REPUBLIC OF NAMIBIA

MINISTRY OF EDUCATION

NAMIBIA SENIOR SECONDARY CERTIFICATE

GEOGRAPHY
SPECIMEN PAPERS 1 - 3 AND MARK SCHEMES
HIGHER LEVEL
GRADES 11 – 12

THESE PAPERS AND MARK SCHEMES SERVE TO EXEMPLIFY THE SPECIFICATIONS IN THE LOCALISED NSSC GEOGRAPHY HIGHER LEVEL SYLLABUS

2006
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INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces provided on the answer paper/answer booklet.

Answer any three questions.

Write your answers on the separate answer paper provided.
If you use more than one sheet paper, fasten the sheets together.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [ ] at the end of each question or part question. Sketch-maps and diagrams should be drawn whenever they serve to illustrate an answer.
Question 1

1. (a) Fig. 1. Shows a sketch of a tropical rain (evergreen) forest

(i) With aid of labels added to Fig. 1 describe the main features of this type of forest. [6]

(ii) Show how this type of natural vegetation is adapted to the climate of the area in which it is found. [5]

(b) The climate of equatorial is hot and wet all year round.

(i) Give reasons for the small annual range of temperature in equatorial areas [3]

(ii) Explain how the heavy rainfall on equatorial regions is caused. [5]

(c) Described, with examples, how human interference has influenced natural vegetation cover in parts of Africa. [6]
Question 2

2. (a) Study Photograph A which was taken in a desert in southern Africa.

(i) Choose one of the following words to describe the type of desert surface shown in the photograph:

reg, erg, hamada [1]

(ii) Describe the physical landscape, including natural vegetation, shown in the photograph. [5]

(iii) If the camera was pointing south when the photograph was taken, state the direction of the prevailing wind. [1]

(b) Choose one desert landform which is the result of deposition

(i) Name the land form. [1]

(ii) Describe its main features. [5]

(iii) Explain how it may have been formed. [5]

(c) How may a rock pedestal be formed? [5]

(d) Name each of the following features which may be found in hot deserts;

(i) an isolated hill found in a generally level landscape,

(ii) a large, gentle slope found at the foot of a highland. [2]
Question 3

3. (a) (i) Describe the information shown in Fig. 3. [5]  

(ii) State the possible problems for farmers who work on very small farms. [4]  

(iii) Suggest reasons why there are large differences in the size of farms in some countries in Africa. [5]  

(iv) Suggest ways in which government programmes could help farmers of small farms [5]  

(b) In many of the SADC countries, the cultivated areas is small compared with the size of the area which might be used. Explain why it may be difficult to increase the amount of cropland in some areas. [6]

Study fig. 3 which gives some information about the size of farms and the amount of land they occupy in SADC countries.

FARMS IN SADC

Fig. 3
Question 4

4. (a) Fig. 4 shows how the employment structure of an LEDC (developing country) changed over a recent 40 year period

(i) State the changes shown. [4]
(ii) Suggest reasons why these changes might have taken place. [3]

(b) Why is it important for developing countries, such as Namibia, to develop secondary industries. [6]
Tourism is a tertiary (service) industry. Fig. 5 shown an advertisement which was published in a newspaper in the United Kingdom to attract tourists to Namibia.

(i) The advertisement refers to the importance of ‘contrasts of the landscapes of Namibia’. If you were asked to tell a tourist company about the natural attractions of Namibia or another country you have studied, what information would you give? [8]

(ii) The advertisement also suggest that Namibia is ‘one of the largest and most undisturbed countries in Africa’. Suggest why this may both encourage and present problems for tourists visiting the country. [4]
Question 5

5 Fig. 6 shows the annual natural population increase in different parts of the world.

(a) (i) Namibia has an annual birth rate of 43 per 1000 and a death rate of 11 per 1000:

A calculate the annual natural population increase for Namibia [1]
B add this information to Fig. 6, using the key provided. [1]

(ii) Describe four of the main features of the global distribution of annual natural population increase shown in Fig. 6. [4]

(iii) Explain the low annual natural population increase in most of the countries of the North. [5]

(b) Namibia is an example of a country in the South.

A Namibian woman between the years 15 to 44 gives birth on average to 5.4 children. In rural areas of the country the figure rises to an average of 6.3 children, in urban areas it falls to 3.9 children.

(i) Give reasons for the high birth rate in Namibia [5]

(ii) Suggest why the birth rate is higher in rural areas than in urban areas. [3]
(c) Using the information on fig. 7A and 7B describe and account for the distribution of HIV/AIDS in Namibia. [6]
Key:
Ke-Keetmanshoop
Wi-Windhoek
Swa-Swakopmund
Os-Oshakati
Ka-Katima Muliulo

Fig. 7 B
Question 6

6 (a) Fig. 8 shows four rural settlements.

(i) From Fig. 8, identify with a letter one example of each of the following types of rural settlement:

   I dispersed,
   II nucleated, [3]
   III linear

(ii) Suggest reasons for the development of settlement C. [3]
(b) In Namibia, 33% of the population is described as urban with 33% of the country’s total urban population living in Windhoek.

