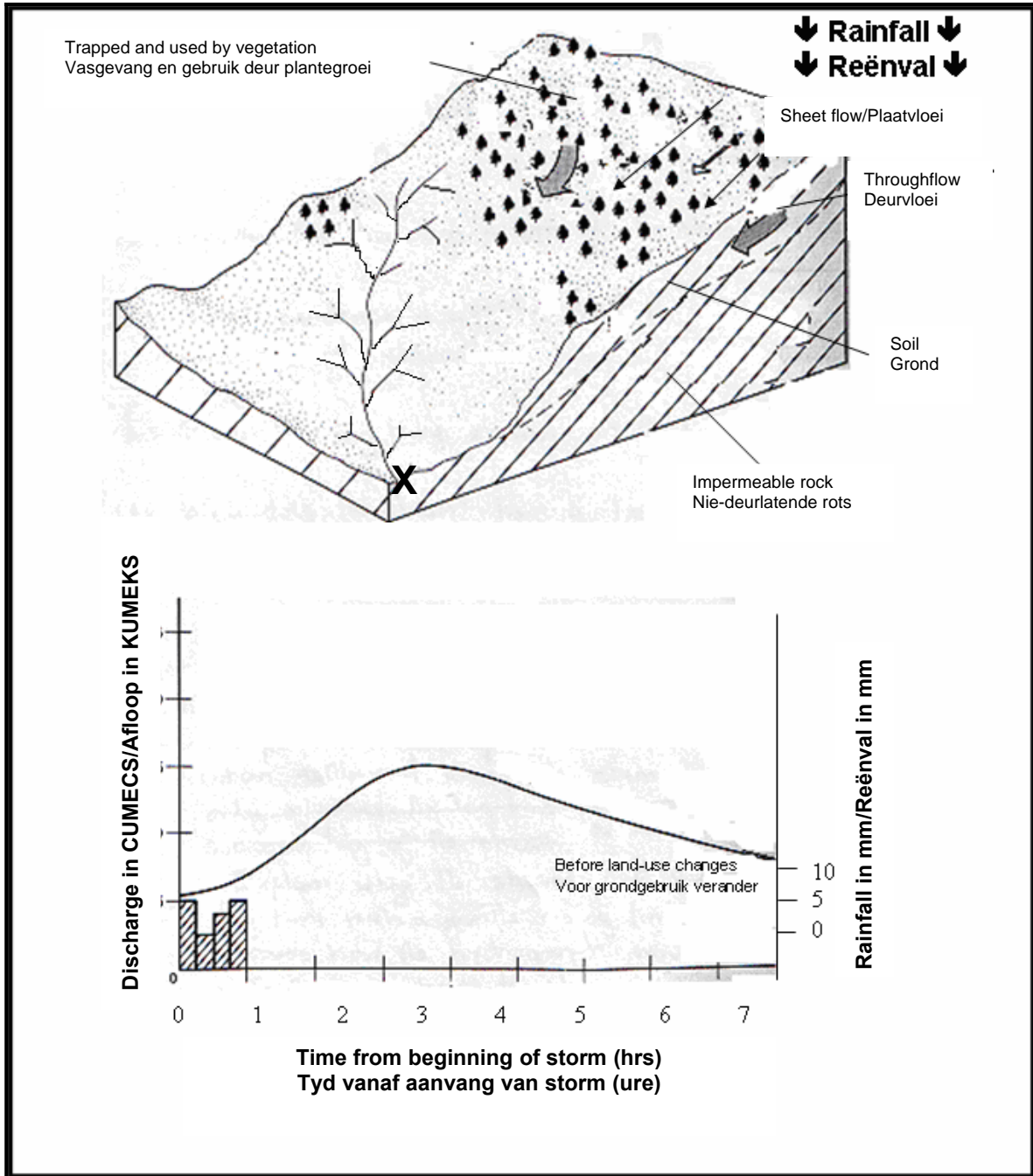
Example 3:

Question 1.6.6: November 2010 DBE Paper 1

Refer to FIGURE 1.6 which shows a river system and its flow hydrograph

FIGURE 1.6

FIGUUR 1.6



1.6.6 The proposed development of a new urban settlement along the stream would influence the flow characteristics of the stream. Write a single paragraph (no longer than 12 lines) describing, with reasons, how the proposed urban development along the stream will change the lag time and the flood peak indicated in the flow hydrograph. (6 x 2) (12)

