HILLCREST HIGH SCHOOL
GEOGRAPHY PAPER I
DECEMBER 2018
Grade 11.

TIME : 3 HOURS **MARKS** : 300
EXAMINER : CM Girvin Esq.

INSTRUCTIONS

1. There are **COMPULSORY** questions and **CHOICE** questions in Section A

2. In Section B **ALL** the questions are **COMPULSORY**

3. In Section C there are **COMPULSORY** and **CHOICE** questions

4. You need to note carefully the instructions given in each section. Do only the number of questions you are required to do

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SECTION A : THE ATMOSPHERE

1. MATCHING COLUMNS

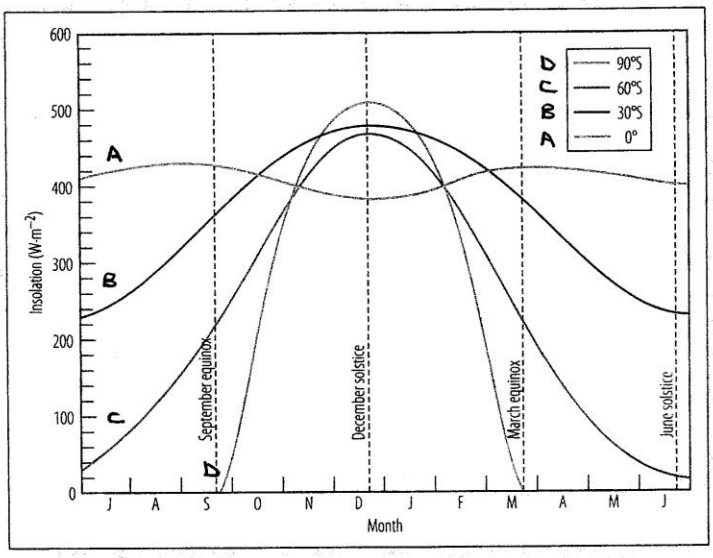
Match the terms in Column A with a description from Column B. Write down just the question number and the letter that corresponds to the most correct answer

COLUMN A	COLUMN B
1.1 Solstice	A Descending air
1.2 Tropics	B When the sun is directly overhead one of the Tropics (Cancer and Capricorn)
1.3 Föhn	C Affects South Africa's weather mainly in winter
1.4 Geostrophic wind	D A wind that reverses direction in summer and winter
1.5 Subsidence	E Associated with El niño
1.6 Monsoon	F The earth's warmest region
1.7 Anticyclone	G A saucer shaped sill
1.8 Polar front	H South Atlantic HP cell
1.9 Mid – latitude cyclone	I A wind that warms adiabatically as it descends
1.10 Drought	J A line joining all places of the same rainfall
	K A wind that blows parallel to the isobars
	L Boundary between the westerly and polar easterly wind masses

1 X 10 = (10)

2. THE HEATING OF THE ATMOSPHERE

Refer to the diagram below which shows the amount of insolation (in Watts per square meter ($W.m^2$) that is received each month at various latitudes (0°, 30°S, 60°S and 90°S)



2.1 How much insolation is received
- 2.1.1 at the equator in December?
- 2.1.2 at the equator in June? (2)

2.2 How much insolation is received
- 2.2.1 at the South Pole in December?
- 2.2.2 at the South Pole in June? (2)

2.3 Explain why there is a much greater variation in insolation between December and June at the South Pole compared to the equator (4)

2.4 Explain the meaning of the terms
- 2.4.1 **SOLSTICE**
- 2.4.2 **EQUINOX** (4)

2.5 If you had not been told that these graphs were for the southern hemisphere, how would you have been able to work out that they are? (2)