(i) Why do cities in developing countries, such as Windhoek, attract increasing numbers of people to live in them? [6]

(ii) What problems in rural areas of developing countries like Namibia encourage people to move to urban areas? [5]

(c) Choose two types of land use from the following list and, using your knowledge of urban areas, describe where and why the chosen land uses might be found in a town or city.

Industrial

Supermarkets

School

Public car parks [4,4]
Question 1

1 (a) (i) tall trees,
etiphytes / saprophytes,
thin / large leaves,
leathery leaves,
many stomata,
rapid growth,
continuous growth,
undergrowth near edge,
lack of undergrowth,
smooth / thin bark,
drip tips,
buttress roots,
evergreen forest,
lianas,
aerial roots,
trees all stages,
dense forest,

(ii) great heat (+) and abundant rain (+) / to reach sunlight, (√),
abundance of moisture in air, (√),
to aid transpiration (+) in hot wet climate (+),
to withstand strong sunlight, (√),
to increase transpiration (+) in hot wet climate, (+),
great heat and (+) and rain (+),
constant heat (+) and rain (+),
light available, (√),
little light penetrates,
no need to protect from cold (√),
to shed water (+),

--
no seasonal changes (√),
to reach sunlight (√),
abundance of moisture in air (√),
no seasonal change (√),

Description 6 at 1 = 7
Relationship 5 at 1 = 4 = 11
(b) (i) (midday) sun high / high angle sun’s rays, daylight varies little, all year round, 3 at 1 = 3

(ii) low pressure, converge of trade winds, high moisture content of air / moist air/high evap. rate, heated by contact with warm ground, expands, rises, cools, condensation, (air condenses = 0) 5 at 1 = 5

(c) deforestation, for agriculture, for mining/urbanisation/industry, afforestation, fires, planting different species, fertiliser, pests, pollution, war, 6 at 1 = 6

Total marks 25
Question 2

2 (a) (i) erg

(ii) sand/dunes, ridge, peaks / crest, steep slopes, more gentle slopes to right, oasis, trees, grass tussock / clump, sparse vegetation / scattered, 5 at 1=5

(iii) from west / to east / westerly wind, =1

(b) (i) barchan,

(ii) crescent, gentle windwards slope, steep leeward slope, convex windward, concave leeward, transverse to wind, horns, 30-200m high, (height between), 30-450m across (height between), moves, in groups, chaotic pattern,

(iii) obstacle in path of wind, accumulation, wind in constant / prevailing direction, less sand at edge driven forward, (backward) wind eddy steepens lee, collapse,

OR

(i) seif

(ii) steep sided, ridge, many miles long, up to several 100m high, parallel to wind, parallel rows.
(iii) coalescing of barchans, 
    ind at right angles, 
    tails of barchan removed, 
    corridor swept clean by wind, 
    side wind / eddy builds sides, 

Nam= 1

<table>
<thead>
<tr>
<th>Description</th>
<th>= 5 at 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formation</td>
<td>= 5 at 1=11</td>
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(c) rock pedestal 
    absences of vegetation, 
    wind hurls sand against rock, 
    varying hardness, 
    differential erosion, 
    joints bedding planes attacked, 
    undercut (1 ft above ground), 
    friction near ground, 

5 at 1 = 5

(d) (i) inselberg, 

(ii) pediment, 

Total marks 25
Question 3

3 (a) (i) 67% of farms are small farms,
6% of farms are large farms,
small farms occupy 22% of the land,
Large farms occupy 33 / 34% of the land,
11 times as many small farms as large,
Larger number of small farms occupy less land,
Smaller number of large farms occupy more land,
Greater number of small farms,

(allow any reasonable correct statement) 5 at 1 = 5

(ii) poverty / lack of capital,
land too small to support family,
little fodder for draught animals,
cannot afford machinery,
cannot afford irrigation,
cannot afford fertiliser,
cannot afford hybrid seeds,
cannot produce enough for sale and consumption,
land becomes infertile (because no time to rest) 4 at 1 = 4

(iii) large areas of land taken over by commercial farms,
white farmers took over large areas of land,
division of land on death of farmer,
poorer farmers abandoned/sold land to richer farmers,
land allocated by chief according to number of people,
according to quality of land,
some people dominate the family and get larger holdings,
in intensive farming v extensive farming,
subsistence farming usually on small farms,
pastoral v arable, 5 at 1 = 5

(iv) cooperative schemes,
self help schemes,

credit schemes
provision of seeds
setting up tractor station / provision of machinery,
land reform,
grants / subsidies,
advice / demonstrators,
provision of fertiliser,
etc., 5 at 1 = 1
(b) Lack of capital,  
Difficult to provide irrigation,  
Unreliability of rainfall,  
Remote / isolation (from markets),  
Tsetse fly / pests,  
Soil erosion,  
Competition from pastoralists,  
Competition from other land users, max. 1,  
Lack of fertilisers,  
Lack of machinery,  
Lack of education / skill  