Discussion:

The stimulus material is abstract and complex. Candidates are provided with a relatively simple sketch, but are not told what information in it is relevant for their analysis; they are also provided with a flow hydrograph, which is a relatively complex graph to interpret as it gives both river discharge over time, and amounts of rainfall at a certain time (**stimulus**). To answer the question, candidates need to know and understand the factors that impact on river discharge over time, and how these affect it. They have to understand concepts such as 'lag time' and 'flood peak' (**content**). Candidates have to apply this knowledge to the situation in the question. Although Grade 12 candidates should have had practice interpreting similar hydrographs, the unfamiliarity of the one provided contributes to task difficulty. Once they have understood the existing river system in the figure, they must consider how it will change as a result of the proposed urban development. To formulate their answer, they must assimilate information from more than one source to analyse the present situation in the river system illustrated. The task thus requires application and analysis – relatively high order skills, and a number of steps before it can be answered and these steps are implicit rather than explicit. The processes involved contribute to **task** difficulty. For 12 marks candidates must write extended text comparing the existing flow characteristics with those that can be predicted by the change in land use along the river, and explaining why the changes they predict will come about – a somewhat complex response. According to the memo, candidates get 6 marks for giving any of the 13 alternatives given on the memo (**expected response**).

Memorandum/Marking guidelines

- Lag time reduced/shorter (2)
- Flood peak higher (2)
- The hydrograph will change to a sharply rising limb (2)
- Flood peak will be reached in a shorter space of time (2)
- Removal of vegetation increases run-off (2)
- More water will reach the stream much quicker thus reducing lag time (2)
- Less retention therefore water reaches the stream quicker (2)
- An urban settlement increases surface run-off compared to the existing landscape where the infiltration is higher (2)
- Urban development could increase rainfall (more hygroscopic nuclei) (2)
- The urban settlement has an artificial surface (tar, concrete) which does not retain water (2)
- More water reaches the stream (2)
- The flood peak will last for a shorter space of time because of the quick run-off rate (2)

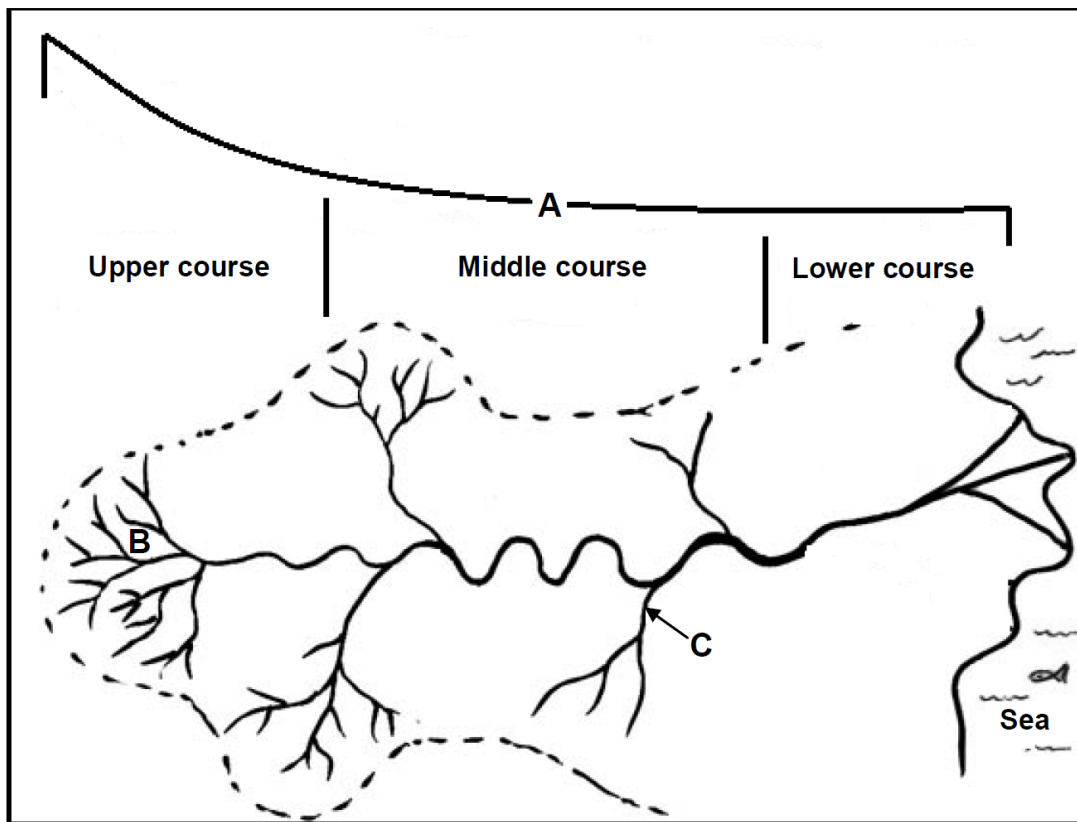
Artificial surfaces reduce friction so water flows faster (2)[Any SIX]