2.6 Which of the four profiles (lines) on the graph best suits South Africa? Give a reason for your answer (4)

2.6 Choose a term from the graph that matches each of the following descriptions

2.6.1 Associated with autumn

2.6.2 This is when the southern hemisphere has the longest day and shortest night

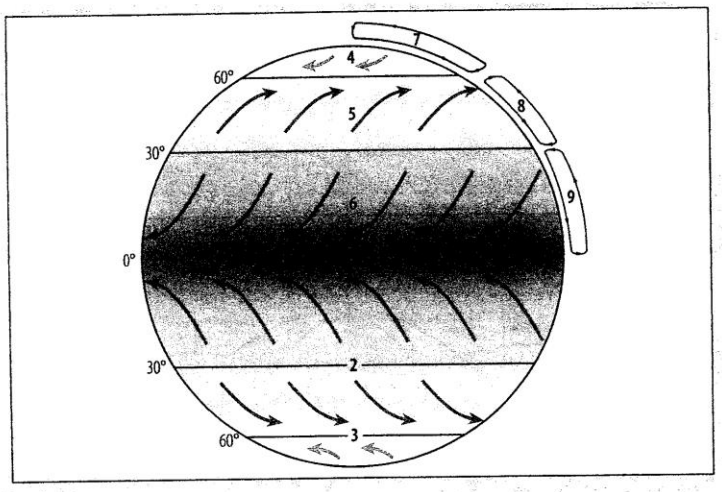
2.6.3 Winter in the southern hemisphere

2.6.4 Spring equinox (4)

[22]

3. PRIMARY CIRCULATIONS

Refer to the diagram below and then answer these questions



3.1 Provide suitable labels for the numbers 1,3,6 and 8 on this diagram (4)

3.2 Complete the statements below by choosing the correct word or phrase from those in brackets

3.2.1 Air moves from an area of (low/ high) pressure to an area of (low/high) pressure as a result of the (pressure gradient/ geostrophic) force

3.2.2 The Coriolis Force deflects wind to the (left/right) in the southern hemisphere and to the (left/right) in the northern hemisphere)

3.2.3 The (pressure gradient/ Coriolis/ frictional) force causes winds to blow across the isobars close to the earth's surface (6)

3.3.1 Name the pressure belt at 2 and explain why it exists (4)

3.3.2 Name the winds marked 5 and explain how they form (4)

[18]

4. SYNOPTIC CHART

Refer to the synoptic chart that is on the attached diagram sheet and then answer the questions that follow

4.1 Refer to the pressure cell marked A

4.1.1 Name this pressure cell (1)

4.1.2 Name the pressure belt that this pressure cell forms a part of (1)

4.1.3 Draw in, **ON THE SYNOPTIC CHART**, the winds that you would expect to blow around this pressure cell (2)

4.1.4 Briefly **EXPLAIN** the winds you have drawn in 4.1.3 (2)

4.2 What name is given to the lines on this synoptic chart? (2)

4.3 Refer to the weather system marked B/C

4.3.1 Provide suitable labels for B and C (2)

4.3.2 Where did this weather system originate? (2)

4.4.1 Describe the weather at Durban on this day (5)

4.4.2 What weather phenomenon is Durban clearly experiencing on this day? (1)

4.4.3 Explain, **WITH THE AID OF A DIAGRAM**, the development of this weather phenomenon (4.4.2) (6)

4.5 What **SEASON** is represented by this synoptic chart? Give **TWO** pieces of evidence from the chart to support your answer (6)

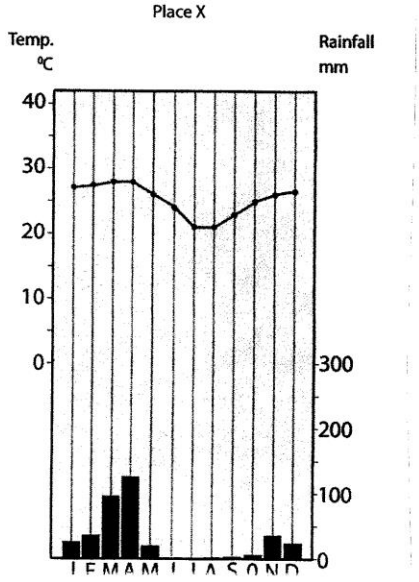
[30]

ANSWER QUESTION 5 OR QUESTION 6

EITHER

5. CLIMATE OF AFRICA

Refer to the climate graph below for place X and then answer the questions that follow



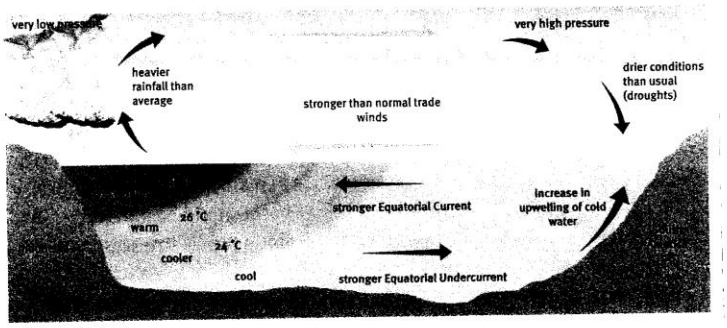
5.1 Is place X in the northern or the southern hemisphere? (1)