6 at 1 = 6

Total marks 25
Question 4

4 (a) (i) increase in tertiary – over 5 million,
increase in secondary – 3 million,
decrease in primary – almost 1 million.
three statements at 1 mark each
figure to support 1 at 1 mark [4]

(ii) more education,
more capital, possibly from abroad,
growth in tourism,
rural depopulation,
mechanisation on the land etc. 3 at 1 mark [3]

(b) economic development,
exports,
employment / reduce unemployment,
afford more imports / food,
greater economic return than exporting resources,
develop skills / industrial training / retain traditional skills,
develop infrastructure – roads etc.
attract other foreign investment. 6 at 1 mark [6]

(c) (i) n.b. must be natural attractions – landscape, climate, vegetation, animals,
If Namibia -
Etosha and other named national parks,
Fish river canyon,
Skeleton coast,
Lake Otjikoto,
Epupa falls,
Sossusvlei high dunes,
Quiver tree forest,
Namib-naukluft reserve,
Welwitschia plant in desert,
wild animals – up to 3 marks
climate details 8 at 1 mark [8]

(ii) encourage -
unspoilt,
not crowded,
natural attractions not disturbed,
peaceful.
problems -
transport difficulties,
distance – cost of transport,
limited resources for tourists.
for each of encourage & problems 4 at 1 mark [4]
Question 5

5 (a) (i) A 32 per 100/ 3.2%  
B shading on map for 30-39 years. [1]

(ii) Accept statement such as:
Largest natural increase (40-49) – saudi Arabia, UAE, Libya, Botswana, Ivory Coast, most African countries have high natural increase, 0-9 years – North, China – relatively Low natural increase 10-19 years etc. 4 at 1 mark [4]

(iii) low birth rate,
reasons for low birth rate up to 2 marks,
low death rate,
reason for low death rate
little difference between birth rat and death rate. 5 at 1 mark [5]

(b) (i) difficult to reduce birth rate – tradition
tradition,
religious pressures,
zeal for son – inheritance,
ignorance of large sectors of the population on need to reduce b.r/ low literacy rate / awareness,
difficulties of instituting family planning policies,
size of country / dispersed nature of population,
expenses of introducing family planning policies.
Lack of / unpopularity of abortion / sterilisation,
pressure in rural areas – need children to work on farms,
large number of children to look after parents in old age,
high infant mortality – hence large families,
improvement in health facilities – more surviving,
reduction in infant mortality 5 at 1 mark [5]

(ii) Better education in urban -
Greater awareness of advantages of a small family,
Women more likely to be pursuing career,
Rural – greater need for children – agricultural labour,
Stronger tradition,
Higher cost of raising children in urban. 3 at 1 mark [3]

(c) Distribution: highest in Windhoek and Katima Mulilo, Oshakati
Walvis Bay
lowe in smaller town

Reasons: size,
rural – urban migration,
density,
international migration
poverty
Reserve 2 marks for each of distribution / reasons 2 extra marks [6]
Question 6

6 (a) (i) I B
   II A / C
   III D 3 at 1 mark [3]

   (ii) road junctions,
        bridging point,
        possible river transport / river port,
        trading centre. 3 at 1 mark [3]

(b) (i) pull factors-
       possibility of employment,
       higher wages,
       variety of employment,
       better medical facilities,
       education – schools, colleges etc
       entertainment & leisure,
       possibility of housing etc. 6 at 1 mark [6]

   (ii) small farms cannot support large numbers,
        lack of other employment
        decreasing fertility,
        drought
        soil erosion,
        lack of education
        famine,
        increasing debt,
        lack of variety of employment for the young,
        disease etc. 5 at 1 mark [5]

(c) *industrial estates* -
   periphery,
   cheaper,
   flat / level land,
   land set aside for industrial development,
   near roads,
   movement of raw materials / products / labour,
   in suburbs / housing areas,
   sources of labour.

   *supermarkets*-
   commercial centres including CBD,
   housing areas,
   large number of customers
   near edges of town / out of town,
   cheaper land,
   near major roads,
   ease of access.

   *school*-
   centre of town,
   edges of town,
space,
housing estates,
assessibility,
near large number of students.

Public car parks -
Town centre,
Large numbers of shoppers / workers,
Near stadium / zoos etc.
Large number of spectators / visitors,
Edges of towns
Availability of large spaces,
Bus in drivers & passengers / park & ride schemes.

For each of the chose types of land use 4 at 1 mark [4’4]
MINISTRY OF EDUCATION

Namibia Senior Secondary Certificate (NSSC)

GEOGRAPHY: HIGHER LEVEL

PAPER 2
SPECIMEN PAPER

Additional materials:
   Answer paper
   Ruler

TIME: 2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the space provided on the answer paper/answer booklet.
Answer any four questions.
Write your answers on the separate answer paper provided.
If you use more than one sheet of paper, fasten the sheets together.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [ ] at the end of each question or part question.
Sketch-maps and diagrams should be drawn whenever they serve to illustrate an answer.
Section One: Population and Settlement Studies

Question 1

1. (a) Study Fig. 1 which shows the GNP (Gross National Product) per person for many of the countries of the world and the ‘North-South Divide’

   ![Map showing GNP per person](image)

   **Fig 1**

   (i) State the GNP per person shown for Namibia. [1]

   (ii) What is meant by the ‘North-South divide’? [2]

   (iii) Does the line shown on fig. 1 accurately divide the world into countries of the 'North' and the 'South'? Give reasons for your answer. [4]

   (iv) Name two other measures which could be used to determine the quality of life' for people within countries. [2]

   (b) Namibia, with about 1/7 persons per sq. km, is one of the most sparsely populated countries in the world.