[If listed and only words/phrases used **ONE** mark. If full sentences used **TWO** marks] (6 x 2) (12)

Example 4:

Question 1.5.7 November 2013 DBE Paper 1

FIGURE 1.5 is based on a drainage basin and its longitudinal profile.



[Source: Adapted from *Physical Geography*]

1.5.7 The fluvial landforms in the upper and lower course of a river differ greatly. Write a paragraph (approximately 12 lines) in which you explain how the different stream-flow and erosion processes are responsible for the development of different landforms in the upper and lower courses. (6x2) (12)

Discussion:

This question is difficult because:

It brings various knowledge elements together. Candidates must draw from their knowledge of stream flow and erosion processes in order to describe in detail the formation of fluvial landforms in different parts of the river course. Fluvial landforms are taught in Grade 12, and they are not difficult to understand; it is the incorporation of stream flow and erosion processes that elevate the difficulty level (**content**). The task requires candidates to remember what they have learnt about fluvial landforms. They must also remember their location in terms of the upper course or the lower course. They have to explain how stream flow and stream processes in different parts of the river course determine the development of different fluvial landforms in each. This is a difficult **task** for a Grade 12 learner envisaged. The source material provided does not assist them in the answering of the question so they have to answer the question without referring to it. Furthermore, the linguistic features of the question are easy to understand and terms such as 'stream-flow and erosion processes' should not pose challenges for

the envisaged Grade 12 candidate (**stimulus**). Twelve marks are allocated for writing an extended response. The question implies that 2 marks are allocated for each of the 6 points (**expected response**). The difficulty of the question can thus be said to be related to the nature of the content and the task, and not to the stimulus or the expected response.

Memorandum/Marking guidelines

1.5.7 UPPER COURSE:

Turbulent flow (2) results in rough river channel (2) Vertical erosion dominant because of down cutting (2) forming steep slopes and V shaped valleys (2)

Rapids, waterfalls and plunge pools (2) result from uneven river bed and downward erosion (2)

Headward erosion therefore the stream gets longer (2)

LOWER COURSE:

Laminar flow (2) results in smooth river channel (2) Lateral erosion dominates (2) forming wide, open valleys (2) Gradual gradient (2) results in the formation of meanders and oxbow lakes (2)

Deposition of eroded material (2) forms flood plains, sand banks, braided streams and deltas (2)

[ANY SIX. Must refer to both river courses] 6 x 2 (12)

Example 2:

Adapted from Question 4.3 November 2013 IEB Paper 1 (20)

4.3 Urban renewal in South Africa

Over time, buildings and areas in a city can become rundown and unsuitable for modern use. The inner-city area is particularly affected by this urban decay.

Write an essay (approximately TWO pages) using the sub-headings below in which you **discuss** the following:

- The different ways in which urban renewal takes place, including change in land-use function through invasion and succession, gentrification and façadism;
- The impact these developments have on the economy; and
- The sustainability of these developments.