5.2 Give a reason for your answer in 5.1 (2)

5.3 Using the graph state
5.3.1 the amount of rain that falls in April
5.3.2 the minimum temperature
5.3.3 the maximum temperature
5.3.4 the temperature range
for place X (4)

5.4 Place X is either in the equatorial or the tropical continental climate region in Africa
5.4.1 In which of these two regions is place X? (2)
5.4.2 Explain your choice in 5.4.1 (4)

5.5 Refer to the diagram below which shows the development of La niña conditions in the Pacific Ocean and then answer the questions



5.5.1 How do you know that the diagram represents La niña conditions? (1)

5.5.2 Use the information on the diagram to explain how the La niña phenomenon develops (4)

5.5.3 How does this La niña phenomenon affect the climate of Africa? (2)
[20]

OR

6. DROUGHTS AND DESERTIFICATION

Refer to the case study below and then answer the questions that follow

Case Study: Causes of desertification in the Sahel

The **Sahel** is a semi-arid region on the southern edge of the Sahara desert (see Figure 2.54). In normal years in the Sahel, between 150 mm and 450 mm of rain usually fall in a few months. In the wetter south, the natural vegetation is savannah, such as that shown in Figure 2.55. It can be quite lush in wet years. A variety of factors have led to the kind of degradation shown in Figure 2.56.

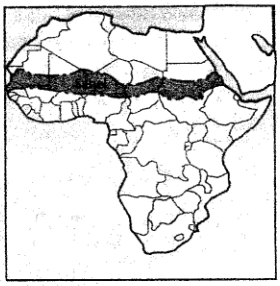


Figure 2.54 Location of the Sahel.

Here are some of the main factors contributing to desertification in the Sahel:

- There have been many years of below-average rainfall, starting in the late 1960s. This has led to a loss of natural vegetation. Bare soil is eroded and becomes less fertile.
- Population is growing very fast – doubling about every 20 years. Both natural increase and immigration of refugees contribute to this. Population growth has increased the demand for food, water and fuel.
- In wetter years, the numbers of livestock increases. In dry years, there is not enough grazing for them. The grasslands are overgrazed – animals die and soil is eroded.
- More people need more food; land that is not really suitable for agriculture is being used to grow crops for local use and export. This has reduced the fertility of the soil.
- Many people use poor farming methods. They plant the same crops year after year in the same land. These practices exhaust the soil and lead to erosion.

6.1 What is meant by the term **DESERTIFICATION?** (2)

6.2 Name

6.2.1 the desert bordered by the Sahel region

6.2.2 any country in the Sahel region and

6.2.3 one other area of Africa affected by desertification (3)

6.3 List **FOUR** factors that have led to desertification in the Sahel (4)

6.4 Desertification can

- lead to soil erosion
- cause job losses and
- result in an increase in migration

Explain briefly the link between **EACH** of these three factors and desertification

3 X 3 = (9)

6.5 State one way in which desertification could be prevented (2)
[20]

TOTAL SECTION A : 100

SECTION B - GEOMORPHOLOGY

1. TERMINOLOGY

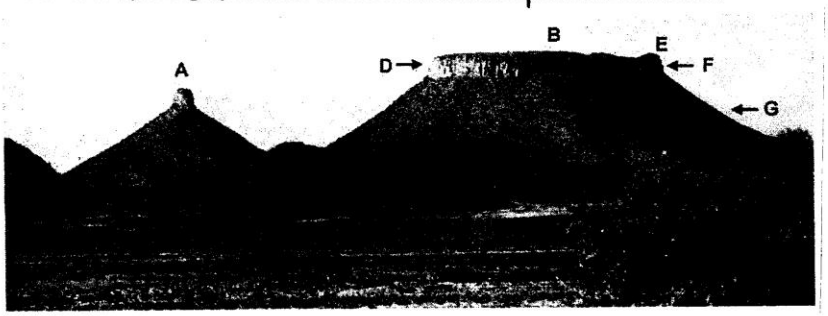
Select the correct term from those in brackets in each of the following statements