   (i) Why is Namibia or another named country you have studied sparsely populated? [6]

   (ii) Why do towns develop in areas of low population density? [6]
(c) The newspaper extract in Fig. 2 illustrates a problem associated with one multi-racial society.

Cape Town's dispossessed seek to erase apartheid effects

6000 people were forced to leave multiracial district Six by the Group Areas Act.

Noor Ebrahim indicates the spot where he once lived between table mountain and the sea. There is nothing to show there was ever a street here, let alone a house. He is pointing at the paved surface of a car park at the new Cape Technikon.
Mr Ebrahim lived in District Six. In 1966, the government declared this multiracial district at the heart of Cape Town to be a 'white area' under the Group Areas Act.
Over the next decade, about 60 000 people were moved and their homes and shops demolished.

Much of the wasteland created remains in the middle of the city.
With apartheid now ended, Mr Ebrahim and other former residents want to return to District Six and rebuild it with the help of the African National Congress government – and to create an example that might be followed by other dispossessed South African communities.
About 3.5 million people were moved from their homes under the Group Areas Act.

Fig. 2

Why might such a problem be difficult to solve? [4]
Question 2

2. (a) Fig. 3A and 3B show two examples of types of migration of people.

\[\text{INTERNATIONAL MIGRATION} \quad \text{SHORT DAILY MIGRATION}\]

\[\text{Amount of Migration}\]

\[\text{Economic development}\]

(i) For each graph, describe and suggest reason for the changes shown as the economy of the country develops. \[3,3\]

(ii) What problems may occur in a city as a result of the movement of people shown in Fig. 3B? \[3\]

(iii) How might city authorities try to solve the problems you have given in (a)(ii)? \[5\]

(b) Fig. 4 shows a settlement hierarchy for an LEDC. The urban settlements have been grouped in relation to their size.

**Urban Settlements the LEDC in (Settlement Hierarchy)**

<table>
<thead>
<tr>
<th>Population of urban settlements in each group</th>
<th>Number of urban settlements in each group</th>
</tr>
</thead>
<tbody>
<tr>
<td>A OVER 1 000 000</td>
<td>9</td>
</tr>
<tr>
<td>B 500 000 – 999 999</td>
<td>10</td>
</tr>
<tr>
<td>C 100 000 – 499 999</td>
<td>128</td>
</tr>
<tr>
<td>D 50 000 – 99 999</td>
<td>185</td>
</tr>
<tr>
<td>E 20 000 – 49 999</td>
<td>583</td>
</tr>
<tr>
<td>F BELOW 20 000</td>
<td>852</td>
</tr>
</tbody>
</table>

Fig. 4
(i) Explain why there are many more urban settlements in Group F than in Group A. [3]

(ii) What is meant by the term 'sphere of influence'? [2]

(iii) How and why would you expect the sphere of influence of a city in Group B to be different from that of a town in Group E? [6]
Section Two: The Physical world

Question 3

3. Study the synoptic weather chart for part of southern Africa and the sea areas around it, Fig. 5.

(a) (i) Draw the symbol for and name the two types of front shown on the weather chart. [1]

(ii) Look at the line labelled 1018 in the south-west corner of the weather chart. What name is given to such lines and what is meant by the figure 1018? [2]

(b) (i) Describe the weather being experienced on the weather ship positioned at A on the weather chart. [5]

(ii) Give reasons for the speed and direction of the wind at A. [4]

(c) Describe the distribution of atmospheric pressure in the area shown on the weather chart. [5]

(d) Describe the differences between a tropical cyclone and a temperate cyclone. [8]
4. (a) Study fig. 6 below.

(i) What is mass wasting?  

(ii) With the aid of features shown in Fig. 6 and any other facts you may know, state the evidence that would suggest to you that soil creep and mass wasting are taking place on a slope.

(iii) How do rainfall, steepness of slope, condition of the soil and other factors affect mass wasting?

(iv) How does the work of animals assist in this process?

(b) Many forested slopes in tropical areas have been cleared of trees. Suggest how this may have serious consequences for the environment.
Section Three: Economic and Environmental Issues

Question 5

5. (a) (i) Why is most of the energy used in the world provided by fossil fuels (coal, oil and natural gas)? [5]

(ii) How do fossil fuels create problems for the environment both in areas where they are produced and in areas where they are used? [6]

(b) Fig. 7 shows the amount of solar energy received in different areas of the world and locates where solar power is being developed.