(20 marks)

Discussion:

This question is difficult because:

The **stimulus** includes a number of terms, namely: urban blight, invasion, succession, gentrification and façadism, which are subject specific and not used in everyday language. However, this does not make the stimulus very difficult because learners should have been taught these concepts. To answer the question, candidates need to understand the concepts of urban blight, invasion, succession, gentrification and façadism. They also have to combine different knowledge elements - examples of urban renewal, change in land use functions and their impact on economy. These knowledge components are not very difficult when assessed independently. However, the level of content difficulty is elevated by bringing the different knowledge elements together. In addition, sustainability of such developments is also unlikely to have been taught explicitly to Grade 12 learners requiring them to draw on their understanding of this concept learnt in the context of other topics; this adds a further element of **content** difficulty. The task is difficult because it requires candidates to write a coherent piece of extended text which involves multiple steps. Before they can respond to the question, candidates have to read and interpret the source material. They have to organise information in accordance with the different subheadings. They have to apply the general information that they have learnt about urban renewal to the impact that it can have on development. The discussion requires them to give their opinion of how the different ways of urban renewal impact on the city's economy and elaborate on points made. The third bullet requires candidates to engage in abstract thinking as the question asks for sustainability of such developments **(task)**. Candidates have to write two pages of a discursive essay for 20 marks with no indication to candidates of how much to write in relation to each subheading in the question. Candidates could experience difficulty in deciding how much and what they need to write with regard to each of the three sub-headings. As there is no clear guidance as to how marks are allocated, marking the essay becomes more subjective than questions with 'closed' responses. Ultimately markers have to use their professional judgement to assess each candidate's response. It is very difficult for the envisaged Grade 12 candidate to display the level of insight necessary to gain full/high marks in this type of open-ended marking **(expected response)**.

Memorandum/Marking guidelines

Suggested subheadings must be used

- **The different ways in which urban renewal takes place**
Must look at façadism and urban renewal, gentrification, change in land use function through invasion and succession as well as the importance of urban renewal.
- **Why urban renewal? – the importance of urban renewal**
Older areas have a high land value and therefore it is easier to renovate and renew than demolish. Usually takes place around an anchor facility (e.g. Ellis Park Sports Stadium) – to improve the image of the area.
This adds value to the environment and so as the older buildings are renovated the value increases and the environment becomes more desirable.
- **Invasion and succession**

Occurs in the transition zone where older buildings and homes are bought for retail purposes. A change in land-use function occurs. Eventually large-scale redevelopment may take place.

- **Gentrification**

The older homes are well built, but as areas become neglected they are subject to urban decay.

Homes are upgraded, keeping the exterior – often period architecture – so restored to their original glory. These homes are also modernised. Their location is usually close to areas of work and so their value increases as these areas become more popular.

- **Façadism** – the outer shell is kept as of historical importance. The inner area is redeveloped and modernised. Old warehouses become loft apartments; trendy areas for living, for example London Docklands, Durban Point Road. Homes sell for millions of rand.

- **The impact these developments have on the city's economy**

The central areas which have faced urban decline over the past decades are suddenly popular and instead of vacant buildings and no income; rent paying tenants move in; the area starts to generate income.

Areas become economically vibrant with spaces to eat, live and play being developed; trendy.

Transport systems, particularly public transport improve (BRT), as more people use them.

- **Are these developments sustainable in modern cities today?**

Yes/No answers may be given – but must be substantiated with relevant argument.

V and A Waterfront in Cape Town and Melrose Arch in Johannesburg are examples of areas where urban renewal has been successful. These mixed-land use zones are vibrant, trendy and occupancy levels high. These areas have also expanded over the years and are continuing to expand. The Gautrain bus will take commuters to and from Melrose Arch – transport is public and little need to drive cars in peak hour traffic.

Durban Point Development – has met with limited success. Large areas still undeveloped.

Credit given for examples and terminology.

Note:

During the development of the exemplar book some subject specialist argued that there is a fine line between a difficult and a very difficult question. It was also evident that in some subjects, question papers did not have questions that could be categorised as very difficult. In order to cater for this category, subject specialists were requested to adapt existing questions and make them very difficult or create their own examples of very difficult question. However, it was noted that in some instances attempts to create very difficult questions introduced invalid sources of difficulty which in turn rendered the questions invalid. Hence, Umalusi acknowledges that the very difficult category may be problematic and therefore requires

especially careful scrutiny. In Geography, there are no suitable examples of very difficult questions.

9. CONCLUDING REMARKS

This exemplar book is intended to be used as a training tool to ensure that all role players in the Geography Examination are working from a common set of principles, concepts, tools and frameworks for assessing cognitive challenge when examinations are set, moderated and evaluated. We hope that the discussion provided and the examples of questions shown by level and type of cognitive demand and later by level of difficulty assist users of the exemplar book to achieve this goal.

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