1.1 Exfoliation is a type of (erosion/ mass wasting)
1.2 In a homoclinal ridge, the angle of the (dip slope/ scarp slope) is 25° - 45°
1.3 A granite dome forms from a (laccolith/ batholith)
1.4 The gentle concave slope at the base of a hill is the (pediplain/ pediment)
1.5 The slope on which rock debris collects is called the (talus/ pediment)
1.6 Soil creep is driven by (water/ gravity)
1.7 The main form of slope retreat in humid regions is (parallel retreat/ slope decline)
1.8 Paarl Rock is an example of a (tor/ dome)
1.9 Soil creep predominates on the (crest/ talus slope)
1.10 The largest relief region in South Africa is the (plateau/ Great Escarpment)

[10]

2. TOPOGRAPHY ASSOCIATED WITH HORIZONTAL STRATA, INCLINED STRATA AND MASSIVE IGNEOUS ROCKS

2.1 Refer to the photograph below and then answer the questions that follow



2.1.1 Identify the landforms labelled A, B and C (3)

2.1.2 Explain, with the aid of a diagram, how landform A developed from landform B (6)

2.1.3 Identify the slope elements E, F and G (3)

2.1.4 State **TWO** differences between slope element E and slope element G (4)

2.1.5 Suggest **TWO** reasons why this landscape could be economically important (4)

[20]

2.2 Refer to the photograph of a landform in South Africa and then answer the questions

2.2.1 Name the landform shown in the photograph (1)

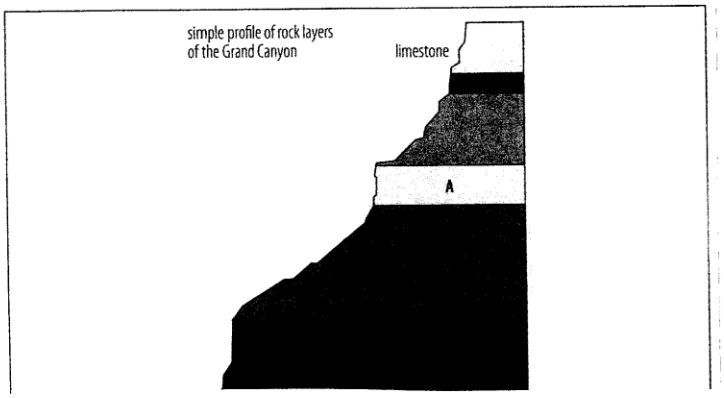
2.2.2 Name the type of rock usually associated with this landform (2)

2.2.3 Explain how this landform developed (4)
[7]

2.3 Refer the information and the diagram below and then answer the questions that follow

One of the Seven Wonders of the World

The Grand Canyon is a spectacular geological feature and one of the Seven Wonders of the World. It is almost 500 km long, 6–30 km wide and on average 1,5 km deep. One Grand Canyon guide used to joke: "It was hard work, it took a long time, but I dug it myself, with a pick and a shovel".



2.3.1 Where is the Grand Canyon? (1)

2.3.2 In what kind of climate are canyons formed? (2)

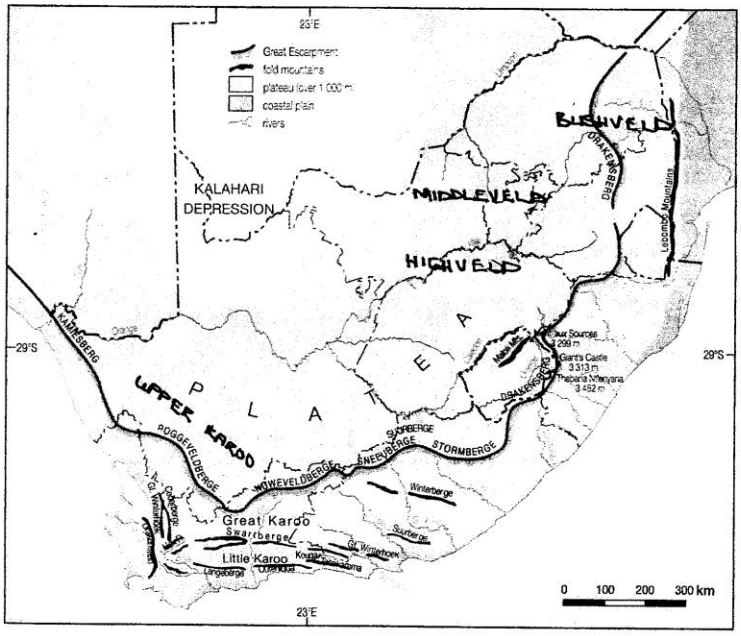
2.3.3 The main rock layers in this canyon are sandstone and dolerite
(a) Identify the type of rock in layer A and give a reason for your answer (3)
(b) Identify the type of rock in layer B and give a reason for your answer (3)