Average annual solar energy and solar power developments

(i) Use information from fig. 7 to describe and explain which areas of the world should benefit most from solar power. [4]

(ii) What are the advantages of using alternative energy sources such as solar, wind, tidal and geothermal power? [5]

(ii) Why are there problems in developing alternative energy sources? [5]
Question 6

6. (a) Study figs 8A and 8B concerned with the availability of water in a number of countries.

![Water availability chart](image)

**Fig. 8 A**

Dear Visitor,

**Welcome to Windhoek,** the heart of Namibia! I hope your stay in our capital will be enjoyable.

I appeal to you to assist us in our efforts to stretch our precious water resources, as our country is presently experiencing a devastating drought.

The people of Windhoek live with water restrictions and practise water-saving measures enthusiastically.

Please use our water wisely and carefully!

Thank you for your understanding and co-operation.

Mayor of Windhoek  
*(notice in hotel rooms in Windhoek, Namibia 1998)*

**Fig. 8B**

With reference to this information and to other studies you have made, suggest

(i) why some countries have greater availability of fresh water for their people than others;  

(ii) how people in some countries, such as Namibia, attempt to conserve water.
(b) The United Nations estimated that dirty water causes 80% of the disease in developing countries and killed 10 million people annually.

(i) Explain how dirty water causes disease, and

(ii) suggest measures which may be taken to reduce the problem.

(c) (i) Name and locate a scheme for supplying water for irrigation and/or power.

(ii) For the scheme you have named in (c)(i), describe the benefits and problems it has brought to the area in which it is located.
Section Four: The Interpretation of Topographical Maps

Question 7

7. Study the map extract of Rusape (Zimbabwe) and answer the following questions. The scale of the map is 1:50 000.

(a) (i) give the six figure grid reference of the trigonometrical station on the top of Furenje Hill. [1]

(ii) Measure the length of the wide, tarred road in the south-east of the map from bench mark 1364.22 to the southern edge of the map. Give your answer in metres. [1]

(iii) If a map was drawn to half the scale of the map extract, state the scale of the new map expressing it in two different ways. [2]

(b) Describe the physical features of the Rusape River. [5]

(c) Describe the land use in the south-east of the map in the area shown below. Do not comment on roads, tracks, buildings and huts. [5]

(d) Describe the relief of the area of the map shown below. [6]
(e) Describe and give reasons for the settlement pattern in the north-west corner of the map extract bounded by eastings 95 and 00 and by northings 36 and 43. [5]
MINISTRY OF EDUCATION

Namibia Senior Secondary Certificate (NSSC)

GEOGRAPHY: HIGHER LEVEL

PAPER 2
MARK SCHEME

Section One: Population and Settlement studies

Question 1

1 (a) (i) US$ 1636-5500 [1]

(ii) the line separating the developed from the developing world/countries/rich – poor countries. [2]

(iii) divides fairly accurately according to wealth not geographical north and south,
some rich countries in south – Saudi Arabia, Libya, large number of countries in south are N of equator – Mexico,
much of Africa,
large parts of Asia,
Australia in north – wealthy country south of equator. 4 at 1 mark [4]

(iv) calorie consumption / daily food supply per head,
life expectancy,
energy consumption per head,
adult literacy rate,
infant mortality rate etc., 2 at 1 mark [2]

(b) (i) Namibia –
size,
low rainfall,
thin poor quality soils in part,
concentrated in urban areas – Windhoek,
Caprivi, Kavango & Ovambo – 60% of population,
Neglected 5th province of South Africa,
Large areas of Reserves etc. 6 at 1 mark [6]

(ii) industrial centres
mining or based upon a resource,
historical reasons,
tourist centre,
service centre,
transport centre,
political – capital city,
port,
market centre,
population redistribution / new towns. 6 at 1 mark [6]
(c) development of area – Cape Technikon, 
eviction took place 35 years ago, 
large numbers involved – 60 000 / 3.5 million in South Africa, 
now valuable land – city centre, 
former community now split up, 
cost of rebuilding and moving people, compensation payments

4 at 1 mark [4]
Question 2

2 (a) (i) **international migration** –
with economic development –
steep increase in international migration,
gradal decline,
attraction to immigrants,
? immigration controls. 3 at 1 mark

**short daily migration** –
with economic development –
gradal increase,
than steeper increase,
commuting,
shopping. 3 at 1 mark [3,3]

(ii) increasing congestion,
particularly traffic,
rush hours,
parking problems,
pollution from increased traffic,
overuse of public transport,
time wasting for commuters / shoppers. 3 at 1 mark [3]

(iii) development of urban motorways,
dual carriageways,
tidal / flow systems on roads,
bus lanes,
new car parks,
park & ride schemes,
discourage motorists e.g. higher parking charges,
restricted entry for cars into CBD,
encourage staggering of movement into city,
encourage developments of industry / shopping out of town,

(b) (i) settlement in A need to be well spaced,
higher order services,
need large sphere of influence,
settlements in F – local services,
F – smaller sphere of influence. 3 at 1 mark [3]

(ii) area served by a settlement for its goods and services. 2 at 1 mark [2]
(iii) **how**
- larger,
- higher order / specialised services,
- examples – specialised hospitals, universities, larger shops etc.,
- greater number of services,
- greater threshold / population need to support services,
- more local services in E,
- regional services in B

**why**
- larger population in city in B,
- more services,
- generally well spaced / further apart from similar settlements,
- greater range of services in B
- additional marks for either  

[6]
Section Two: The Physical World

Question 3

3  (a)  (i) warm front,  [1]  cold front  [1]  

(ii) isobars,  
   atmospheric pressure is 1018 millibars  2 at 1 mark [2]

(b) (i) 8/8 cloud / overcast / no blue sky,  
   19° C,  
   SSW wind, / SW  
   Showers,  
   28-32 knots / 32-37 mph / speed between.  5 at 1 mark [5]

(ii) low pressure,  
   winds blow in,  
   clockwise,  
   deflection,  
   * isobars close / steep pressure gradient  
   (* compulsory point before maximum awarded)  4 at 1 mark [4]

(c) low pressure off SW coast,  
   low pressure in south Atlantic,  
   low pressure west coast of Madagascar,  
   high pressure to SE of South Africa,  
   low pressure in extreme south east,  
   high pressure in Atlantic,  
   higher pressure over African land mass,  
   steep pressure gradient off SW of Africa,  
   gentle pressure gradient over Atlantic.  4 at 1 mark [4]

(d) no fronts  
    eye / calm  
    intense rain  
    intense low  
    winds up to 150 mph  
    homogeneous air mass  
    moves west / from east  
    high temperatures  
    steeper pressure gradient in tropical cyclone  
    Double statements at 2 marks  
    comparatives / single statements at 1 mark  
    mark best five statements

TROPICAL CYCLONE:  
- no fronts  
- eye / calm  
- intense rain  
- intense low  
- winds up to 150 mph  
- homogeneous air mass  
- moves west / from east  
- high temperatures  
- steeper pressure gradient in tropical cyclone

TEMPERATE CYCLONE:  
- v fronts,  
- v none,  
- v variable rain,  
- v relative low,  
- v winds up to 70 mph,  
- v different air masses,  
- v moves east / from west,  
- v warm / cool / cold temperature.

Double statements at 2 marks  
comparatives / single statements at 1 mark  
mark best five statements  

[8]
Question 4

4 (a) (i) movement caused by gravity,
slow movement,
e.g. soil creep / talus creep / solifluction / sheet wash,
rapid movement,
e.g. earth flow / mud flow / slumping / landslide / subsidence 3 at 1 mark [3]

(ii) down bending of strata
tilted trees,
tilted fence posts,
broken walls,
terracettes,
accumulation of soil at front of slope,
cracks in soil,
rolls of turf below boulders,
accumulation at side of wall / trees,
tree roots exposed,
overhanging soil on river banks,
extended roots uphill / compacted roots downhill. 6 at 1 mark [6]

(iii) water as lubricant/water in pore spaces-
diminishes surface tension,
bare soil / sparse vegetation / loose soil,
permeable upper strata,
especially when moistened / wet,
moderate slopes – slow movement,
steep slopes – rapid movement,
tilted rock strata,
hard / soft rock inter bedded / permeable – impermeable inter bedded,
ocurrence of thin beds / more bedding planes,
aided by underlying clay (on which material slips),
greater movement after wet weather / snow melt,
alternate heating and cooling of soil,
freezing of soil / permafrost below thawed layer,
frost heaving / freeze – thaw,
sudden rain / sudden snow melt,
downhill pull of gravity / slip down hillside. 6 at 1 mark [6]

(iv) burrowing,
trampling,
causing vibrations,
removing vegetation cover. 3 at 1 mark [3]
(b) soil erosion,
increased water pollution,
increased run-off / flooding,
less interception / evaporation / evapo-transpiration,
less moisture for convection,
decrease in rainfall,
roots do not bind the soil,
gullyng,
lowering of water table,
other parts of forest destroyed by falling trees,
global warming / green house effect,
fewer trees to absorb CO2 / loss of oxygen,
CO2 increased,
loss of nutrients,
infertile soils,
loss of plants / animals / habitats,
depletion of forest resources,
emergence of less useful trees / secondary forest,
melting of ice caps. 7 at 1 mark [7]
Section Three: Economic and Environmental Issues

Question 5

5 (a) (i) traditional use / coal & oil burning equipment, large quantities available to match demand, large reserves, oil & gas very transportable, efficient conversion to electricity, safer than nuclear power, alternative sources not yet developed sufficiently, compete with other energy sources on cost. 5 at 1 mark [5]

(ii) air pollution, increase in CO2 output, acid rain, effects on environment of acid rain – e.g. attack on building stones, maximum on acid rain greenhouse effect / global warming, effects on environment of global warming – e.g. melting of ice caps, flooding maximum on global warming water pollution visual pollution – waste tips, rigs etc., subsidence – coal mining 6 at 1 mark [6]