2.3.4 This landform continues to erode by the process of **MASS WASTING**
(a) What is mass wasting? (2)
(b) Suggest the dominant form of mass wasting in area A (2)

2.3.5 Explain, with the aid of a diagram, how this landscape would differ in appearance in a hot, humid climate (4)
[17]

3. SOUTH AFRICA'S RELIEF REGIONS

Refer to the map below and then answer the questions



3.1 Name three Cape Fold Mountains (3)

3.2 List the three regions of the interior plateau (3)

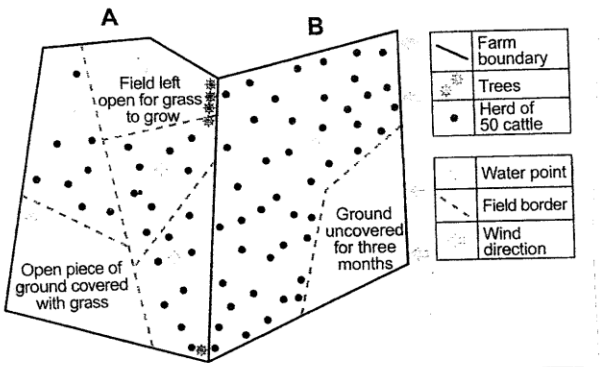
4.1 Does this diagram show the causes of **NATURAL EROSION** or **ACCELERATED EROSION**? Give a reason for your answer (3)

4.2 Which soil horizons are most commonly removed by soil erosion? (2)

4.3 A cause under arable land is given as 'poor farming practices and technologies'. Give examples of **TWO** of these (2)

4.4 Explain why these 'poor farming practices' cause erosion (4)

4.5 The diagram below shows two farms in KwaZulu Natal. One farmer has tried to stop soil erosion, whilst the other farmer has made no attempt to do so



4.5.1 Which farmer has attempted to address the problem? (1)

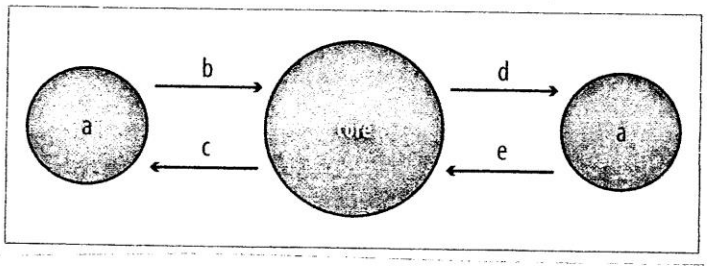
4.5.2 Explain **ONE** strategy he has implemented to do so (3)

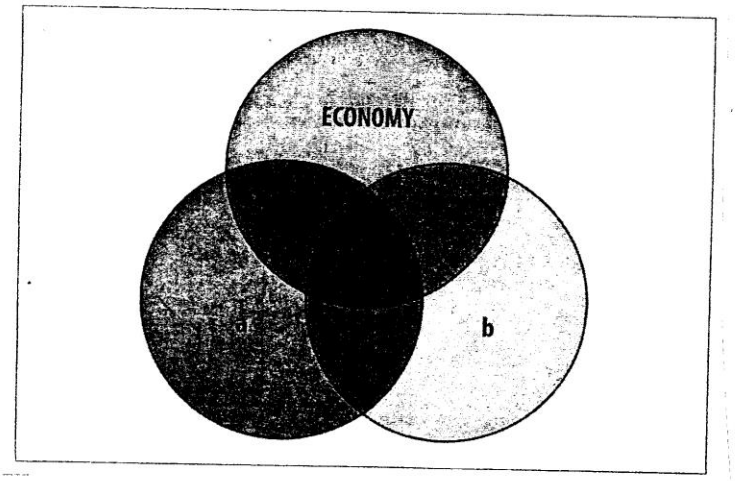
[15]