(b) (i) many developing countries e.g. M. East countries, C. American countries, N & S Africa, Australia, arid areas / deserts, tropical / warm temperature regions, high insolation, some areas may not benefit – high cost of solar panels & research, N. Hemisphere temperature /industrial countries – low potential. 4 at 1 mark [4]

(ii) cheaper running costs, safer than nuclear power, less pollution – allow development up to 4 marks reduction in acid rain, less rain pollution, less CO2, reduction in global warming etc. 5 at 1 mark [5]

(iii) high cost at the present, research still in early stage of development, cannot provide as much energy as traditional sources, vast expense for research & development, some forms depend upon unreliable weather, visual pollution, social problems – movement of people from areas to be flooded with HEP development. 5 at 1 mark [5]
Question 6

6  (a) (i) climate background
rainfall,
temperatures,
drought / deserts,
economic development making water more available,
Fig. 7A shows most of water poor countries – developing countries,
population as Fig, shows water per person,
India & China low water availability – large populations.  5 at 1 mark

(ii) media / publicity e.g. Fig. 7B,
rationing,
reservoirs / dam construction,
recycling
reduction of water losses e.g. in transmission,
water saving measures / careful / wise use.  4 at 1 mark

(b) (i) contamination with sewage etc.,
water may contain poisons – arsenic in well water in Ganges delta,
stagnant water,
cholera,
malaria,
typhoid,
insects – Guinea worm,
bilharzia snail – disease to people working in polluted water,
blackfly – river blindness,
tsetse fly – sleeping sickness. Reserve 3 marks

(ii) better sanitation avoid contact with water supplies,
provide better water supplies – e.g. shanty towns,
education / awareness
piping water,
lining of wells,
water treatment,
filtering
spraying. Reserve 3 marks

Additional mark for (i) or (ii)  1 mark

(c) (i) name / location  1 mark

(ii) Benefits
problems

[4]

[4]
Question 7

7.  (a)  (i)  036438
     (ii)  5.2 km/5 200 m
     (iii)  1:100000 or 1/100 000

(b)  Gentle gradient / slow flow
     Meander
     Island / braiding
     Rapids
     Variable width
     Tributaries
     5 at 1
     [5]

(c)  plantations
     dams / reservoir
     cultivated areas
     railway
     powerlines
     [5]

(d)  Isolated hills
     Steep sided hills
     Conical hills
     Lower land to North East
     Bare rock / smooth rock
     Steep sided river valley
     Narrow valleys
     [6]

(e)  Ribbon / linear pattern
     On cultivated land,
     At edge of cultivated land,
     Near / along tracks,
     On flatter land / avoids steep slopes
     Avoids higher land / on lower land
     Away from major rivers,
     Edge / away from bush
     5 at 1
     [5]
MINISTRY OF EDUCATION

Namibia Senior Secondary Certificate (NSSC)

GEOGRAPHY: HIGHER LEVEL

PAPER 3 (Investigation Skills)
SPECIMEN PAPER

TIME: 1 hour 30 minutes

INSTRUCTION TO CANDIDATES
Write your name, Centre number and candidate number in the space provided on the answer paper/answer booklet.

Answer all questions.
Write your answers on the separate answer paper provided.
If you use more than one sheet of paper, fasten the sheets together.

INFORMATION FOR CANDIDATES.
The number of marks is given in brackets [ ] at the end of each question or part question.
1. Students are making a study of their town, a coastal resort (Town M).

   (a) From fieldwork observations the students have located outlets for three services within the town. These are shown on Figs 1A, 1B and 1C (Insert).

   (i) Describe the number of outlets and distribution of each of the services shown. [6]

   (ii) Suggest reasons for similarities and differences in the distribution of the outlets of the three services with Town M. [4]

   (b) The students wish to compare their town (Town M), as a service centre, with other towns in the region. The frequency of outlets for two services in these towns has been obtained from a telephone directory.

   Population figures have also been obtained for the towns.

   This information is shown in Table 1.

   **Table 1**

<table>
<thead>
<tr>
<th>Town</th>
<th>Population</th>
<th>Number of banks</th>
<th>Number of shoe shops</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>55 000</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>M</td>
<td>35 000</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>N</td>
<td>19 000</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>O</td>
<td>12 000</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>P</td>
<td>12 000</td>
<td>5</td>
<td>3</td>
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<td>Q</td>
<td>9 000</td>
<td>4</td>
<td>2</td>
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<td>R</td>
<td>7 500</td>
<td>4</td>
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<td>3 500</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>U</td>
<td>2 500</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

   (i) using the axes provided in Fig. 2 and the key (Insert), plot the number of banks and shoe shops against the population of the towns. [6]

   (ii) Which of the two services you have plotted on Fig. 2 is the higher order service? Give a reason for your answer. [2]

   (c) Fig. 3 (Insert) compares shopping journeys from the area around Towns M and N to visit department stores (large shop selling a wide variety of goods).

   What does Fig. 3 show about the pattern of these shopping journey? [4]

   (d) Why does people sometimes visit shops in more distant towns rather than those in their nearest town? [2]
Fig. 2

Fig. 3

KEY
- Towns with department stores
- Smaller settlements
- Journeys made by most of the people in the smaller settlements when visiting department stores
2. A study was made of a river channel. At various locations along the river's course, measurements were taken of the depth of the river channel and the speed of flow of the river. One section of the river's channel measured is shown in Fig. 4. This has been produced by a computer using measurements made by students during fieldwork.

![Diagram of a river channel showing depth measurements and speeds](image)

**Fig 4**

(a) (i) Use the data in Fig. 4 to state

A the maximum depth of the river channel

B the distance from the left bank to the nearest part of the channel floor where it is level

C the width of the level part of the channel floor

(ii) How would you determine in the field which is the left and right bank?

(b) (i) Fig. 4 also shows information on the speed of flow of the river. Use this data to describe the variations in river flow shown in the river channel.

(ii) Suggest reasons for your answer to (b) (i).

(c) How would you determine the depth and also measure the speed of flow at various locations across a river channel? What equipment would you use?
3. (a) Photograph A (Insert) was taken by a student during a field study of a beach along a coastline. It shows the cliff and some deposits at the head of the beach. Add labels to the photograph to locate and describe the main features of the cliff and the part of the beach shown.

(b) Explain how the height of the cliff could be measured. The cliff is inaccessible and measurement must be made from the beach. Include in your answer the equipment you would need and describe how you would use this equipment.

(c) The student picked up at random a pebble from 10 different locations on the beach. 

I the average pebble lengths (long axes) of the 10 pebbles was measured.

II a roundness value for these pebbles was calculated, using a formula.

Note
A pebble with a roundness value of 1000 would be completely round like a ball.

Fig. 5A and 5B show the results of these measurements.

(i) What do the two graphs show?

(ii) Suggest reasons for your answers to (c) (i)
Acknowledgement

The Ministry of Education acknowledges the assistance of the University of Cambridge Local Examinations Syndicate in granting permission to use resources and ideas towards the production of these specimen questions, notably Table 1, fig. 1A, 1B, 1C, fig. 2, fig. 3, fig. 4, fig. 5A, fig. 5B and photograph A.
Question 1

1. (a) (i) department stores
   few, (3)
   in CBD,
   around major road junction,
   in center of CBD.

   Banks (8)
   Mainly (five) in CBD,
   Other three along main roads,
   In suburbs.

   Shoe shops (5)
   All in CBD,
   Spread out within CBD,
   Three along main north-south road. 2 marks for each [6]

   (ii) all / mostly in CBD – need for accessibility,
        large sphere of influence
        banks lower order service than other two,
        three banks located outside CBD along main roads –
        accessibility,
        in suburbs – large number of people live,
        ? in suburban shopping areas.
        Department stores at center of CBD – need for central / focal point
        costliest land in center other services could not afford
        this location. 4 at 1 mark [4]

   (b) (i)
(ii) shoe shops
   fewer – need for a larger sphere of influence,
   shoe shops – infrequent use – specialized goods,
   banks more frequent use – convenience. 1 mark

(c) M larger sphere of influence,
    longer journeys to Town M,
    Town M journeys to east limited by coastline,
    some competition / overlap,
    M has the longer attraction. 4 at 1 mark

(d) maybe larger town – more choice,
    more variety,
    higher order goods,
    combine shopping with other reasons for visiting town. 2 at 1 mark
Question 2

2. (a) (i) A 3 metres
B 2 metres,
C 2 metres. 3 at 1 mark [3]

(ii) back to source / face downstream,
left bank on left / right on right. 2 at 1 mark [2]

(b) (i) highest velocity – at surface and below surface,
nearer to right bank,
away from bed and banks,
slowest – near bed,
and especially to shallow water near left bank 5 at 1 mark [5]

a friction where water touches or is close to bed and banks,
large wetted perimeter – sow flow,
slowest flow – shallow water
and especially in shallow water near left bank. 5 at 1 mark [4]

(c) depth – rope across river channel with ties every metre,
string with weight / ruler,
use string / ruler to measures from surface to bed,
measure wetted string (if used) against ruler. Reserve 3 at 1 mark

Speed – range poles,
Tape,
Flowmeter / float – orange / feather / twig etc.
Stop watch,
Measure distance,
Timing – how long for float to travel this distance,
Repeat – different points across channel,
Find average. Reserve 3 at 1 mark

Additional mark for depth / speed 2 marks [8]

3. (a) Steep cliff,
notch,
bedding in cliff face,
thicker beds alternate with thinner beds / hard – soft
overhang beds,
joints,
cliff fall/
large rocks accumulated at base of cliff/scree
beach material at base,
smaller beach material / pebbles away from base of cliff. 6 at 1 mark [6]

(b) (1) chain / measuring
(2) clinometer
(3) measure distance from cliff to observation point on beach and reading of
angle on clinometre
(4) cliff height = distance x tan (angle),
+ height of person using instrument from ground. [4]
(c) (i) average pebble length increases towards cliff, roundness increases towards the sea. 2 marks

(ii) more attrition of beach material nearer to the sea, upper part of beach probably not covered by high tide, new material at top of beach from cliff erosion 2 marks [4]