ANSWER ANY THREE OF THE FOLLOWING SIX QUESTIONS

5. DEVELOPMENT MODELS

Refer to the diagrams below and then answer the questions that follow





5.1 What does a **DEVELOPMENT MODEL** try to do? (2)

5.2 Which development model is shown in the first diagram? (2)

5.3 Provide suitable labels for 'a' and 'd' (2)

5.4 Give **ONE** example of a South African development programme that has used this model (2)

5.5 Explain briefly how development occurs in this model (4)

5.6 Which development model is shown in the second diagram? (2)

5.7 Provide suitable labels for 'a' and 'b' on the diagram (2)

5.8 Explain, **GIVING REASONS**, which of these models, in your opinion, best describes the development process (4)
[20]

OR

6. TRADE

Refer to the graphs below and then answer the questions that follow

Group A	Imports $US billion	Export $US billion	Group B	Imports $US billion	Export $US billion	Group C	Imports $US billion	Export $US billion
USA	1 939,00	1 289,00	New Zealand	30,24	33,24	Mauritius	3,94	2,04
China	1 327,00	1 581,00	Bangladesh	21,34	16,24	Armenia	2,99	0,85
Germany	1 099,00	1 303,00	Croatia	20,93	11,51	Lesotho	1,77	0,99
Japan	639,10	756,20	Jordan	12,97	7,33	Belize	0,74	0,40
France	590,50	517,30	Republic of Congo	3,61	9,20	Burundi	0,34	0,07

(Source: International trade statistics, World Trade Organisation)

6.1.1 Name **ONE** country from Group A of the table that has a positive trade balance (1)

6.1.2 Name **ONE** country from Group C of the table that has a negative trade balance (1)

6.2.2 Calculate the **TERMS OF TRADE** for Croatia (3)

6.2.3 What does this figure (6.2.2) tell you? (2)

6.3 Calculate the **VOLUME OF TRADE** for Mauritius (3)

6.4 Trade between China and South Africa is **FREE** but it is not **FAIR**. Explain why this is so (4)

6.5 Explain how the following would influence trade between any two countries in the table

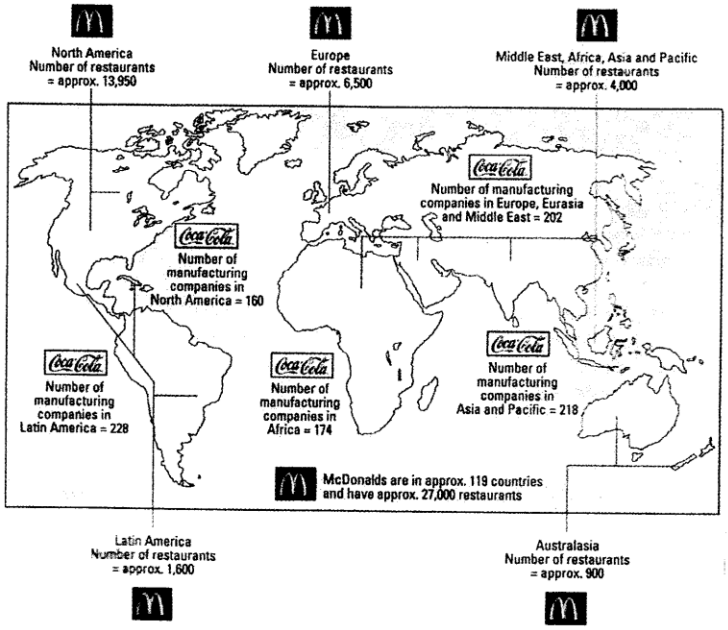
- quotas
- subsidies
- sanctions (6)

[20]

OR

7. GLOBALISATION

Refer to the map below and then answer the questions



7.1 What is meant by the terms

- **GLOBALISATION**?
- **MULTINATIONAL CORPORATION**? (4)

7.2 Name two multinational corporations shown on the map (2)

7.3 Besides the emergence of multinational corporations, state **TWO** other indicators of globalisation (4)

7.4 State **TWO** advantages and **TWO** disadvantages that multinational corporations can bring to a country (4)

7.5 Recent years have seen the emergence of an anti – globalisation movement. Explain, giving **THREE** reasons, why this movement has experienced so much growth (6)

[20]

OR

8. FOREIGN AID

Refer to the case study below and then answer the questions that follow

Médecins Sans Frontières stops measles vaccinations

On 20 October 2011, Médecins Sans Frontières (MSF) stopped its measles vaccination campaign in Daynile, close to Mogadishu, Somalia. Daynile has thousands of refugees living in camps who had fled the armed conflict and devastating drought in their own area. However, when fighting erupted near the refugee camps, people also fled the refugee camps for fear of their lives. Mothers ran with their children who were being treated for severe malnutrition.

The violence near the refugee camp has also meant that the MSF measles vaccination programme has been disrupted. The programme was meant to reach 35 000 children over a three week period. Measles, together with malnutrition, is the main killer of children in Somalia.

In one year, MSF had vaccinated over 150 000 people and treated 50 000 people for measles in the area. In the first five days of their measles campaign, they vaccinated 4 831 children before fighting forced MSF to stop its programme.

8.1 Why is foreign aid necessary? (2)

8.2 There are a number of types of aid. Explain what is meant by the terms
8.2.1 **TECHNICAL AID**
8.2.2 **CONDITIONAL AID** (2)

8.3 What **TYPE** of aid is being given by Médecins Sans Frontiéres to the refugees? (2)

8.4 Some people criticise aid given to developing countries. Outline why you think they might.do so (4)

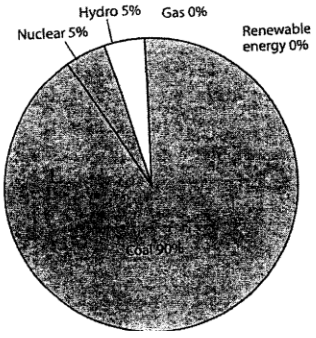
8.5 The problems outlined in the extract are common to those in many developing countries. What **TWO** problems mentioned in the article are common in many developing countries? (2)

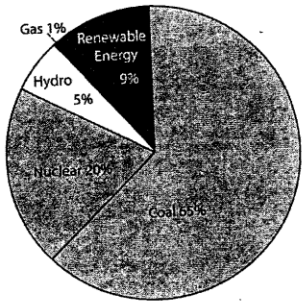
8.6 Developed countries often benefit more from aid than developing countries. In a short paragraph, explain why this is so (8)
[20]

OR

9. ENERGY PRODUCTION IN SOUTH AFRICA

Refer to the pie graphs below and then answer the questions that follow





9.1 What **NAME** is given to power produced using coal (1)

9.2 Describe briefly how power is produced using this method (9.1) (4)

9.3 South Africa's reliance on coal as a source of energy is set to decline by 2030. Describe **TWO** reasons for this (4)

9.4 The percentage of electricity generated by HEP will remain the same. Why is this? (2)

9.5 Where is South Africa's sole nuclear power station located? (1)

9.6 ESKOM plans to increase the amount of power generated by nuclear energy by 2020. Imagine that you live in a small coastal town which is close to the site where ESKOM proposes to build out second nuclear station. Write a short letter to ESKOM stating why you either agree **OR** disagree with this plan (8)
[20]

OR

10. RENEWABLE ENERGY

Refer to the diagram below and then answer the questions

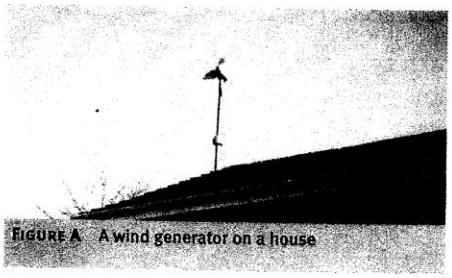


FIGURE A A wind generator on a house

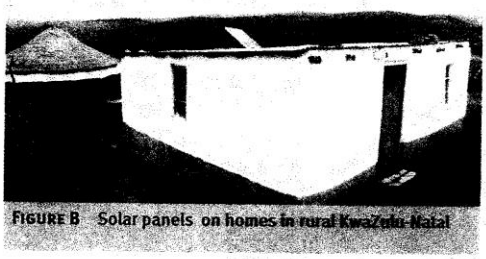


FIGURE B Solar panels on homes in rural KwaZulu-Natal

10.1 What is meant by **RENEWABLE ENERGY**? (2)

10.2 Give **ONE** reason why it is important to switch to renewable energy (2)

10.3 Why has South Africa decided to focus on wind and solar energy, rather than other alternatives that might be available? (2)

10.4 Describe **ONE** problem associated with
10.4.1 wind energy
10.4.2 solar energy (4)

10.5 The house on the left is already connected to the ESKOM electricity grid. What **TWO** benefits does the owner of the house get by installing a wind generator? (4)

10.6 Describe how the lives of the people in the house in figure B are improved by having solar panels (6)
[20]

TOTAL SECTION C : 125

SECTION A - QUESTION 3